

DRAFT v0.6

**Kent and Medway
Stroke Review
Decision Making Business Case**

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Executive summary

Chapter 1: Introduction

This chapter describes the work that has been done in Kent and Medway 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. This Decision Making Business Case (DMBC) sets out the information necessary for the JCCCG to make informed decisions about the future configuration of stroke services in Kent and Medway, following public consultation on proposed changes

Chapter 2: 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.

Chapter 3: Clinical 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. Substantial work has also been completed on the care model for stroke rehabilitation services and a business case for the development of these services will be completed in Spring 2019. The model of care will be supported by the development of key enablers such as workforce, estates and digital. The NHS South East Clinical Network Stroke Service Specification has been adopted as the minimum standard for the stroke workforce at each HASU/ASU.

Chapter 4: Shortlisting options for consultation

This chapter details the process that was undertaken in order to arrive at a shortlist of options for consultation and the feedback from consultation on this process:

- **Development of the options:** details 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 proposed the creation of specialist hyper acute and acute stroke units in Kent and Medway. It was agreed that these units should be based in

one or more of the hospitals in Kent and Medway that currently provide acute stroke services (Darent Valley Hospital, Kent and Canterbury Hospital, Maidstone Hospital, Medway Hospital, Queen Elizabeth the Queen Mother Hospital, Tunbridge Wells Hospital and William Harvey Hospital), due to the co-dependencies with other services. Stakeholders were fully engaged throughout the development of the options for where these units will be located.

- **Options appraisal (medium list):** details 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.
- **Evaluation of the options (shortlisting):** describes the detailed evaluation that was done on the medium list of 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:
 - Option A. Darent Valley Hospital, Medway Hospital, William Harvey Hospital
 - Option B. Darent Valley Hospital, Maidstone General Hospital, William Harvey Hospital
 - Option C. Maidstone General Hospital, Medway Hospital, William Harvey Hospital
 - Option D. Tunbridge Wells Hospital, Medway Hospital, William Harvey Hospital
 - Option E. Darent Valley Hospital, Tunbridge Wells Hospital, William Harvey Hospital

These options gave 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 was 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.

Chapter 5: Public consultation

This section describes the public consultation on the five shortlisted options that took place between 2 February and 20 April 2018 (11 weeks). A wide-reaching consultation was delivered which fully met its objectives as set out in the consultation plan published as part of the pre-consultation business case (PCBC). The consultation activity was comprehensive, reaching in excess of 2 million people, and generating over 5000 responses to the consultation. Awareness-raising and promotion activity included:

- the distribution of 15,000 consultation documents and 35,000 summary documents to around 850 locations
- Information cascaded to 43,500 health and social care staff
- A nine-week paid-for advertising campaign
- A telephone survey across Kent and Medway
- An online consultation questionnaire
- 28 public listening events
- Attendance at public meetings and events
- Outreach work with seldom heard groups.

The responses to the consultation were collated and independently analysed. The key themes that emerged include:

- people agreed with the proposal to establish HASU/ASUs in Kent and Medway;
- people understood that current services are not good enough and are not on a par with other areas of the country;
- people generally agreed it is better to be treated by specialists and that HASU/ASUs would improve access to specialist care;
- many people understood the reasoning behind having three units in the area; and
- there were concerns about the proposals, particularly travel times to the new HASU/ASUs and the location of the HASU/ASUs.

The consultation activity and responses were carefully considered by the JCCCG and JHOSC to make sure that statutory responsibilities had been fulfilled and that the responses to the consultation had been properly addressed. The JCCG agreed that no new evidence or viable alternative models had been put forward and that plans to establish a HASU/ASU on three sites in Kent and Medway could proceed. It was also agreed that the issues raised around travel times for carers and access for deprived populations would be considered as part of the development of the DMBC and during implementation.

Chapter 6: Identifying the preferred option

This chapter describes the process undertaken to identify a preferred option for service change. The evaluation of the remaining options weighed the pros and cons of each option in order to decide which is the most favourable overall and should therefore be implemented. The evaluation criteria and methodology were first reviewed and updated following feedback from consultation and some small amendments were made. Following extensive review of the evaluation data, discussion of anonymised evaluation matrix and consideration of the de-anonymised options, a workshop of key stakeholders came to a unanimous consensus that **the recommended preferred option should be Option B (Darent Valley Hospital, Maidstone General Hospital, William Harvey Hospital)**. This was because it evaluated most strongly across quality, access, workforce, implementability and value for money.

Chapter 7: Assuring the preferred option

This chapter describes the external assurance and scrutiny that the Stroke Review has undergone to ensure that the proposals are robust. The Stroke Review has sought to exceed its obligations in meeting the statutory requirements and assurance that accompany any major change to NHS services. The clinical proposals have been reviewed at three stages by the South East Coast Clinical Senate (an independent panel of senior clinicians) and the recommendations of these reviews have been incorporated into the proposals. 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. This included a review of the proposals by the national Investment Committee in January 2018. The Stroke Review has met the four tests and three conditions for reconfiguration set out by the Secretary of State and CCGs have complied with their duties under the Equalities Act 2010.

Chapter 8: Assessing the implications of the recommended preferred option

This chapter details the implications of the recommended preferred option on quality, activity, travel and access, equalities, workforce and finance. 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. There will be a combined HASU/ASU unit at Darent Valley Hospital (34 beds), Maidstone General Hospital (38 beds) and William Harvey Hospital (52 beds), with a small outflow to

Eastbourne General Hospital (4 beds). There will be no acute stroke services at Medway Hospital, Tunbridge Wells Hospital, Queen Elizabeth the Queen Mother Hospital and Kent & Canterbury Hospital. Robust protocols will be put in place to transfer any patient at a hospital without a HASU/ASU who is suspected of having a stroke.

There will be an increase in specialist stroke staff including an estimated xx additional consultants, xx additional nurses and xx additional therapists and an opportunity for more nurses and allied health professionals to become stroke specialists ([DN to be added]). Significant work has been undertaken to understand and address the concerns of all staff current working in stroke services in Kent and Medway. Some patients will have to travel further for the urgent aspects of their stroke care, but no more than 63 minutes, and consolidating hospital stroke services will save lives and reduce disability. [DN: line to be added on financial implications].

An integrated impact assessment (including an equalities impact assessment) was undertaken in September 2018 on the preferred option. This showed that people from the most deprived quintile will be disproportionately impacted by the proposed changes in terms of travel and access, compared to the general population. However, the positive health impacts from the proposed changes, including improved clinical outcomes, are likely to also be experienced disproportionately by this group due to their higher likelihood to require stroke services. Therefore, the impact of increased travel times will be felt by visitors and carers who will need to travel further to visit patients, and mitigations have been developed to address this issue.

Chapter 9: Implementation plan

This chapter details the implementation plan for the recommended preferred option. The local ambition is to implement the new services as quickly as possible whilst ensuring that quality and patient safety are not compromised. After considering the constraint around capital and workforce in detail, clinicians concluded that a two-step approach to implementation would be the most effective. This means the HASU/ASUs at MGH and DVH would go live in March 2020 followed by WHH in Spring 2021. Key implementation activities have been agreed for workforce, operations, estates, finance, project management and communications workstreams and a proposed programme plan has been developed. The current governance arrangements will evolve for the implementation phase, with the establishment of a Stroke Review Implementation Board including providers and commissioners. A clinical lead will be appointed across Kent and Medway and a senior clinician will oversee the changes at each site. Maintaining quality and workforce have been identified as the highest risk areas and mitigations have been agreed. A communications and engagement plan has also been developed.

Chapter 10: Benefits of the proposed changes

This chapter describes the benefits that are expected to be achieved as a result of implementing the recommendations. The benefits have been developed by clinicians in line with the clinical standards that underpin the proposals for clinical change and have been discussed with patient representatives and reviewed against changes that have taken place elsewhere. The main areas of benefit expected to be delivered by the reconfiguration of stroke services are:

- 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

Plans have been made to monitor progress against the benefits and the set of measures that the programme will focus on. This includes an ambition to achieve a SSNAP A rating at all three units within 6 months of launching the HASU/ASUs.

Chapter 11: Conclusion and recommendations

This chapter outlines the decisions that need to be taken by the JCCCG to determine the final configuration of stroke services across Kent and Medway and the expected timeline for decision making.

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1 Introduction

1.1 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.

1.2 Introduction to Kent and Medway 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 2015¹. 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 View², 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.

1.3 Overview of Stroke Review and purpose of document

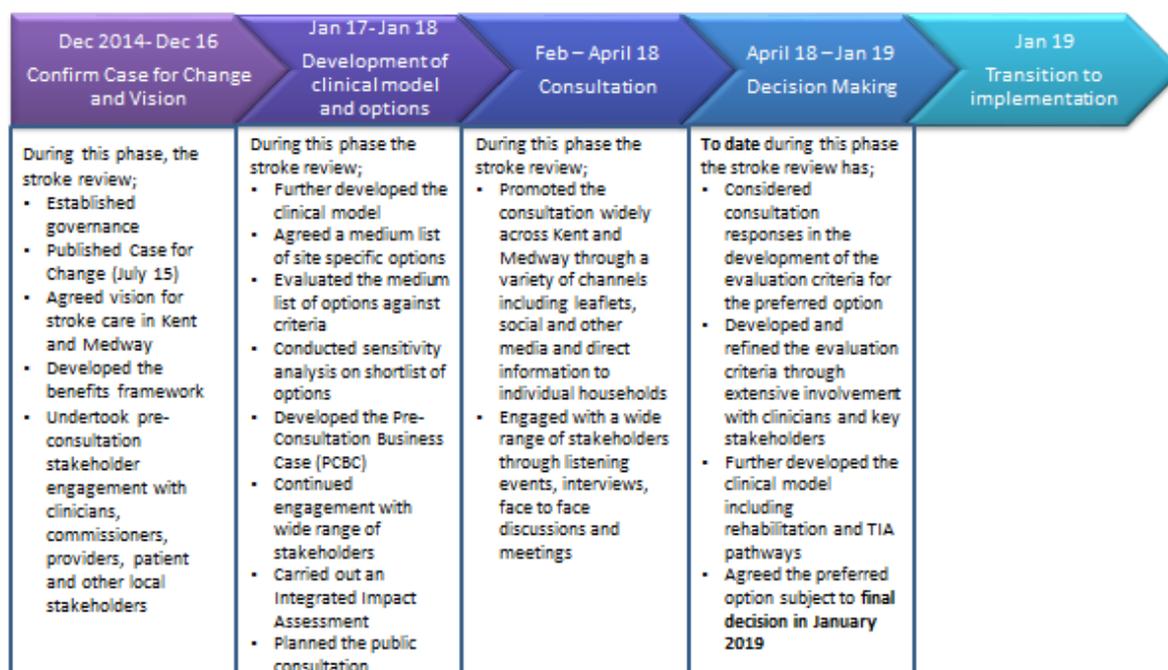
1.3.1 Overview of Stroke Review timeline

The Stroke Review has been a five-step process which started in December 2014 with planned implementation of changes from January 2019. 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** (February 2018 to April 2018): public consultation including extensive stakeholder engagement across the affected population.
- **Decision-making** (April 2018 to January 2019): consideration of the feedback from consultation and decision-making on the recommended option to implement following engagement and consultation.
- **Transition to implementation** (planned January 2019 onwards): implementation of the agreed option.

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

Figure 1: high-level Stroke Review timeline



1.3.2 Governance arrangements

The CCG Governing Bodies, through a **Joint Committee of Clinical Commissioning Groups (JCCCG)** will make the final decision on the Stroke Review. 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

- **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 been in place to co-ordinate 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 needed 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.

1.4 Purpose and scope of DMBC

The decision-making business case (DMBC) is a technical and analytical document that sets out the information necessary for the JCCCG to make informed decisions about the future configuration of stroke services in Kent and Medway, following public consultation on proposed changes. It sets out the robust process of evaluation that has been undertaken to identify proposals for change, the findings from the public consultation process and how the programme has responded, the preferred option and the implications of this option. The document includes:

- The vision, case for change and clinical model
- The decision-making process including the response to public consultation and the process undertaken to arrive at a preferred option
- The implications of the preferred option in terms of activity, equalities, travel and access, finance, capital, estates and workforce
- The benefits that will be realised and how they will be assessed and measured
- The next steps to support implementation and how clinical safety will be maintained in the transition period.

The DMBC is a published document but it is not intended to be the main mechanism through which Stroke Review is explained to the public. Further information on planned communications and engagement during implementation can be found in Section 9.5. Further Stroke Review documentation and information can be found on the website at <http://kentandmedway.nhs.uk/stp/>.

2 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 avoidable deaths. 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. During consultation, there was broad agreement from respondents of the case for change. 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. This version of the case for change was updated and published in February 2018 as part of the Pre consultation Business Case. The stroke case for change is available at Appendix B 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 C.

2.1 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 people³ 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 stroke⁴.

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 year⁵.

2.2 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)⁶ 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 million⁷ and this is projected to increase to 2.2 million people by 2031 due to the aging population and people moving into the area⁸. 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 3. 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)⁹.

Figure 3: stroke and atrial fibrillation prevalence, population and deprivation**Stroke and atrial fibrillation prevalence, population and deprivation by CCG**

	West Kent CCG	DGS CCG	Medway CCG	Swale CCG	Ashford CCG	Canterbury and Coastal 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 obesity¹⁰ 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 average¹¹.
- **Obesity:** obesity is a major cause of many diseases including stroke and, on average, obesity deprives people of an extra nine years of life¹². Obesity is a serious and growing problem and the number of people admitted to hospital because of obesity tripled from 2006/7 to 2011/12¹³.

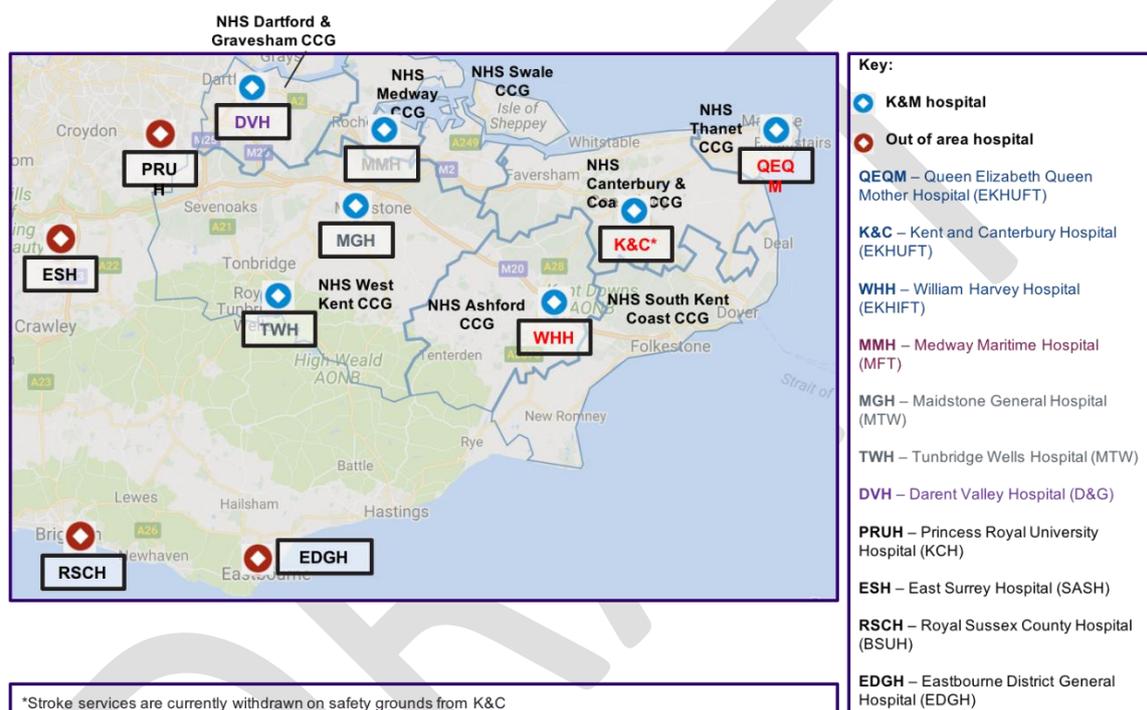
Over the next five years in Kent and Medway the number of people with major health problems are projected to increase significantly, and, if there were no further lifestyle changes or interventions from public health and primary care, the number of people living with cardio vascular disease would increase by 24,000 (from 176,000 to 200,000)¹⁴. However, evidence shows that the incidence of stroke is reducing nationally¹⁵ 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 those optimally treating high risk atrial fibrillation patients could avert 470 strokes within 3 years¹⁶. Initiatives already underway in Kent and Medway are shown in Section 3.3.1 and have been aligned with the Joint Strategic Needs Assessments.

2.3 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)¹⁷. An average total of 3,010 (updated to 3,054 for the DMBC analysis – details in Appendix D) 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 year¹⁸. This is shown in Figure 4. There are also variable rehabilitation provision and early supported discharge services available.

Figure 4: providers of hospital stroke service in Kent and Medway

Location of hospital stroke services



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 E.

There are 154 beds for stroke patients in Kent and Medway. The breakdown of these beds by site is shown in Figure 5 (please note that the updated bed numbers for 2017/18 shown in Appendix F show 153 beds which is 1 fewer than 2016/17 – this is due to changes in the catchment area for the PRUH which results in fewer modelled beds).

Figure 5: stroke beds in Kent and Medway, by site

Number of stroke beds available to K&M patients

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 ring-fenced stroke beds available to Kent and Medway patients (please note that the number of modelled beds at the PRUH in the 2017/18 update is 8 due to refreshed activity data and changes in the catchment areas – see Appendix F for further details).

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 (please note that the number of modelled beds in the refreshed activity data is 132 beds due to refreshed activity data and changes in the catchment areas – see Appendix F for further details).

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 are variable and not all are dedicated to stroke patients. The multi-disciplinary team approach also differs across the sites.

2.4 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,¹⁹:

- 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 hospital¹.
- 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)²⁰ for many years with a range of achievement across the region (see Appendix G 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 6.

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 6: Kent and Medway provider performance against SSNAP standards²¹

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 week² OOH rota is networked across 3 sites with the use of telemedicine; rota is fragile given combined contribution to HCOOP rota simultaneously³ Do not meet national guidelines

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

The evidence²² 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.

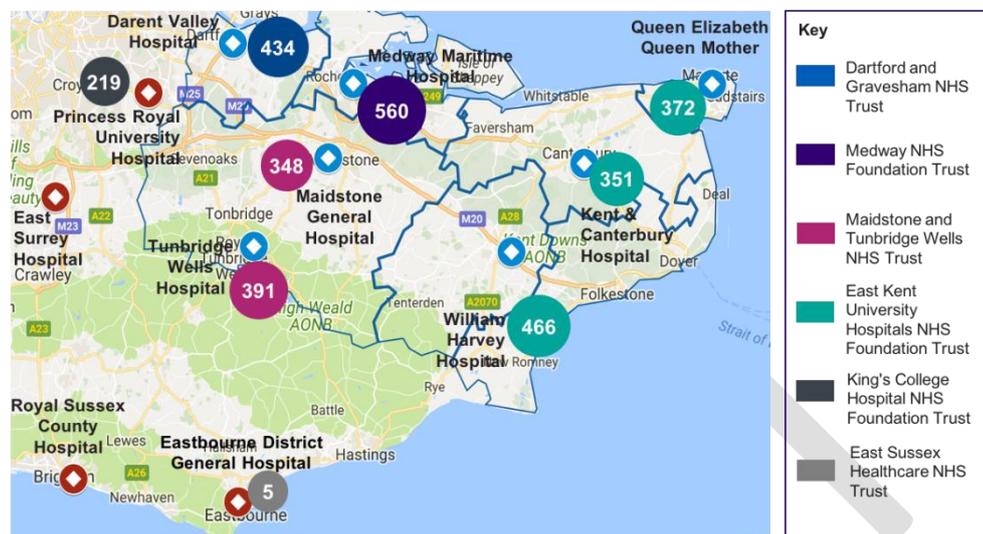
The current poor performance against quality standards means that no hospital stroke service in Kent and Medway receives the full Best Practice Tariff (an additional payment for meeting a sub-set of the targets). This leads to a cost pressure for providers if they try to deliver 7-day services.

2.4.1 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 year²³. Six of the seven hospital stroke services currently see, on average, fewer than 500 confirmed stroke patients per year, as shown in Figure 7.

Figure 7: hospital stroke activity in hospitals in Kent and Medway²⁴

In 2016/17 there were 3,146 confirmed strokes in the Kent and Medway catchment area



SOURCE: Provider data returns (16/17) for K&M sites; PRUH SUS data 2016/17; Camall 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

2.4.2 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 8.

Figure 8: gap in stroke consultants required to run a 24/7 consultant-led service on 7 sites²⁵

[DN: cross-reference with section 8.5.4.1]

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 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 data²⁶ showing 40% of all stroke consultant posts across the country are vacant.

2.4.3 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 days²⁷. This is higher than has been achieved in areas which developed hyper acute stroke units²⁸.

2.4.4 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.

2.5 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.

DRAFT

3 Clinical vision for the future

The vision is to improve patient outcomes by delivering 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.

3.1 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

3.2 Ambition for stroke services

For **hospital stroke services**, the 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 2007²⁹;
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 several benefits for patients, as shown in Section 10 including:

- More people will survive a stroke
- Improved quality of life and independence 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 2) 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 most 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.

3.3 The stroke pathway

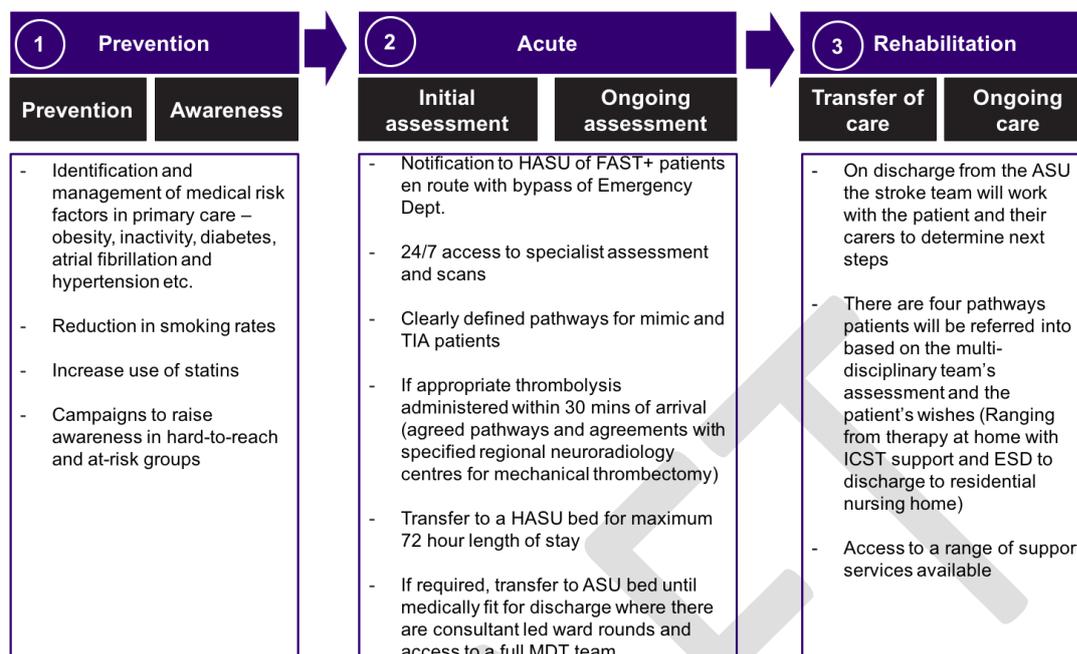
Although this DMBC focuses on the consolidation of hospital stroke care through the development of HASUs/ASUs, the commitment is to ensure that improvements are achieved across the **whole pathway**. The stroke pathway can be separated into three sections, as shown in Figure 9:

- **Prevention:** supporting people to follow healthy lifestyles and reducing the numbers of people who are at risk of, or experience, a stroke.
- **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.
- **Rehabilitation:** rehabilitation following a stroke to give the highest quality of life possible in a setting of care as close to home as possible. Rehabilitation should start on day 1 of a stroke.

The focus of this DMBC is on the urgent (acute) part of the stroke pathway and the most detail is given on this in this document. However, it is recognised that in order to achieve the very best outcomes for patients, effective and comprehensive stroke rehabilitation is essential. Section 3.4 details the work being undertaken to ensure an improvement in stroke rehabilitation services in Kent and Medway.

Figure 9: the full stroke pathway

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

3.3.1 Prevention

Although the focus of this DMBC is on hospital stroke services, it is acknowledged that the prevention of stroke is a key priority for local services. The 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 several initiatives to improve public health and help prevent strokes, particularly by targeting smoking and obesity. These initiatives are shown in the following table.

Required initiatives	Current initiatives in progress
Reduction in smoking rates	<ul style="list-style-type: none"> • Ensure smoking advisors located in each of the acute trust sites across Kent and Medway • All acute and community trusts and the mental health trust to be smoke free across Kent and Medway • GPs and other health professionals are encouraged to develop routine CO monitoring and encourage smoking cessation services for patients. • Introduce Very Brief Advice for smokers to be delivered by health care professionals and incorporating asking and recoding smoking status, advice on the best way of quitting and offering referral to specialist support and the prescription of medication if appropriate. • Use Making Every Contact Count (MECC) or similar programme(s) to ensure all pregnant women are CO monitored and referred to smoking cessation services when needed. • Use MECC or a similar programme to raise awareness of the harms of smoking in pregnancy and develop routine CO monitoring in clinical settings followed by referral to smoking cessation services where required. • Implement smoke-free school gates and measure the number of schools with smoke-free policies. • Roll-out of Kent and Medway smoking cessation campaigns based on behavioural insight work, collaborating with partners
Improvements in diabetes detection and care	<ul style="list-style-type: none"> • Prevent the onset of type 2 diabetes in people at risk of the condition, including a full rollout of the Diabetes Prevention Programme (DPP) and an increased marketing of the service • Improve the prevention and management of those with diabetes • Improve the management of type 2 diabetes, increasing proportion of patients with optimal treatment to national good practice levels
Better identification and management of high blood pressure and atrial fibrillation	<ul style="list-style-type: none"> • Case management targets achieved for example: • Increase the number of patients diagnosed with hypertension, increasing the completeness of hypertension registers • Improve the care of those already diagnosed with hypertension, supporting adherence to treatment and lifestyle by increasing self-monitoring of blood pressure (% of patients on QOF hypertension register) • Improve the detection of atrial fibrillation (AF) to match that of comparator organisations • Improve the care of those already diagnosed with atrial fibrillation, such as offering anticoagulants to those who would benefit • Increase the uptake of NHS Health Checks in Kent and Medway, specific focus on hard to reach communities and individuals with severe mental health illness

Required initiatives	Current initiatives in progress
	<ul style="list-style-type: none"> • Liaise with NHS England and CCG's to increase uptake of Learning Disability health checks (and appropriate intervention) to reduce modifiable risk factors across Kent and Medway
<p>Primary prevention initiatives to address obesity and increase physical activity</p>	<ul style="list-style-type: none"> • Public health professionals to work with appropriate clinicians within specialist teams to implement routine process of obesity related subjects being discussed, recorded and reported within routine treatment • Adopt a whole systems approach to tackling obesity, addressing the obesogenic environments and lack of physical activity across adults and children • All NHS and care sites to become healthy settings with changes to food offer, placement and pricing. • Explore ways of working with environmental planning colleagues to reduce obesity and overweight • All NHS and care sites to support physical activity for staff, patients and visitors • Scale up existing Tier 2 weight management for adults across Kent and Medway • Ensure equity of access for residents for Tier 2 weight management services for children and families across Kent and Medway • Scale up existing Tier 3 weight management for adults across Kent and Medway • Implement Tier 3 weight management for children across Kent and Medway with a multi-disciplinary team • Develop referral pathways with both primary and secondary care services to ensure that people are referred to appropriate services • Develop a care pathway within the school public health and health visiting services in line with their contractual obligations • Promoting healthy eating, physical activity and healthy weight campaigns to the public and professionals, reinforcing messages of how to achieve a healthy weight • Support all appropriate and community sites to achieve the highest standard of UNICEF Baby Friendly accreditation and implement a range of evidence based infant feeding initiatives • Work with schools, pre-schools and employers to ensure settings promote physical activity when they can and develop a whole food approach • Support children and adults to achieve basic physical literacy skills and develop home cooking skills and confidence • Identify and/or develop a range of digital support solutions (such as apps) that can support people to lead healthier lives and promote these services to residents

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.

3.3.2 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 practice³⁰. 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 this³¹. 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 days³².

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 which increases their length of stay. 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 are³³:

- 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 enough 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 units³⁴:

- 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 hours²
- 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

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

- 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.

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 mins³⁵.

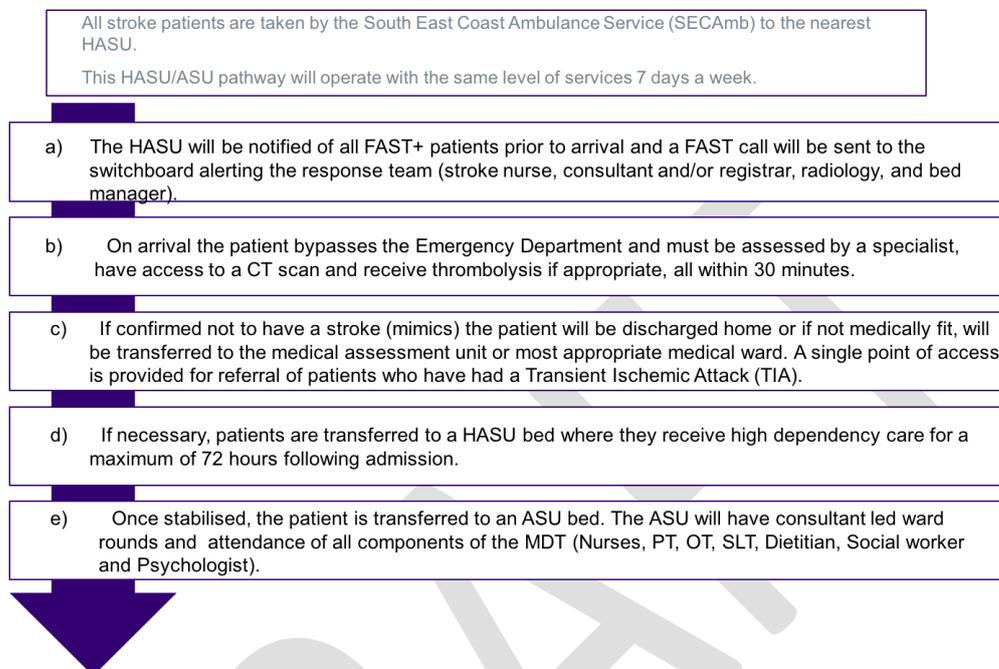
Clinicians are clear that hyper acute and acute stroke units should be delivered to a high standard regardless of the day of the week. Hospitals need to provide 7-day services such as diagnostics and therapies where they have traditionally been a Monday to Friday service or on call for emergency patients. 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 stroke³⁶. Successful stroke units are built around a stroke-skilled multi-disciplinary team that can meet the needs of individuals.

3.3.3 Hospital stroke pathway

Clinicians have agreed a hospital stroke patient pathway for Kent and Medway, which is shown in Figure 10. This will comply with the 2016 National Clinical Guideline for Stroke from the Royal College of Physicians³⁷.

Figure 10: hospital stroke pathway for Kent and Medway

Model of care



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

In more detail:

- 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 manager).
- 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 care³⁸. 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 HASU⁴. 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

³ **FAST** is an acronym used as a mnemonic to help detect and enhance responsiveness to stroke victim needs. The acronym stands for Facial drooping, Arm weakness, Speech difficulties and Time to call emergency services.

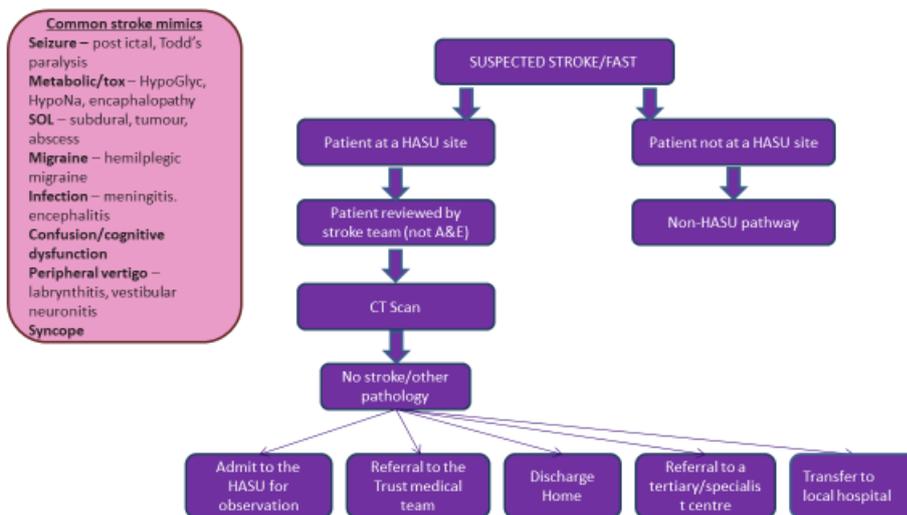
⁴ Kent and Medway have adopted a standard of 120 minutes call to needle (thrombolysis) per the guidance in NHS South East Clinical Networks, Stroke and TIA Service and Quality Core Standards, 2016

remoteness of some places in Kent and Medway, this service may be developed locally in the future. A thrombectomy pilot has been approved in East Kent and the outcome of this pilot will inform any future thrombectomy business case (further details are shown in Appendix H. 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. 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.
 - i. **Mimics:** if the condition does not require further hospital care, the patient will be discharged with appropriate follow-up care in the patient’s local hospital. 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 have agreed a pathway of care (shown in Figure 11Figure 14) for these mimics, which will be developed in more detail as part of the implementation of the proposals.

Figure 11: pathway of care for mimics

Stroke mimic pathway

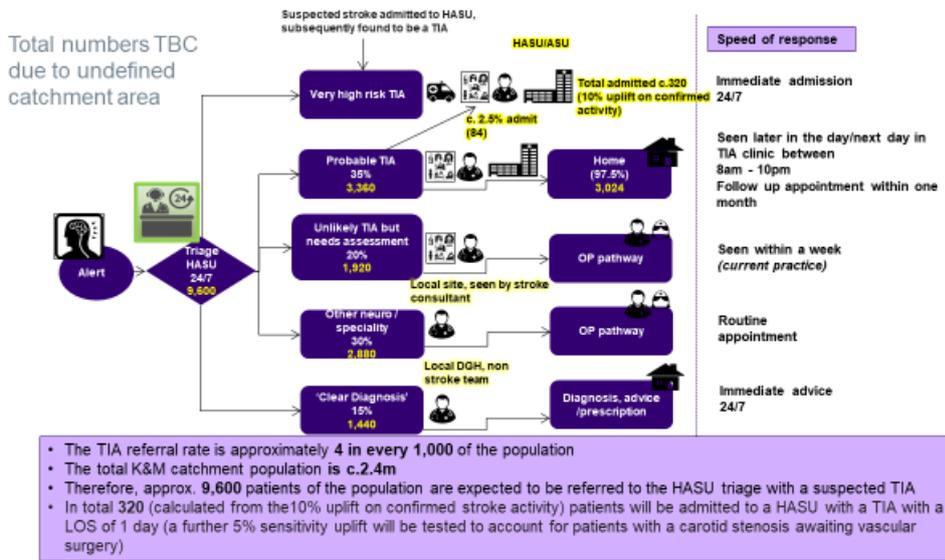


Source: Clinical Reference Group

- ii. **TIA pathway:** clinicians in Kent and Medway have agreed a TIA pathway based on National Institute of Clinical Excellence (NICE) guidelines³⁹. The full TIA patient pathway is shown in Figure 12.

Figure 12: transient ischemic attack (TIA) pathway

TIA pathway with activity numbers

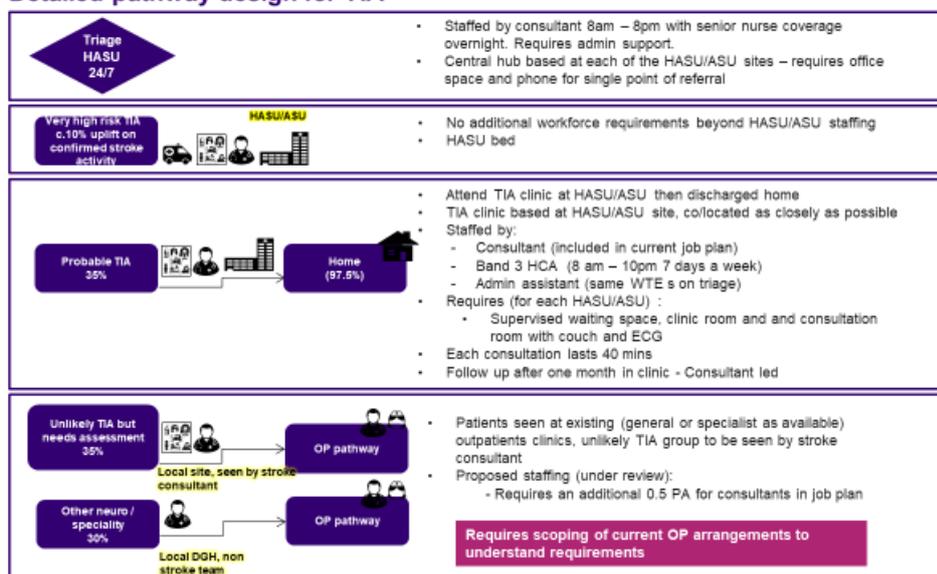


SOURCE: Agreed by the Clinical Reference Group 1/12/17 based on National Institute of Clinical Excellence (NICE) guidelines

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 9,600 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 3,360 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; 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. The proposed staffing arrangements are shown in Figure 13.

Figure 13: detailed pathway and workforce for TIA

Detailed pathway design for TIA



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 like 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 to⁴⁰:

- 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 week⁴¹. 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 like a ward with access to rehabilitation space. In line with the national guidance the acute stroke unit will provide⁴²:

- 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

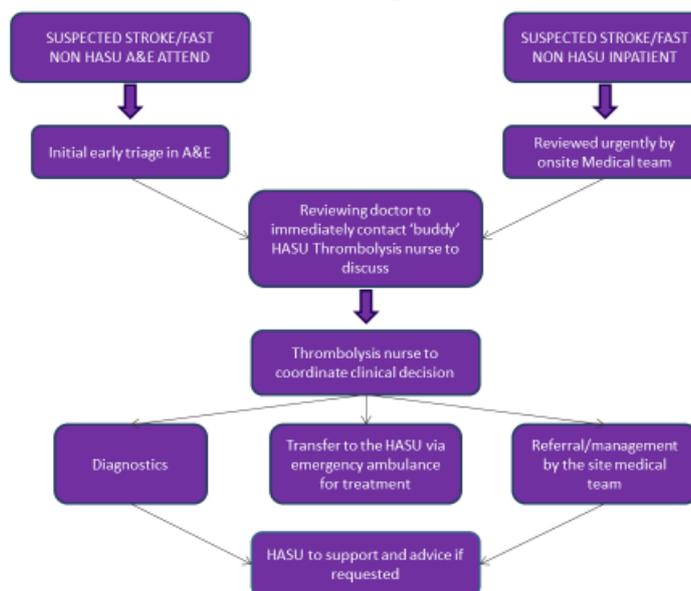
Patients on the ASU will have continuous access to a consultant with expertise in stroke medicine, with consultant review 7 days per week. There will be attendance of all components of the multi-disciplinary team (nurses, physiotherapists, occupational therapists, speech and language therapists, dietitians, orthoptics, 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.

3.3.4 Pathways between HASU/ASU and non-HASU/ASU sites

If potential stroke patients arrive at hospital sites without a HASU/ASU, or they have a stroke as an inpatient at a non HASU/ASU site, they will be immediately transferred to the HASU/ASU site by ambulance under the care of the critical care team with remote support provided by the HASU/ASU site. Clear protocols and procedures will be in place between the hospital sites to facilitate the immediate care and fast transfer of the patient. Clinicians have agreed a pathway of care (shown in Figure 14) for these patients, which will be developed in more detail as part of the implementation of the proposals.

Figure 14: pathway of care between HASU/ASU and non-HASU/ASU sites

Pathway for suspected stroke patients arriving at non-HASU/ASU



Source: Clinical Reference Group

3.3.5 End of life care in hospital

On occasion, stroke patients will be on an end-of-life pathway whilst in hospital. Each provider already has agreed end-of-life pathways for these patients and clinicians agreed that these pathways would continue to be used as part of the new model of care.

3.3.6 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 therapies⁴³. This is shown in Figure 15.

Figure 15: co-dependencies for a hyper acute and acute stroke unit

Co-dependencies between services

Service should be co-located in the same hospital	Service should come to patient (patient transfer not appropriate), but could be provided by visiting/inreach from another	Ideally on same site but could alternatively be networked via robust emergency and elective referral and transfer protocols
Emergency medicine	Nephrology	Medical Gastroenterology
Acute and General Medicine	Palliative Care	Ophthalmology
Elderly Medicine	Neurology	General Surgery
Respiratory Medicine	Speech and Language	Trauma
Urgent GI Endoscopy	Dietetics	Orthopaedics
Critical Care (adults)		Hub Vascular Surgery
Gen Anaesthetics		Neurosurgery
Acute Cardiology		Critical Care (paediatric)*
X-ray and diagnostic ultrasound		Acute Stroke Unit
CT		Inpatient dialysis
MRI		Acute Paediatrics
OT		Nuclear Medicine
Physio		IR
Acute (Liaison) Mental Health		Clinical and lab microbiology
		Urgent diagnostic haematology
		Acute inpatient rehabilitation

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

3.4 Community rehabilitation

3.4.1 Importance of community rehabilitation

People who have survived their initial stroke and stabilised are either transferred from the HASU, or the ASU to community stroke rehabilitation services. The aim of stroke rehabilitation is to support the stroke survivor to overcome and adapt to their physical, mental and social complications which have been adversely affected by stroke.

Whilst this DMBC focuses on acute stroke services, it is recognised that acute stroke services need to be supported by robust community provision, delivered locally for people with stroke and their families. It is also recognised that provision of out of hospital capacity is a vital part of the sustainable delivery of an HASU/ASU in order that patient flow is maximised and maintained.

Work has therefore taken place to develop plans for comprehensive and equitable community rehabilitation services, which will be delivered locally and will support the implementation of HASUs. This is being progressed by a Rehabilitation Working Group, led by a clinical lead currently being identified, which reports to the Stroke Clinical Reference Group, as shown in Section 1.3.2. This group includes a range of people from across health and social care plus patient representatives. It is expected that a rehabilitation business case will be presented to CCGs in spring 2019 to ensure standardisation of provision across the K&M.

3.4.2 Feedback from consultation and engagement with stroke survivors

Feedback from consultation identified a strong desire among the public, staff and stakeholders to ensure that adequate rehabilitation services are in place at the same time as HASU/ASUs come into operation. At the Kent and Medway Joint Health Overview and Scrutiny Committee meeting in September, the Kent and Medway Stroke Review Team committed to carrying out further engagement with patients and the public on stroke rehabilitation services to get their views before any plans are finalised. The aim of the engagement work will be to ensure that the views of stroke survivors, their carers and the wider public are considered in the localisation of the model and in the development of the service specification.

The Stroke Review Team have met with stroke survivors, facilitated by the Stroke Association, to discuss their experiences of rehabilitation services, and further sessions with stroke survivors are planned in late 2018 and early 2019, to coincide with the ongoing development of rehabilitation services. The feedback received so far has identified:

- Stroke survivors and their carers were, overall very positive about their experience of their acute care and specialist inpatient rehabilitation services.
 - People said that the immediate care they received on the acute ward was fantastic, with all staff clearly doing their best. They felt well cared for, safe and supported.
 - However, some also described how acute hospitals had not had enough rehabilitation staff to see them quickly, describing how they had waited 2 to 3 days for speech and language assessment on the ward.
 - Some people describe that they felt they had been discharged from hospital too soon, and 'left' at home to get on with things when they didn't feel ready.
 - There was a great deal of support for specialist inpatient rehab units. Specifically, people said they felt the timetabled approach to rehabilitation was beneficial because it gave structure and purpose and helped survivors to make good progress.
 - Carers also highlighted how inpatient rehabilitation settings were particularly good at involving them in the rehabilitation work, which they found helpful in getting a better understanding of the rehabilitation programme and how they could help the person they were caring for.
- There was consistent feedback that while rehabilitation was great while it lasted, patients and carers felt that they had been allocated a fixed number of sessions, regardless of their personal need.
 - Some said that because their stroke was considered 'minor' they felt didn't get as much support, despite it being a life changing experience for them.
 - Some stroke survivors and carers said they had decided to fund additional rehabilitation sessions with, for example, a speech and language therapist, because they felt they had not had the opportunity to make all the progress they could within their allocated sessions.
 - Many said they would have liked their rehabilitation to have gone on for longer and for it to have happened at greater intensity.
 - Some also said they had waited a long time to get the rehabilitation they needed.

- People said that there can be challenges liaising with multiple organisations to arrange things like respite care and changes to individuals' homes to help with independent living.
- Stroke survivors highlighted the importance of psychological support and social rehabilitation. People described that although they were offered psychological support in hospital, they felt they didn't always get as much psychologic support as the would have liked after going home.
- Some people said that while rehabilitation at home would be helpful, there was concern that only providing rehabilitation at home could become isolating. There was support for rehabilitation hubs in the community where stroke survivors and their carers would be able to meet each other, as well as get rehabilitation, information, support and advice from professionals.
- People said that six-month reviews appeared to be informal and would be better if they were more organised.
- Stroke survivors and their careers highlighted the importance of helping people access information about what support is available.

3.4.3 Standards for community rehabilitation

There exist clear standards for the provision of stroke rehabilitation, including the National Stroke Strategy (2007)⁴⁴, NICE quality standards⁴⁵, Commissioning Support for London and the Royal College of Physician; the latter have published several commissioning guides in relation to both the acute and post-acute elements of good stroke care⁴⁶.

The National Stroke Strategy and the NICE clinical guideline for stroke rehabilitation detail several quality markers for post-acute stroke care. These include:

- After stroke, people should be offered a review of their health, social care and secondary stroke prevention needs, typically within six weeks of leaving hospital, before six months have passed and then annually. This will ensure it is possible to access further advice, information and rehabilitation where needed.
- Offer initially at least 45 minutes of each relevant rehabilitation therapy for a minimum of five days per week to people who can participate, and where functional goals that can be achieved.
- If more rehabilitation is needed at a later stage, tailor the intensity to the person's needs at that time.
- Return-to-work issues should be identified as soon as possible after stroke, reviewed regularly and managed actively
- Carers of patients with stroke are provided with a named point of contact for stroke information, written information about the patient's diagnosis and management plan, and enough practical training to enable them to provide care.
- Review the health and social care needs of people after stroke and the needs of their carers at 6 months and annually thereafter. These reviews should cover participation and community roles to ensure that people's goals are addressed.

Clinicians agree that by following these standards, stroke rehabilitation is effective. However, this does rely on a clear model of care being in place for stroke rehabilitation, which allows for needs based care to be provided to each patient.

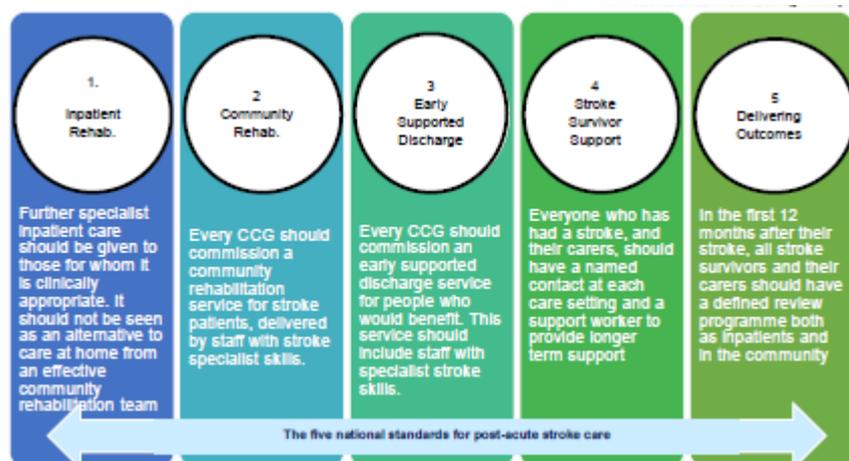
There are three types of stroke rehabilitation, as shown in the following table.

Type	Detail
Early Supported Discharge (ESD)	<ul style="list-style-type: none"> • National evidence has shown that ESD services delivered by multidisciplinary teams can significantly reduce the length of acute hospital stay and improve long-term outcomes for patients with mild to moderate stroke. • Aimed to provide patients with rehabilitation at home at the same intensity of inpatient care. • Designed to improve transfer of care arrangements, offer patient choice, deliver efficiencies in acute bed usage and deliver improved clinical and wellbeing outcomes.
Community Stroke Rehabilitation (CSR)	<ul style="list-style-type: none"> • Patients who are ready for discharge but deemed unsuitable for ESD are often referred to a CRS. • Provides needs-led rehabilitation within the home environment to maximise functional ability and independence and facilitate reintegration in the community. • The community rehabilitation team is multi-disciplinary and assesses the stroke survivor's needs (where possible with family and/or carers) and develops a treatment programme with the stroke survivor.
Inpatient Rehabilitation (IR)	<ul style="list-style-type: none"> • Patients who require further non-acute care after their condition has stabilised are treated in specialist stroke rehabilitation units. • NICE describes these units as “an environment in which multidisciplinary stroke teams deliver stroke care in a dedicated ward which has a bed area, dining area, gym, and access to assessment kitchens.” • Delivered by a multi-disciplinary team. • Typically, stroke survivors follow an individually tailored programme based on goals set by the survivor and their family and carers. This helps those for whom it is appropriate get back to work or other meaningful activity.

A patient's journey through the stroke pathway will vary according to the nature and severity of their individual needs. Some patients will respond well to ESD and should be discharged from hospital early to have their intensive care at home. Other patients will have greater levels of need and may need to receive rehabilitation care in hospital for longer.

Figure 16 describes the ideal configuration of post-acute stroke care for the three types of rehabilitation, as well as ongoing support through six- and twelve-monthly reviews.

Figure 16: ideal configuration of post-acute stroke care

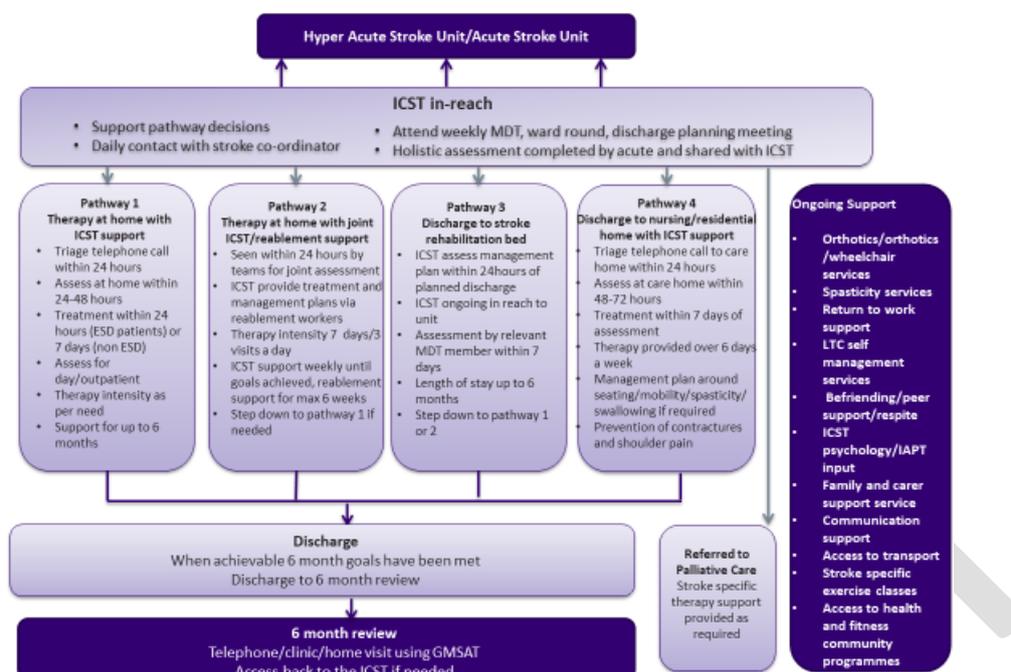


Based on national good practice, each CCG should ensure people living with the effects of stroke have adequate access to all three types of post-acute stroke care, or stroke rehabilitation. There is also a requirement for CCGs to ensure everyone living with the effects of stroke has longer-term support identified at both 6- and 12-month intervals once they are discharged from their community stroke rehabilitation. This is because research has shown improvement in levels of disability can be seen up to 12 months from the initial stroke⁴⁷.

3.4.4 Clinical model for 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 will be localised and used in Kent and Medway⁴⁸. The model is the product of reviews of rehabilitation stroke services across Kent, Medway, Surrey and Sussex. The Kent and Medway localised clinical model is shown in Figure 17.

Figure 17: Kent and Medway rehabilitation clinical model



The model encompasses the following elements:

- A. **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 stroke rehabilitation bed
 4. Discharge to residential/nursing home with ICST support
- B. **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.

C. **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.

- **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).
- **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.
- **Pathway 3 - Discharge to stroke rehabilitation bed:** patients will be stepped down from hospital into a stroke rehabilitation 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 stroke rehabilitation unit.
- **Pathway 4 - Discharge to residential/nursing home with ICST support:** 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.

D. **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

3.4.5 Commissioning principles

Commissioning principles have been discussed and agreed by all members of the Rehabilitation Working group and the Clinical Reference Group:

- The rehabilitation model will **improve outcomes, quality and experience of care** for patients
- There is a commitment to **invest in rehabilitation** based on a proven return on investment and evidenced reduction in acute LOS
- There should be a **consistent provision** of stroke rehabilitation across Kent and Medway
- Rehabilitation care should be delivered as **close to patients' homes as possible**, and wherever possible within the home
- The agreed model of care must be **financially sustainable**
- The implementation of the agreed model of care must be **aligned to the implementation of HASUs and ASUs**
- Commissioning should be based on **NHS E best practice guidelines**
- There is a commitment to **joint working with local authorities** to deliver the model
- Commissioning of the new model should **encourage redeployment of existing staff** where possible
- On the basis of the agreeing the above, commissioners have a commitment to **review existing contracts**

Commissioners have attended the rehabilitation working group and have contributed to the development of these principles. They will be formally signed off by the Joint Committee of CCGs on the 20th December 2018.

3.4.6 Current service provision and gaps

Work is currently being undertaken to understand and map the provision of rehabilitation services across Kent and Medway. This work is due to be completed by early December.

Whilst stroke rehabilitation services currently exist in every part of Kent and Medway, the organisation and delivery of those services varies significantly. Key areas of variation are:

- Access to 7 day therapy
- Length of therapy / ESD support
- Provision of community beds (specifically West Kent, Thanet and Canterbury where there are no dedicated stroke beds or stroke therapists)
- Provision of 6-month reviews (these are not commissioned in Swale)
- Gaps in workforce configuration:
 - Stroke specialist nurses (West Kent)
 - Therapists (East Kent)
 - Social workers within multi disciplinary teams
 - Skilled support workers for rehabilitation programmes
- Provision of stroke specialist exercise classes
- Provision of orthotics, orthoptics and wheelchairs
- Provision of spasticity clinics and treatment
- Access to post-acute hospital transport

A workshop is being planned which will be held with people who have had a stroke, stroke expert clinicians, commissioners and providers of services and support for stroke survivors. The workshop will focus on mapping the current stroke journey from when someone had a stroke, through to their

The improvement of clinical pathways and the introduction of new roles such as Advanced Clinical Practitioners and Clinical Assistants will:

- enable ways of working to ensure that all the workforce is undertaking duties that are required to be undertaken by workforce with their skills and competency
- support existing staff to be upskilled and developed into advanced roles such as Advanced Clinical Practitioners
- promote interdisciplinary working, training and education across the Stroke workforce
- alongside Advanced Clinical Practitioners, introduce new roles to the workforce including Physician Associates and Clinical Assistants.

Reviewing the workforce required and the way that they work together within an improved service model, will go some way to addressing current gaps in workforce and feedback from staff on career development opportunities to attract new staff and retain the existing workforce.

3.5.1.2 Modelling the required workforce

The workforce modelling for stroke considered a range of information when developing proposals for the stroke workforce. This included:

- National evidence including the Royal College of Physicians National Clinical Guidance for Stroke⁴⁹, the NHS South East Clinical Network's Stroke Service Specification⁵⁰ and the National Stroke Specific Competency Framework⁵¹
- Clinical Senate feedback from the Pre-Consultation Business Case (Appendix I)
- Public consultation feedback (Appendix J)
- Stroke staff engagement through the Kent and Medway Stroke Workforce Group and Staff engagement sessions
- Provider business cases (Appendix K)
- Benchmarking was also performed against seven existing HASUs and ASUs (Asford and St Peters Hospital; Hampshire Hospital NHS Foundation Trust; Royal Berkshire Hospital; Fairfield Stroke Unit Manchester; Whiston Hospital; Salford Royal Hospital; Wirral University Hospital)

The NHS South East Coast standards⁵² were adopted as the minimum standard for the stroke workforce. The standards differentiate between a HASU and an ASU and are shown in Figure 19.

Figure 19: South East Strategic Clinical Network stroke service specification clinical standards

Stroke service specification minimum standards

Hyper Acute Stroke Unit (HASU) minimum staffing (7/7)	Acute Stroke Unit (ASU) minimum staffing (7/7)
<ul style="list-style-type: none"> • 6 BASP thrombolysis trained physicians on a rota 24/7 • 2.9 WTE nurses per bed to comply with 80:20 trained vs untrained skill mix • 0.73 WTE physiotherapist per 5 beds (respiratory and neuro) • 0.68 WTE occupational therapist per 5 beds • 0.34 WTE speech and language therapist per 5 beds • 0.2 WTE clinical psychologist/neuropsychologist per 5 beds • 0.15 WTE dietician per 5 beds • Access to social worker. 	<ul style="list-style-type: none"> • 1.35 WTE nurses per bed (65:35 trained to untrained skill mix) • 0.84 WTE physiotherapist per 5 beds • 0.81 WTE occupational therapist per 5 beds • 0.40 WTE speech and language therapist per 5 beds • 0.2 WTE clinical psychologist/neuropsychologist per 5 beds • 0.15 WTE dietician per 5 beds • Social workers • Access is available to a range of additional professionals, including those in: <ul style="list-style-type: none"> • Oral health • Orthotics • Pharmacy

Source: NHS South East Clinical Networks, Stroke and TIA Service and Quality Core Standards, 2018

3.5.1.3 Total number of consultants required per site

More detailed modelling of consultant coverage was undertaken to ensure appropriate senior coverage. The consultant workforce coverage is provided on a non-resident basis with a consultant being present on-site for 12 hours and being non-resident (on call) out of hours (19.00 – 07.00). Consultant coverage was developed for a 10 programmed activity (PA) contract. The coverage assumed that direct clinical care (DCC) activities were 8 PAs and the remaining 2 PAs (including clinical administration) were made up of supporting professional activities (SPAs). Prospective cover for DCC PAs was calculated based on consultants working 42 weeks per year. [DN to add explanation on conversion to WTE]

3.5.1.4 Additional staff required per site

Further work was done to understand additional capacity and roles that would be required to run a successful HASU/ASU. These were agreed as:

- Consultant PAs allocated as 8 direct clinical care (DCC) to 2 supporting professional activities (SPA) - i.e. 8 out of 10 consultant sessions to be direct patient care
- Updated DCC calculation as per Getting it Right First Time guidance⁵³.
- Therapy cover uplifted to be 7 days per week (the national minimum is for only 5 days a week)
- 1 WTE thrombolysis nurse to be available 24/7
- Additional 1 WTE band 7 nurse/therapist ward manager in a supervisory capacity – 5 days per week with unsocial enhancements of 13%
- Additional 1 WTE band 8b stroke service lead post – 5 days per week
- Additional 5 WTE band 4 flow coordinator posts over 7 days per week
- Additional 1 WTE band 4 administrator post – 7 days a week
- Band 3 therapy assistants included on 1:4 basis (1 unqualified for every 4 qualified therapists)

Further information about the detailed workforce plans for implementing the preferred option can be found in Section 8.5.

3.5.2 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.

3.5.3 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.

3.6 Patient stories

3.6.1 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 can 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 must 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 must 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.

3.6.2 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 the 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.

3.6.3 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 him 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 Jack's 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 can 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.

DRAFT

4 Shortlisting options for consultation

4.1 Feedback received about the process during consultation

The purpose of consultation has been defined as a process “to winnow out errors in the decision-makers provisional thinking. The JCCPT⁵ owes a public law duty to reconsider matters in the light of responses”⁵⁴. Although most consultation responses have focussed on the options for change, the process which led to their identification was also part of the consultation and the JCCCG should take account of comments on that process in considering what process to adopt in final decision-making stage. The main area of feedback about the process was the role of areas outside Kent and Medway in the process. The proposals are focused on changes to stroke units in Kent and Medway, but some of the options would affect residents and hospitals in neighbouring areas. Bexley and High Weald, Lewes, Havens Clinical Commissioning Groups concluded that the potential impact on their residents was enough to mean they should join the formal consultation as part of the JCCCG. Parts of Rother and Hastings were also being informed about the changes and invited to respond to the consultation.

As residents of areas outside Kent and Medway would be significantly affected by the proposals, which affect services at their local hospital, the NHS is legally obliged to consult with them (and take their views into account when formulating proposals). The process used pre-consultation is therefore considered to be robust and should be used post-consultation during decision making.

4.2 Development of options

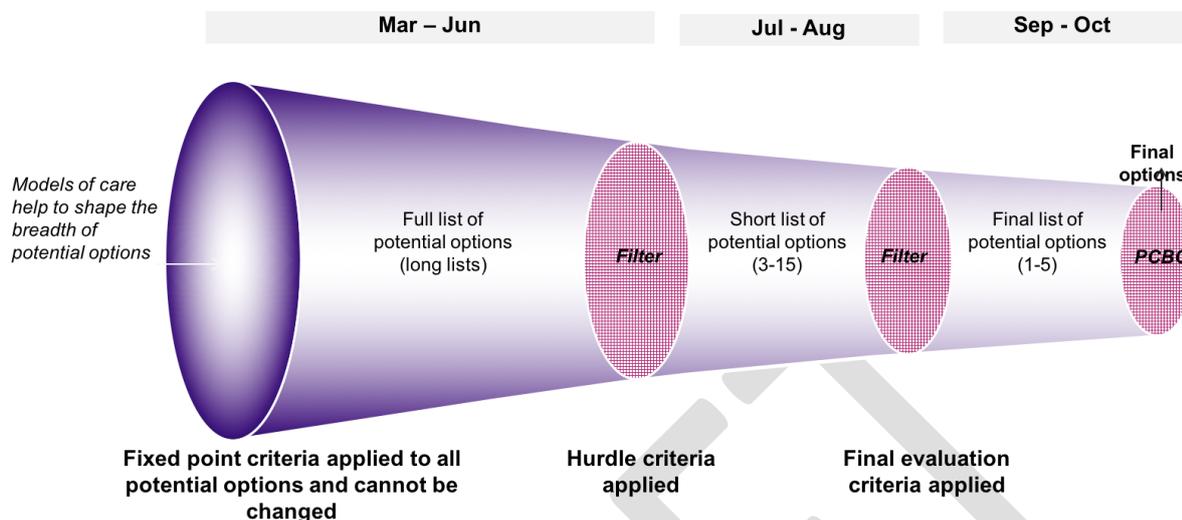
4.2.1 Options evaluation process

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 20.

⁵ PCTs were the precursor organisations to CCGs.

Figure 20: overview of process for developing and evaluating options

Evaluation approach

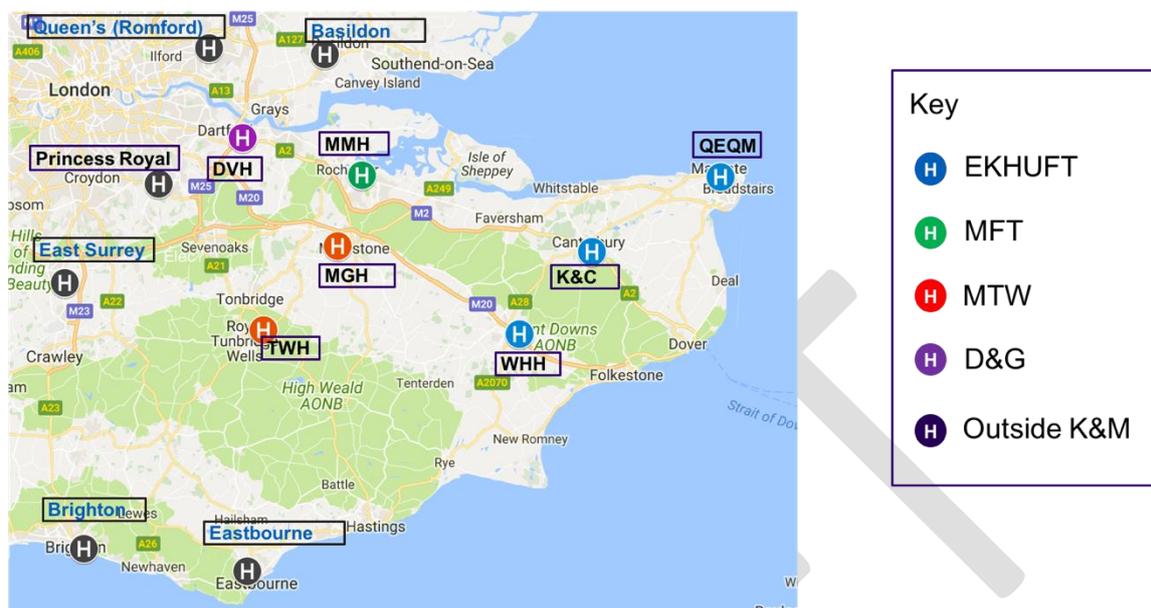


4.2.2 Starting the process to determine options

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 3.3.6). 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 21.

Figure 21: current acute hospital sites in Kent and Medway
Potential locations for hyper acute and acute stroke units



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.

4.2.3 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.

4.3 Options appraisal (medium list)

4.3.1 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 22.

Figure 22: hurdle criteria to determine the shortlist for further detailed evaluation

Hurdle criteria

Is the potential configuration option clinically sustainable?	<ul style="list-style-type: none"> Does it deliver key quality standards? Does it address any co-dependencies? Will the workforce be available to deliver it? Will there be sufficient throughput or catchment population to maintain skills and deliver services cost effectively?
Is the potential configuration option implementable?	<ul style="list-style-type: none"> Will the option deliver financial and clinical sustainability within a medium-term timeframe by 20/21? This statement is based upon a system wide view
Is the potential configuration option a strategic fit?	<ul style="list-style-type: none"> Does it implement the outcome of other recent consultations or designation processes?
Is the potential configuration option accessible?	<ul style="list-style-type: none"> Can the population access services within a window of 120 minutes from call to needle?¹
Is the potential configuration option financially sustainable?	<ul style="list-style-type: none"> Must not increase the 'do nothing' financial baseline (<i>given the need for capital investment at any resulting sites which is of similar quantum, noting more at PFI sites, this was considered in detail at the evaluation stage</i>)

1) Using 95% accessing services within 60 mins (peak) as a proxy

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

4.3.2 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 unit⁵⁵. 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 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 23.

Figure 23: remaining 20 options after review of clinical sustainability

DVH MGH TWH	DVH TWH QEQM	MGH TWH QEQM	TWH WHH QEQM
DVH MGH MMH	DVH MMH WHH	MGH MMH WHH	MMH WHH QEQM
DVH MGH WHH	DVH MMH QEQM	MGH MMH QEQM	TWH MMH QEQM
DVH MGH QEQM	DVH WHH QEQM	MGH WHH QEQM	MGH TWH WWH
DVH TWH MMH	MGH TWH MMH	TWH MMH WHH	DVH TWH WHH

4.3.3 Determining clinical sustainability of the remaining options

As discussed in section 4.3.2, 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 24.

Figure 24: options excluded after further review of clinical sustainability

Site	Predicted activity by site	Site	Predicted activity by site	Site	Predicted activity by site
DVH	803	DVH	722	MGH	663
MGH	1,783	TWH	514	TWH	415
TWH	414	MMH	1,764	MMH	1,379
OOA	20	OOA	10	OOA	553
MGH	1,190	MGH	896		
TWH	415	TWH	354		
QEQM	802	WWH	1,166		
OOA	603	OOA	594		

- 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 based on:

- 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 L. **Clinicians therefore recommended that 15 options should be considered further**, as shown in Figure 25.

Figure 25: remaining 15 options after further review of clinical sustainability

Options which meet the activity/volume hurdle criterion:

- Within 10% of activity threshold*
- Within activity threshold
- Does not meet activity threshold

Site	Predicted activity by site						
DVH	803	DVH	766	MGH	792	MGH	1,074
MGH	865	MMH	704	MMH	735	WHH	642
WHH	1,199	WHH	1,242	QEQM	759	QEQM	557
OOA	143	OOA	298	OOA	724	OOA	737
DVH	803	DVH	766	MMH	887	TWH	513
MGH	1,225	MMH	1,102	WHH	685	WHH	1,144
QEQM	802	QEQM	782	QEQM	557	QEQM	557
OOA	180	OOA	360	OOA	881	OOA	797
DVH	1,463	DVH	1,310	TWH	525	DVH	701
TWH	624	WHH	845	MMH	1,145	MGH	901
QEQM	913	QEQM	557	QEQM	782	MMH	1,227
OOA	10	OOA	298	OOA	558	OOA	181
MGH	487	TWH	448	DVH	1,236		
MMH	647	MMH	824	TWH	480		
WHH	1,189	WHH	1,188	WHH	1,294		
OOA	687	OOA	550	OOA	0		

- 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).

4.3.4 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 26.

Figure 26: 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), Camall Farrar analysis

Clinicians therefore recommended that 13 options should be considered further as shown in Figure 27 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 4.4.2.

Figure 27: remaining 13 options after review of implementability

1. DVH, WHH, QEQM
2. MGH, MMH, QEQM
3. DVH, MMH, WHH
4. DVH, MMH, QEQM
5. DVH, MGH, WHH
6. DVH, MGH, QEQM
7. DVH, TWH, QEQM
8. MGH, MMH, WHH
9. TWH, MMH, QEQM
10. TWH, MMH, WHH
11. DVH, TWH, WHH
12. DVH, MGH, MMH
13. MGH, QEQM, WHH

4.3.5 Determining strategic fit

Future options for changes to services need to be aligned with existing commitments, 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

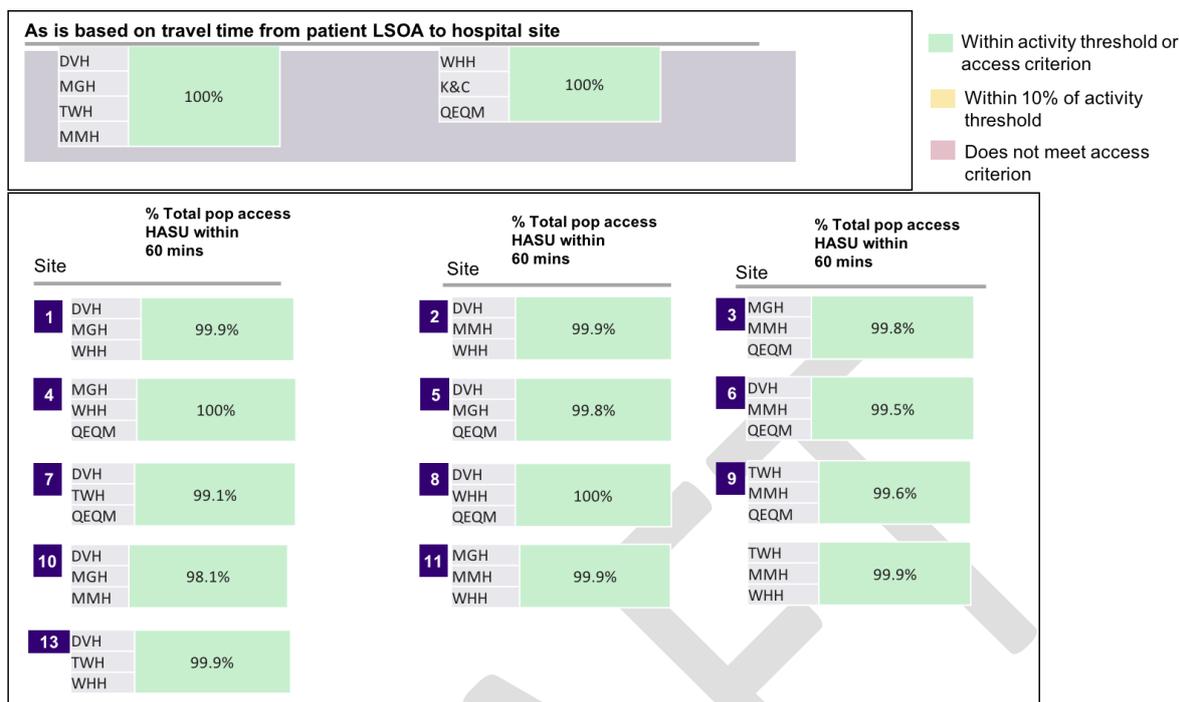
Analysis was carried out to test the options against these existing commitments and there have not been any consultation or designation processes in Kent and Medway that are relevant. **Clinicians therefore recommended that all remaining options meet this hurdle criterion.**

4.3.6 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 pathway⁵⁶ and travel time to hospital of no more than 60 minutes in rural areas⁵⁷. 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 28. **Clinicians therefore recommended that all remaining options meet this hurdle criterion.**

Figure 28: time taken to access services (peak hours) for remaining options



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

4.3.7 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. 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 6.2.5.

4.3.8 Shortlist of options for further evaluation

Following the application of these hurdle criteria, clinicians recommended that 13 options go forward for further evaluation, as shown in Figure 29.

Figure 29: list of options for further evaluation

Medium list of options
1.DVH, WHH, QEQM
2.MGH,MMH, QEQM
3.DVH, MMH, WHH
4.DVH, MMH, QEQM
5.DVH, MGH, WHH
6.DVH, MGH, QEQM
7.DVH, TWH, QEQM
8.MGH, MMH, WHH
9. TWH, MMH, QEQM
10. TWH, MMH, WHH
11. DVH, TWH, WHH
12. DVH, MGH, MMH
13. MGH, QEQM, WHH

4.4 Evaluation of the options (shortlisting)

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 several sub-criteria that were used to support the evaluation of each option, as shown in Figure 30.

Figure 30: evaluation criteria and sub-criteria

Evaluation criteria

Criteria	Sub-criteria
1 Quality of care for all	<ul style="list-style-type: none">Clinical effectiveness and responsiveness
2 Access to care for all	<ul style="list-style-type: none">Time to access services
3 Workforce	<ul style="list-style-type: none">Scale of impactSustainability
4 Ability to deliver	<ul style="list-style-type: none">Expected time to deliverTrust ability to deliver
5 Affordability and value for money	<ul style="list-style-type: none">Net present value

All the remaining 13 options were considered to be acceptable as they had met the hurdle criteria as detailed in Section 4.3. 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.

4.4.1 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 was included in the financial costing to account for increased costs for the ambulance service. 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 8.4).
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. Plans are being developed to deliver increased training, as detailed in Section 8.5.
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 the implementation plans.
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.
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

Area	How it has been considered
	<p>understand the impact at the implementation planning stage.</p> <p>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.</p> <p>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 specialisation within the new HASU/ASU setting.</p> <p>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.</p> <p>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.</p>
Population and housing growth	<p>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.</p>
Relevance of including level 3 NICU as part of the co-adjacencies evaluation	<p>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.</p>

Area	How it has been considered
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.

4.4.2 Evaluating the medium list

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

4.4.2.1 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 4.3.3). 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 Senate⁵⁸), 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 model⁵⁹.

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 guidelines⁶⁰, 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 31.

Figure 31: evaluation of provision of clinical co-adjacencies for a HASU

Provision of clinical co-adjacencies for a HASU, defined by the South East Coast clinical senate – option evaluations

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	Sites not included in the option are greyed out
WHH	+		+		+			+		+	+		+	
QEQM	-	-		-		-	-		-				-	
MMH		+	+	+				+	+	+		+		
MGH		/			/	/		/				/	/	
TWH							+		+	+	+			
DVH	/		/	/	/	/	/				/	/		
1a) Overall evaluation	/	/	+	/	+	-	/	+	/	++	+	+	/	

Rationale for overall evaluation	Key	Combination of individual site evaluations	Overall evaluation			
<ul style="list-style-type: none"> Each Trust provided the information regarding their current provision of services The individual site evaluations were agreed as based on the rationale on the previous page The overall option evaluations are based on the combination of individual site evaluations within that option, with overall evaluation assigned as set out in the key 		+	+	+	=	++
		+	+	/	=	+
		+	/	/	=	+
		+	+	-	=	/
		+	/	-	=	/
		/	/	-	=	-

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]⁶¹”. 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 32.

Figure 32: evaluation of clinical co-adjacencies for mechanical thrombectomy

Provision of optimal clinical co-adjacencies for mechanical thrombectomy – option evaluations

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	Sites not included in the option are greyed out
WHH	+		+		+			+		+	+		+	
QEQM	-	-		-		-	-		-				-	
MMH		+	+	+				+	+	+		+		
MGH		/			/	/		/				/	/	
TWH							+		+	+	+			
DVH	/		/	/	/	/	/				/	/		
1b) Overall evaluation	/	/	+	/	+	-	/	+	/	++	+	+	/	

Rationale for overall evaluation	Key	Combination of individual site evaluations	Overall evaluation			
<ul style="list-style-type: none"> Each Trust provided the information regarding their current provision of services The individual site evaluations were agreed as based on the rationale on the previous page The overall option evaluations are based on the combination of individual site evaluations within that option, with overall evaluation assigned as set out in the key 		+	+	+	=	++
		+	+	/	=	+
		+	/	/	=	+
		+	+	-	=	/
		+	/	-	=	/
		/	/	-	=	-

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 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 33.

Figure 33: evaluation of clinical co-adjacencies for major emergency centre

Provision of services required to constitute a Major Emergency Centre, defined by the Keogh model –option evaluations

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	Sites not included in the option are greyed out
WHH	++		++		++			++		++	++		++	
QEQM	+	+		+		+	+		+				+	
MMH		+	+	+				+	+	+		+		
MGH		-			-	-		-				-	-	
TWH							+		+	+	+			
DVH	+		+	+	+	+	+				+	+		
1c) Overall evaluation	++	/	++	+	+	/	+	+	+	++	++	/	+	

Rationale for overall evaluation	Key for overall evaluation:	Combination of individual site evaluations	Overall evaluation																				
<ul style="list-style-type: none"> Each Trust provided the information regarding their current provision of services The individual site evaluations were agreed as based on the rationale on the previous page The overall option evaluations are based on the combination of individual site evaluations within that option, with overall evaluation assigned as set out in the key 		<table border="1"> <tr> <td>++</td> <td>+</td> <td>+</td> <td>=</td> <td>++</td> </tr> <tr> <td>++</td> <td>+</td> <td>-</td> <td>=</td> <td>+</td> </tr> <tr> <td>+</td> <td>+</td> <td>+</td> <td>=</td> <td>+</td> </tr> <tr> <td>+</td> <td>+</td> <td>-</td> <td>=</td> <td>/</td> </tr> </table>	++	+	+	=	++	++	+	-	=	+	+	+	+	=	+	+	+	-	=	/	
	++	+	+	=	++																		
	++	+	-	=	+																		
	+	+	+	=	+																		
+	+	-	=	/																			

4.4.2.2 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 4.3.6). 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 plus additional maps including travel times isochrones can be found at Appendix M.

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 4.3.6). 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 34.

Figure 34: evaluation of ambulance access to services

% population that can access sites within 30 mins and 45 mins travel time (blue light proxy) – options evaluation

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	As is*
% Total pop access HASU within 30 mins	79.5	74.9	73.4	71.4	74.2	71.7	71.7	76.2	80.2	82.2	76.9	62.6	85.8	96.3
Agreed evaluation	++	+	+	+	+	+	+	++	++	++	++	--	++	
% Total pop access HASU within 45 mins	98.5	94.9	91.0	93.0	91.3	94.8	92.6	91.3	95.7	92.0	91.9	81.6	99.0	99.0
Agreed evaluation	++	+	+	+	+	+	+	+	++	+	+	--	++	
2a) Overall evaluation	++	+	+	+	+	+	+	++	++	++	++	--	++	

Key for % Total pop access HASU within 30 mins evaluation:	Key for % Total pop access HASU within 45 mins evaluation:	Key for overall evaluation
=>75% access within 30 mins ++ 65-74.9% access within 30 mins + <65% access within 30 mins --	=>95% access within 45 mins ++ 85-94.9% access within 45 mins + <85% access within 45 mins --	Combinations of evaluation for 45 min and 30 min <div style="display: flex; align-items: center; gap: 10px;"> ++ ++ = ++ </div> <div style="display: flex; align-items: center; gap: 10px;"> ++ + = ++ </div> <div style="display: flex; align-items: center; gap: 10px;"> + + = + </div> <div style="display: flex; align-items: center; gap: 10px;"> -- -- = -- </div>

SOURCE: Basemap off-peak travel times 2015/16; ONS population figures 2015; Camall 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 4.3.6). 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 35.

Figure 35: evaluation of peak car access to services

% population that can access sites within 30 mins and 45 mins travel time (peak driving) – options evaluation



SOURCE: Basemap peak travel times 2015/16; ONS population figures 2015; Camall 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.

4.4.2.3 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 4.3.3). 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 M.

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 enough 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 used⁶². 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 36.

Figure 36: evaluation of additional staff required to run hyper acute and acute stroke units
Gap in workforce for consultants based on best practice requirements compared to in post staff

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM
K&M consultant gap, WTEs*	10	8	8	8	8	8	10	8	8	8	8	8	8
Additional consultants required at PRUH**	0	2	0	0	0	0	0	2	2	2	0	0	2.25
3a) Overall evaluation	-	-	/	/	/	/	-	-	-	-	/	/	-

Notes	K&M consultant gap + Additional consultants required at PRUH	Overall evaluation
<ul style="list-style-type: none"> As agreed at the workshop on 30/08, a neutral evaluation is used for the smallest consultant gap, with everything else negative to represent the recruitment challenge this poses This analysis takes into account the additional consultant workforce required to support activity outflows from K&M – this was requested at the workshop on 30/08 The gap in K&M consultant staff has been calculated based on the assumption that the 10 WTE currently in post could fulfil some of the requirement The consultant requirement at the PRUH has been calculated based on a pro rata of activity volumes, therefore representing the additional consultants required rather than the gap against the total consultants currently in post at the PRUH 	≥ 12	-
	$8 > X = 10$	-
	≥ 8	/

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 37.

Figure 38: evaluation of turnover rates

Turnover rates overall evaluation

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	As is
Average turnover rate for Nursing and Midwifery for sites in option (%)	9.59	9.82	10.86	10.86	8.84	8.84	8.66	9.82	9.64	9.64	8.66	10.11	8.55	9.24
Agreed evaluation	-	-	--	--	+	+	+	-	-	-	+	-	+	
Average turnover rate for Medical staff for sites in option (%)	6.28	4.00	6.06	6.06	5.82	5.82	5.99	4.01	4.17	4.17	6.00	5.61	4.22	5.00
Agreed evaluation	--	++	--	--	-	-	--	++	++	++	--	-	+	
3c) Overall evaluation	--	+	--	--	/	/	-	+	+	+	-	-	+	

Key for evaluation against average vacancy rate for the 3 sites in the option (nursing & midwifery)		Key for evaluation against average vacancy rate for the 3 sites in the option (medical)		Key Combinations of nursing and medical vacancy evaluation			
Turnover rate significantly below as is (<8)	++	Turnover rate significantly below as is (<4,2)	++	++	-	=	+
Turnover rate below as is (8<X<9)	+	Turnover rate below as is (4.2=X<5)	+	+	+	=	+
Turnover rate consistent with as is	/	Turnover rate consistent with as is	/	+	-	=	/
Turnover rate above as is (<9X<10.5)	-	Turnover rate above as is (5<X<6)	-	-	-	=	-
Turnover rate significantly above as is (>10.5)	--	Turnover rate significantly above as is (>=6)	--	-	--	=	-
				--	--	=	--

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

4.4.2.4 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 4.3.4). 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 8.4).

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 4.4.2.5). 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 39.

Figure 39: evaluation of expected time and ease to deliver

Expected time and ease to deliver (incl. PRUH)– options evaluation

Option	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	
Site 1 Time to deliver (mnths)	DVH 12-18	MGH 6-12	DVH 6-12	DVH 6-12	DVH 6-12	DVH 6-12	DVH 12-18	MGH 0-6	TWH 6-12	TWH 6-12	DVH 12-18	DVH 6-12	MGH 6-12	
Evaluation	-	/	/	/	/	/	-	+	/	/	-	/	/	
Site 2 Time to deliver (mnths)	WHH 18+	MMH 0-6	MMH 0-6	MMH 12-18	MGH 6-12	MGH 12-18	TWH 6-12	MMH 0-6	MMH 12-18	MMH 6-12	TWH 6-12	MGH 6-12	WHH 18+	
Evaluation	--	+	+	-	/	-	/	+	-	/	/	/	--	
Site 3 Time to deliver (mnths)	QEQM 18+	QEQM 18+	WHH 18+	QEQM 18+	WHH 18+	QEQM 18+	QEQM 18+	WHH 18+	QEQM 18+	WHH 18+	WHH 18+	WHH 18+	MMH 12-18	QEQM 18+
Evaluation	--	--	--	--	--	--	--	--	--	--	--	--	-	--
External sites option Time to deliver (mnths)	0-6	18+	0-6	0-6	0-6	0-6	0-6	0-6	18+	18+	0-6	0-6	18+	
Evaluation	+	-	+	+	+	+	+	+	-	-	+	+	-	
4a) Overall evaluation	-	-	/	-	/	-	-	+	-	-	-	/	-	

Key for individual sites time to deliver (months)

0-6	+	12-18 (18+ for external)	-
6-12	/	18+	--

PRUH bed numbers are smaller and so have a lower impact on overall evaluation

Combination of individual site evaluations Overall evaluation

+	+	+	--	=	+
+	+	/	--	=	/
+	/	/	-	=	/
+	/	/	--	=	/
+	-	-	--	=	-
-	-	--	--	=	--

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 40.

Figure 40: evaluation of Trust ability to deliver

Trust willingness to deliver – options evaluation

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM
Willing to deliver? Site 1	DVH YES	MGH YES	DVH YES	DVH YES	DVH YES	DVH YES	DVH YES	MGH YES	TWH YES	TWH YES	DVH YES	DVH YES	MGH YES
Willing to deliver? Site 2	WHH NO	MMH YES	MMH YES	MMH YES	MGH YES	MGH YES	TWH YES	MMH YES	MMH YES	MMH YES	TWH YES	MGH YES	WHH NO
Willing to deliver? Site 3	QEQM NO	QEQM YES	WHH YES	QEQM YES	WHH YES	QEQM YES	QEQM YES	WHH YES	QEQM YES	WHH YES	WHH YES	MMH YES	QEQM NO
4b) Overall evaluation	--	++	++	++	++	++	++	++	++	++	++	++	--

• Trusts were asked to fill in a pro-forma confirming whether or not they were willing to deliver each option based on a yes/no response

• The pro forma was signed by the Chief Executive and Medical Director of each Trust respectively

• East Kent Hospitals University Trust felt unable to deliver 2 sites with HASU/ASU

• The information collected through the pro forma was directly reflected in the options evaluation

• The responses for options 12 and 13 were confirmed with Trusts

Key

Combinations of individual site evaluations

YES	YES	YES	=	++
YES	NO	NO	=	--

Overall evaluation

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

4.4.2.5 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 4.3.7). 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 3.3.6). 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 M.

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 41.

Figure 41: evaluation of financial sustainability

Option	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM
NPV (10yr, £k)	(10,732)	16,855	17,666	24,449	12,107	8,529	(10,047)	14,379	17,232	16,086	16,283	27,959	(1,540)
5a) Overall evaluation	--	+	+	++	+	/	--	+	+	+	+	++	-

• **Net present value** is a calculation to see whether the amount invested today in the new model of care results in an improvement to the amount stroke services cost in the future as compared to today

Key	10ys NPV Criteria (£000)	Overall evaluation
>24,000	=	++
14,000-24,000	=	+
8,000-14,000	=	/
-2,000 -10,000	=	-
<-2,000	=	--

SOURCE: K&M Trust estates returns (September 2017); K&M STP Estates workstream (August 2017); Gleds analysis (September 2017); Camall 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 Camall 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), Camall Farrar analysis (2017)

4.4.3 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 42.

Figure 42: full evaluation matrix

Full evaluation matrix

	1) DVH, WHH, QEQM	2) MGH, MMH, QEQM	3) DVH, MMH, WHH	4) DVH, MMH, QEQM	5) DVH, MGH, WHH	6) DVH, MGH, QEQM	7) DVH, TWH, QEQM	8) MGH, MMH, WHH	9) TWH, MMH, QEQM	10) TWH, MMH, WHH	11) DVH, TWH, WHH	12) DVH, MGH, MMH	13) MGH, WHH, QEQM	
1 Quality	• SEC co-adjacencies	/	/	+	/	+	-	/	+	/	++	+	+	/
	• Co-adjacencies for mech. thrombectomy	/	/	+	/	+	-	/	+	/	++	+	+	/
	• Req. for MEC	++	/	++	+	+	/	+	+	+	++	++	/	+
2 Access	• Blue light, proxy	++	+	+	+	+	+	++	++	++	++	++	--	++
	• Private car, off peak	++	++	+	+	+	++	+	++	++	++	++	--	++
3 Workforce	• Gap in workforce requirements	-	-	/	/	/	-	-	-	-	/	/	-	-
	• Vacancies	++	--	/	-	+	/	++	--	--	-	++	--	/
	• Turnover	--	+	--	--	/	/	-	+	+	+	-	-	+
4 Ability to deliver	• Expected time to deliver	-	-	/	-	/	-	+	-	-	-	/	--	--
	• Trust ability to deliver	--	++	++	++	++	++	++	++	++	++	++	++	--
5 Finance	• Net Present Value (NPV at 10 yrs, £m)	--	+	+	++	+	/	-	+	+	+	+	++	-

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.

4.4.4 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.

DRAFT

5 Public consultation

5.1 Overview of consultation

The formal consultation on the proposals for urgent stroke services in Kent and Medway ran for 11 weeks from 2 February to 20 April.

The consultation comprised the following key questions:

1. Do you think there is a clear case for changing the way stroke services are delivered?
2. Do you think there should be hyper acute stroke units in Kent and Medway?
 - a. Should acute stroke units and transient ischemic attack (TIA or mini-stroke) clinics be located alongside these units?
3. Do you think that three hyper acute stroke units would be the right number for Kent and Medway?
4. Do you have a preference for any of the five options?
5. Are there any other options or any other factors that should be considered?

Two reports on the public consultation were prepared and published in July 2018, these were:

- **Consultation activity report:** This report sets out how the formal consultation on urgent stroke services was delivered across Kent and Medway and with neighbouring areas in Bexley and High Weald Lewes and Havens. It describes the range of activity undertaken but does not describe the responses received. The report is shown in Appendix P.
- **Consultation response report:** DJS Research, an independent research consultancy, analysed all consultation responses to develop a report on the themes emerging from the public consultation. The report is shown in Appendix J.

5.2 Consultation activity

The public consultation activity was comprehensive, reaching in excess of 2 million people, and generating over 5000 responses to the consultation.

5.2.1 Consultation activity: giving information and promoting the consultation

Over the 11-week consultation period, awareness-raising and promotion activity included:

- The distribution of 15,000 consultation documents, 35,000 summary documents, and posters, to around 850 locations across Kent, Medway and border areas in south east London and East Sussex. This dissemination included GP surgeries, acute and community providers, pharmacies and libraries across the consultation geography.
- Information cascaded to 43,500 health and social care staff across Kent and Medway and borders.
- Information cascaded through patient groups and networks linked to NHS organisations, local authorities, voluntary sector partners, and GP practices.
- A nine-week paid-for advertising campaign on local radio and in local newspapers.
- A leaflet distribution to 98,200 individual households in the areas potentially most impacted by the proposals.
- Both paid for advertising and promoted posts, and non-paid for activity on social media (Twitter, Facebook, YouTube).
- Media releases issued to raise awareness with coverage in broadcast and print media across the consultation geography.

- Regular articles published in council, NHS, Healthwatch and other partners' newsletters, e-bulletins, magazines and websites.
- Promoting the consultation and providing regular updates on the www.kentandmedway.nhs.uk website.

Examples of promotional material used during the consultation are shown in Figure 43.

Figure 43: examples of promotional material

Improving NHS urgent stroke services... in Kent & Medway

Consultation events coming up:

- Bexleyheath: 19 Mar 2018, 14:00
- Gillingham: 20 Mar 2018, 18:30
- Sittingbourne: 22 Mar 2018, 18:30
- Rainham: 23 Mar 2018, 10:30
- Broadstairs: 24 Mar 2018, 10:00
- Canterbury: 28 Mar 2018, 18:30
- Heathfield: 29 Mar 2018, 18:30
- Ashford: 04 Apr 2018, 10:00
- Robertsbridge: 04 Apr 2018, 18:30
- Deal: 05 Apr 2018, 18:30
- St Mary's Bay: 6 Apr 2018, 13:30

Can't attend? Check our website to respond online or call 0300 7906796

in Kent & Medway

PUBLIC CONSULTATION:

www.kentandmedway.nhs.uk/stroke

Transforming health and social care in Kent and Medway

Shortlisted options for hyper acute stroke units:

A – Darent Valley Hospital, Medway Maritime Hospital, and William Harvey Hospital

B – Darent Valley Hospital, Maidstone Hospital, and William Harvey Hospital

C – Maidstone Hospital, Medway Maritime Hospital, and William Harvey Hospital

D – Tunbridge Wells Hospital, Medway Maritime Hospital, and William Harvey Hospital

E – Darent Valley Hospital, Tunbridge Wells Hospital, and William Harvey Hospital

Come to a public listening event to share your views

Register your place at www.kentandmedway.nhs.uk/stroke or call 0300 7906796.

Date	Time	Location
07 March	14:00 to 16:00	Minster
12 March	10:00 to 12:00	Rye
13 March	14:00 to 16:00	Swanley
15 March	18:30 to 20:30	Tonbridge
19 March	14:00 to 16:00	Bexleyheath
20 March	18:30 to 20:30	Gillingham
22 March	18:30 to 20:30	Sittingbourne
22 March	18:00 start	Canterbury*
24 March	10:00 to 12:30	Broadstairs
28 March	18:30 to 20:30	Canterbury
29 March	18:30 to 20:30	Heathfield
04 April	10:00 to 12:00	Ashford
04 April	18:30 to 20:30	Robertsbridge
06 April	13:30 to 15:30	St Mary's Bay

*This meeting will discuss water issues for east Kent as well as the stroke consultation.

Invite us to speak at your community group meeting. Call us on 0300 7906796 or email km.stroke@nhs.net

Improving urgent stroke services in Kent and Medway

Public consultation

Closes on 20 April 2018

We want to provide the best possible urgent stroke care 24/7 for everyone in Kent and Medway and surrounding areas.

We'd like your views

Find out more on our website. You can reply online, via email, using QR codes or call us.

Website: www.kentandmedway.nhs.uk/stroke
Tel: 0300 7906796 Email: km.stroke@nhs.net
Letter: FREEPOST, Kent and Medway NHS

Improving urgent stroke services in Kent and Medway

Public consultation

2 February - 13 April 2018

We want to provide the best possible urgent stroke care 24/7 for everyone in Kent and Medway and surrounding areas.

We'd like your views

Respond via our website or attend a local event.

Events near you:

- Herne Bay, 1 Mar, 2pm
- Rochester, 3 Mar, 2pm
- Ashford, 5 Mar, 6.30pm
- Maidstone, 7 Mar, 2pm

www.kentandmedway.nhs.uk/stroke

Examples of promotional materials used during consultation

5.2.2 Consultation activity: gathering views

There was extensive engagement activity with patients and the public, staff and stakeholders including:

- **Telephone surveys:** DJS Research conducted telephone surveys with residents from all ten Clinical Commissioning Group areas. Quotas were set to ensure that the people who took part in the survey were broadly representative of the population of the area.
- **Consultation questionnaire:** An online questionnaire was made available on the Kent and Medway STP website, and the survey was open from 2nd February–20th April 2018. Paper questionnaires were also made available from a variety of sources via the dissemination described above.
- **Public listening events:** 28 listening events took place in locations across Kent and Medway during February-April 2018. These events generally followed the structure of a short presentation followed by an open Q&A session and structured table discussions.
- **Other public consultation activities:**
 - Attending meetings run by third parties – e.g. Dartford Elders Forum, Thanet Over 50s Forum, Campaign for Health in East Kent AGM, to discuss proposals
 - Face to face discussions through focus groups, street surveys and roadshows
 - NHS trust staff engagement events and discussions
 - Outreach to seldom heard groups included discussions with homeless people, prisoners, ex-servicemen and substance mis-use groups

- Structured discussions with people representing those with protected characteristics e.g. older people, LGBTQ groups, mother and baby groups
- Asking questions and responding to queries on social media channels
- Responding to questions, queries and comments received via email, letter and phone
- Meetings and briefings for elected representatives, provider organisations, health and care partners, unions, patient groups

The location of the listening events held during the consultation is shown in Figure 44.

Figure 44: listening events held during consultation



In summary, the reach of the consultation and responses received to the consultation were:

- Paid advertising
 - Reached 296, 842 newspaper readers across Kent and Medway and in border communities in Bexley and High Weald Lewes Havens over the course of nine weeks
 - Achieved 52,503 mobile digital impressions
 - Reached 341,269 radio listeners via 4,308 ad spots
- Social and digital media
 - >14,000 users on the website and >50,000-page views during the consultation period
 - Twitter reach >500,000; Facebook reach >50,000; >4,000-page engagements on Facebook; YouTube >1,000 views of the videos
- Responses to engagement
 - 2,240 responses to the online questionnaire
 - 312 hard copy questionnaires
 - Notes from 28 public listening events attended by 850 people
 - Notes from meetings and forums hosted by others where the proposals were discussed
 - Notes from consultation events with staff in NHS trusts
 - 701 telephone interview responses
 - Notes from 442 face to face discussions through focus groups, street surveys and outreach engagement
 - 500+ email / postal / phone comments and questions

- 500+ comments and questions through social media
- 1,683 postcard responses and a petition with ~3500 signatures received from a group in Thanet

A comprehensive, and wide-reaching consultation was delivered which fully met its objectives as set out in the Consultation Plan published as part of the pre-consultation business case (PCBC). The targets for reach and responses were significantly exceeded and a rich depth and breadth of feedback, perspectives and views on the proposals were gathered as a result.

5.3 Key themes from the consultation

The responses to the consultation were collated and independently analysed and show the key themes that emerged.

5.3.1 Do people agree with the case for change and the proposal to establish HASUs?

Overall, people agreed with the proposal to establish HASU/ASUs in Kent and Medway, and there was a high level of agreement and understanding of the arguments put forward regarding the benefits of having HASU/ASUs in Kent and Medway:

- People understood that current services are not good enough and are not on a par with other areas of the country.
- Residents generally agreed it is better to be treated by specialists and that HASU/ASUs would improve access to specialist care.
- Over three-quarters of respondents to the telephone survey agreed that it makes sense to create HASUs/ASUs and that these units would improve access to specialist treatment and improve the quality of urgent care for stroke patients.
- Almost 9 in 10 (87%) of the responses to the consultation questionnaire agreed that there are convincing reasons to establish HASUs in Kent and Medway, and over three-quarters agreed that HASU/ASUs would improve access to specialist care and improve quality of care for stroke patients.

However, some members of the public were unsure whether there is a clear case for changing the way stroke services are delivered. This was because they felt they did not have enough information or knowledge to judge whether the reasons for change are justified, that the investment may be better focussed across the whole pathway or were concerned over the potential impact on other local services of introducing HASU/ASUs. There was a concern over whether after care, including rehabilitation services and care in the community was being considered as part of the review, and the impact that HASU/ASUs will have on these services.

A minority of people questioned the existing evidence that shows HASU/ASUs provide better outcomes. However, most questions and concerns were not generally around whether HASU/ASUs should be established, but where they should be located.

5.3.2 Is three the right hyperacute stroke units the right number for Kent and Medway?

Whilst many people understood the reasoning behind having three units in the area, and specifically the argument that it would be difficult to staff more than three units in the area, some felt that staffing should not drive such decisions, and that more should be done instead to improve recruitment and retention of staff. Many felt that the geography of the area means that four units would be better in order to provide fair and equal access to all residents.

5.3.3 Views on the five proposed options

Respondents to the consultation questionnaire were asked to rank the five proposed options in order of preference. Whilst there was no clear 'winner', the most preferred option from the surveys was Option A (Darent Valley, Medway Maritime and William Harvey Hospitals), closely followed by Option B (Darent Valley, Maidstone and William Harvey Hospitals). The key reasons given for preferring these options are that they have potentially the greatest reach and accessibility.

Of those expressing a preference for a particular option, many acknowledged that they would choose the option with their preferred hospital, usually the one closest to where they live. Many people (especially from Thanet) did not feel any option was suitable and expressed a desire for Kent and Canterbury Hospital or Queen Elizabeth the Queen Mother (QEQM) Hospital to be re-considered as one of the options. All options were perceived to leave east Kent (particularly Thanet) at a disadvantage with little or no choice. Residents often stated that the other NHS reviews and the potential new hospital in Canterbury should be considered before making a decision on the locations of the units.

Many questions were raised over the decision-making process of the proposed locations. Key areas of concern regarding the decision-making process included:

- The inequality of care for east Kent residents if there is no HASU/ASU at QEQM or KCH.
- Whether the stated travel times were correct.
- The implications of increased travel times on the time from 'call to needle', the ambulance service, and friends and relatives. Two thirds of telephone respondents thought increased travel times was a concern and this concern was highest amongst residents of Thanet.
- Whether decisions had been based on population size, density or demographics.
- Whether geography or need had been considered.
- The reasons for omitting the Kent & Canterbury Hospital and the QEQM Hospital from the shortlist.
- The influence of bordering areas on the proposals.
- The influence of finance on the proposals.

Other topics discussed included the current political situation and questions around the public consultation. Figure 45 details the response to these issues and how they will be addressed. Detailed feedback and responses can be found in Appendix J.

Figure 45: response to issues raised from consultation

Key issues raised	Response to issue
<p>Travel times are too long</p>	<p>A significant amount of work has gone into modelling the travel times as part of the development of these proposals. All five of the shortlisted options mean that 99% of people could reach a hyper acute stroke unit by ambulance within an hour and no-one will need to travel for more than 63 minutes. Evidence shows that patients benefit from thrombolysis up to 3 hours after the start of a stroke. Following discussions with the SE Coast Clinical Senate, the ambition to aim for a call to needle aim of 120 minutes was agreed – giving good access and best outcomes. This is shown in Section 4.3.6.</p> <p>This evidence was reviewed by clinicians as part of the development of the PCBC and re-considered following consultation. Clinicians agreed that depending on where people live, the ambulance journey to reach a hyper acute stroke unit may be longer than being taken to the nearest A&E, but what is most important is the speed and quality of care received once the hyper acute unit is reached. People have a much better chance of surviving and making a full recovery if they travel further but are treated in a specialist unit. This is shown in Section 4.3.6.</p>
<p>Travel times stated are unrealistic</p>	<p>The travel times data used is from a company called Basemap. Basemap (www. Basemap.co.uk) is a nationally recognised and trusted digital mapping and transport solution provider that has supported many NHS organisations over the years. The car travel time data is based on GPS captured from satellite navigation systems (sat nav) and a year’s worth of data is used to produce an average travel time. Car off-peak was taken as a proxy to blue light ambulance travel time as agreed by the South East Coast Ambulance Service (SECAMB). All travel time analysis has been validated by SECAMB. Further validation tests were undertaken that show that the travel times are robust, this includes spot checks with google map travel times. Further details on the approach to travel time modelling is shown in Appendix M.</p> <p>As part of the work on the DMBC, the travel time data was updated, and provider catchment areas were reviewed in more detail (particularly for south-east London). This work was used in the process to agree the preferred option, as shown in Appendix Q.</p> <p>In addition, ambulance data for trauma and PPCI patients who already travel further to the specialist services at the William Harvey hospital was reviewed for patients in Thanet. This showed that the average and longest actual travel times were less than predicted by the modelling. More details are shown in Appendix R.</p>

Key issues raised	Response to issue
Need to consider travel time/cost impact on people visiting stroke patients in HASUs	It is recognised that patient need is the priority in terms of access, and therefore the process to arrive at a preferred option has focussed on travel times for stroke patients. Further work is being undertaken on access for relatives and carers as part of the planned Integrated Impact Assessment workshop in December 2018.
QEQM and K&C should be reconsidered as possible locations for a HASU	<p>As part of the work to shortlist options, East Kent Hospitals University NHS Foundation Trust (EKHUFT) concluded that it would not be possible to run two Hyper Acute Stroke Units because it would be very difficult to deliver due to recruitment issues and the risks around staff relocation. Of the sites run by the trust, the William Harvey Hospital was identified as the best option for a hyper acute stroke unit. This was because of the existence of other services that are desirable to have located alongside a hyper acute stroke unit. This is shown in Section 4.4.2.4.</p> <p>In addition, the Kent and Canterbury Hospital does not currently offer acute stroke services or the range of other emergency and urgent care services that are needed to support a hyper acute stroke unit. There is a separate review of the possible options for the future location of emergency care and specialist services in east Kent. It would be wrong to wait for this work to be completed because this would slow down the essential decision on stroke services. If, following the east Kent review, the William Harvey Hospital was no longer a long-term option for emergency and specialist services and these moved elsewhere – then it is anticipated that any hyper acute stroke service would also move with them, subject to consultation.</p>
Workforce won't be an issue because staff will want to work in HASUs, so you could have four	<p>Workforce has been identified as a key constraint to providing stroke services in Kent and Medway. Even the 3-site option offers workforce challenges which need to be addressed through several initiatives such as a planned stroke campaign on the 'Take a different view' recruitment website to attract candidates from outside of Kent and Medway to join the team and a K&M presence at the UK Stroke Forum in December 2018.</p> <p>Nationally there are workforce challenges within stroke services; with 40% of stroke consultant roles vacant (SSNAP acute organisational audit report 2016). There are also national and Kent and Medway challenges within other clinical professions such as nursing and allied health professionals. These vacancies can be considered within a broader context of challenging vacancy rates for wider Kent and Medway nursing and medical staff with variable turnover rates.</p> <p>As part of the work for the DMBC, workforce modelling was done in more detail alongside the development of more detailed plans to recruit and retain staff. This is shown in Section 8.5.</p>
Deprivation in certain parts of Kent and	Deprivation has been considered in the way that the future incidence of stroke has been modelled. This methodology is shown in Appendix M.

Key issues raised	Response to issue
Medway needs to be properly taken account when deciding where to locate HASUs	An Integrated Impact Assessment has been carried out to specifically understand the impact of the proposals on the most deprived quintile of the total population (see Appendix S). This has informed the development of specific mitigations for these populations as part of the implementation planning for the preferred option (see Section 8.4). The stroke review has the aim of improving the quality of care delivered to the whole K&M population and the evidence shows that improved outcomes are due to being treated in a specialist unit rather than proximity to that unit.
Rehabilitation services need to be in place to support the proposed model	A model for rehabilitation has been agreed by clinicians across Kent and Medway which will ensure equitable, coherent and effective rehabilitation services will be available for all patients, close to home. Further work has taken place to develop this model as part of the work on the DMBC. There is a commitment for a business case for rehabilitation to be completed by spring 2019. This is shown in more detail in Section 3.4.
Bordering areas should not have a say in services in Kent and Medway	As residents of areas outside Kent and Medway would be significantly affected by the proposals, which affect services at their local hospital, the NHS is legally obliged to consult with them (and take their views into account when formulating proposals).
Whether the money required to develop the HASU/ASUs is guaranteed	<p>The proposals are about an investment in stroke services rather than saving money. The proposal requires an investment in buildings and in workforce. This will be paid for by savings from people who have had a stroke being less disabled by it. This rationale is shown in Appendix F.</p> <p>The plans have been agreed by NHS England and have been through the national Capital Investment Committee (see Appendix T). Whilst the capital funding is dependent on agreement of the DMBC and trust business cases, the capital requirements are on the national list of projects for capital funding. The costs of running the units will be paid by the CCG's as commissioners of the service.</p>
With increased travel times in cases of suspected stroke patients, residents are concerned that the ambulance service will not be able to cope with this increased pressure.	<p>The ambulance service has already done a lot of training to identify strokes and this is something that they will continue. The call receivers, who pick up the phone on 999, also have a series of questions that they run through, which help to identify whether it is a stroke.</p> <p>This review is not about saving money, it is about recognising that the service offered for stroke in Kent and Medway is not good enough. The costs for running the new service are likely to increase and there will be investment, some of which will go into the ambulance service. Further details of this additional funding and the implementation plan for the ambulance service are shown in Section 8.6.</p>

Key issues raised	Response to issue
Have dedicated scanners in each hospital, deliver thrombolysis if appropriate <i>then</i> transfer to HASU	Patients going to a non-HASU site will still have to wait in A&E, as they do now, for a scan, for the scan to be interpreted (remotely) and then a course of treatment to be agreed and started. This could all take longer than the additional journey time to the HASU. The lack of dedicated stroke specialist staff on the non HaSU site will also delay diagnosis and treatment'
Have mobile scanners in ambulances and train paramedics to diagnose and deliver thrombolysis	All 999-call staff are FAST trained as are the paramedics in ambulances. There is no treatment that can be given in ambulances for stroke patients. The most important thing is for people to recognise stroke symptoms, call 999 and for the ambulance crew to transport patients to a HASU as quickly as possible.
Improve diagnostic skills of 999 call handlers and paramedics. Have specialist ambulances who can start treatment on the journey	All 999-call staff are FAST trained as are the paramedics in ambulances. There is no treatment that can be given in ambulances for stroke patients. The most important thing is for people to recognise stroke symptoms, call 999 and for the ambulance crew to transport patients to a HASU as quickly as possible.
Use telemedicine more. Use video links to specialist stroke teams.	<p>EKHUFT working with SECamb have started a pilot where specially-trained paramedics service will use a secure video conferencing app to liaise with an expert stroke consultant from EKHUFT in cases where a diagnosis is not clear. The consultant can then see the patient, ask them and those with them questions about their history and symptoms, and discuss the case with the paramedic before deciding whether they need to come to hospital or can receive more appropriate care elsewhere.</p> <p>If the consultant does feel the patient has had a stroke, they can arrange for the ambulance crew to bypass A&E and head straight to the specialist stroke unit at hospital. It means patients can have specialist tests and scans immediately and treatment can begin sooner.</p> <p>Clearly, if this pilot is successful it will be rolled out across the network.</p>

5.3.4 Other factors that should be considered

Choosing the options that would improve access to specialist care and that would improve the quality of care for stroke patients were considered the two most important questions to ask (from a prompted list of questions) when considering the location of the units. The key concerns were longer travel times and the potential location of the units. These factors have been considered as part of the evaluation of the preferred option, as shown in Section 6.2 and the implications of the preferred option on travel and access in Section 8.3.

5.3.5 Post consultation activity

Following the consultation, it was identified that further engagement was required with Black and Minority Ethnic (BAME) groups as the Stroke Programme Board felt insufficient response had been gathered from these groups during consultation. This work was done during August 2018 and was focussed on BAME communities most at risk of having a stroke. This engagement found that:

- 63% of the BAME community surveyed felt the Stroke Consultation proposal made sense with 57% of people feeling it was based on a solid argument.
- The most frequently raised concern was about length of time and distance to travel to a stroke unit for both patients and relatives/friends, followed by concerns about staffing and quality of care at new stroke units and post stroke follow up.
- A unique issue for these communities was concerns about translation services and language barriers in the event of a stroke, both for ambulance and hospital care.

The report is shown in Appendix U.

5.4 Consideration of the consultation activity and responses

The consultation activity and responses were considered by the JCCCG and JHOSC to make sure that statutory responsibilities had been fulfilled and that the responses to the consultation had been properly addressed.

5.4.1 Consideration by the JCCCG

Following the consultation, the Stroke Clinical Reference Group, Stroke Programme Board and the JCCCG discussed the consultation activity and response to the consultation issues at length. The JCCCG held a meeting on 28 August 2018 where they reviewed a wide range of materials from the consultation including:

- Consultation activity report
- Consultation response report
- Consultation activity log
- Consultation correspondence log
- Examples of correspondence
- Examples of social media comments
- Examples of media coverage
- Responses from key stakeholders
- Responses from the questionnaire
- Sample of the postcards received
- Save our NHS in Kent Petition
- Meeting notes from 28 listening events
- Telephone polling questions and report
- Seldom heard/ protected characteristic outreach report
- Focus group report

The JCCCG were asked to consider the following questions, having reviewed the report and consultation materials in detail:

- Did the consultation secure the involvement of key stakeholders?
- Was everyone given a reasonable opportunity to state their views?
- Was it possible to engage with a diverse set of views?
- Did anyone with a significant viewpoint fail to participate?

- How do the key themes and issues arising from the consultation impact on the decision making?

The JCCCG **AGREED** that the extent of consultation and engagement activity undertaken during the consultation period, the number of responses received, and the consistency of the themes coming through from the feedback gathered meant the themes arising from the consultation can reasonably be relied upon to be a fair representation of the views of the impacted population across Kent and Medway, Bexley and High Weald Lewes Havens.

The JCCCG **AGREED** that the consultation was clear that people in Kent and Medway, and border areas, want to have hyper acute and acute stroke units, and understand the rationale for consolidating services onto fewer hospital sites. On that basis they **AGREED** that the NHS should progress with developing plans to establish hyper acute and acute stroke units in Kent and Medway.

The consultation also identified that while the public understood the rationale for establishing hyper acute and acute stroke units, there were concerns about the proposed three HASUs, the absence of KCH and QEQM from the shortlisted options and the increase in travel times for some people that will result from consolidating services. The JCCCG and CRG carefully re-considered the evidence on the benefits of care in hyper acute stroke units, reviewed refreshed travel time data, the information on the current and likely future workforce in Kent and Medway, and the latest evidence on the minimum number of patients a HASU should see in order to be safe and effective. Having considered all these factors, the JCCCG **AGREED** that the number and potential location of hyper acute units should not change from the proposals consulted on.

The JCCCG noted other issues that had been raised such as access for deprived populations and travel times for carers and **AGREED** that mitigations for these issues would be developed as part of the DMBC and implementation planning.

5.4.2 Consideration by the Joint Health Overview and Scrutiny Committee

The Joint Health Overview and Scrutiny Committee met on 5 July 2018 to receive and consider the consultation reports. and to receive an update on the next steps in the stroke services review process.

The JHOSC councillors put questions to two members of the Kent and Medway stroke review leadership team about the approach to consultation presented in the activity report and the outcomes presented in the consultation response report. Overall, the members were pleased with, and supported, the extent of the activity undertaken, and they commented on the quality of the formal public consultation and engagement. The Chair of the JHOSC took the unusual step of formally recording that all the JHOSC members noted the high quality of the consultation activity and agreed it had been comprehensive and well managed.

With regard to the responses to the consultation, the JHOSC discussed the themes that had emerged from the independent analysis of over 5,000 responses. They acknowledged the concerns raised about travel times and asked that the Kent and Medway stroke review team ensure they have carefully reviewed the data and evidence available before reaching a preferred option. The committee also discussed the importance of rehabilitation services, and requested that the NHS ensures sufficient, high quality rehabilitation services are in place at the same time as any hyper acute stroke units are implemented. This is being addressed, as shown in Section 3.4.

6 Identifying a preferred option

6.1 Development of the evaluation criteria to arrive at the preferred option

6.1.1 Approach

Following consultation, a process was undertaken to identify a preferred option for service change. The evaluation of the remaining options sought to weigh the pros and cons of each option in order to decide which is the most favourable overall and should therefore be implemented. This was done through evaluation of the five options which were consulted on using a set of updated evaluation criteria. As a first step, the evaluation criteria used for shortlisting were reviewed and updated. These evaluation criteria had been through a comprehensive and robust development process and have been extensively tested through pre-consultation engagement and as part of the public consultation. It was therefore agreed that the evaluation of the five remaining options should be undertaken using the evaluation criteria used for the PCBC unless there was a compelling reason for change. The criteria would only be changed if new information became available which wasn't available before consultation. This could include feedback from consultation, updated analysis or refinement of criteria to support differentiation between options.

Following this review, the following updates and amendments were made:

- **Changes to evaluation methodology:** agreeing a standard composite evaluation methodology, agreement that if two values are within 5% of each other they will be evaluated same.
- **Changes to evaluation criteria:** additional sub-criteria for activity volumes, go live date, confidence in go live date, quality of implementation plan and capital requirements and changes in banding for the private car (peak) access sub-criteria.
- **Changes to data used for evaluation:** updated data used for evaluation for access to care, workforce baseline and net present value.

These changes are described more fully in the following paragraphs and a detailed explanation of the changes can be found at Appendix D.

6.1.2 Changes to evaluation methodology

The evaluation methodology was like that used in developing the shortlist for consultation. This means that individual sites were evaluated against each of the evaluation sub-criteria and assigned an evaluation using the following key:



Once this had been done, each shortlisted option was assigned an overall (composite) evaluation against each of the sub-criteria using the individual site evaluations within that option. The composite evaluation was then shown as an unweighted matrix from which a preferred option could be identified.

The following amendments to the evaluation methodology were made:

- It was agreed that if two data values are within 5% of each other they would be given the same evaluation, even if the evaluation methodology suggested they should be evaluated differently.
- Following feedback from consultation that the way in which the composite evaluation was calculated was unclear, a standardised composite evaluation methodology was therefore

developed which described 70 combinations of individual site evaluations. This is shown in Appendix V. As part of the development of this standardised composite evaluation methodology, it was agreed that:

- multiple individual evaluation scores of single +'s or single -'s could not result in a composite evaluation of a double + or a double
- a site evaluating as a double negative would have more of an impact on the composite evaluation than the other sites.

Where the change in the evaluation methodology has changed the evaluation of options, this is clearly shown in the paragraphs below.

6.1.3 Changes to evaluation criteria

Changes to evaluation criteria were made following feedback from consultation. This included the addition of sub-criteria for quality of care (activity volumes), ability to deliver (go live date, confidence in go live date, quality of implementation plan) and finance (capital requirements). The evaluation bands for private car at peak travel time were amended following feedback from the JHOSC who felt the bands used for the PCBC showed differentiation when differences between options were actually very small.

Quality of care for all

The national recommendation is that HASU's should see between 500 and 1500 patients a year⁶³. As part of the process to identify the medium list of options, any of the long list of options which had sites with projected patients are fewer than 500 or more than 1500 patients (with a 10% tolerance) a year were removed (see section 4.3.3). However, feedback from the South East Coast Clinical Senate suggested that options with sites below 500 cases should have a lower evaluation (see recommendation 20 in section 7.2.2). In addition, other evidence suggests that services are likely to be clinically effective with an activity volume of at least 600 patients per year⁶⁴. A new sub-criteria of **activity volumes** was included in the quality of care evaluation criteria to evaluate this. This is shown in Figure 46.

Figure 46: activity volumes (new sub-criteria)

Projected activity at HASU/ASU	Evaluation
900 - 1500	++
601-899	+
500 - 600	/
400 - 499	-
<400 or >1500	--

Access to care for all

Distance and time to access services by ambulance and by private car was used to shortlist options for the access to care for all criteria (see Section 4.4.2.2). The bands for evaluation are shown in Figure 47 and Figure 48.

Figure 47: blue light proxy (bands used for shortlisting options)

% total pop access within 45 mins	% total pop access within 30 mins	Evaluation
=>95% access within 45 mins	=>75% access within 30 mins	++
85-94.9% access within 45 mins	65-74.9% access within 30 mins	+

<85% access within 45 mins	<65% access within 30 mins	--
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Figure 48: private car at peak travel time (bands used for shortlisting options)

% total pop access within 45 mins	% total pop access within 30 mins	Evaluation
=>95% access within 45 mins	=>75% access within 30 mins	++
85-94.9% access within 45 mins	65-74.9% access within 30 mins	+
<85% access within 45 mins	<65% access within 30 mins	--

However, feedback from the JHOSC on 5 September 2018 suggested that the jump from + to -- for the evaluation made some options look disproportionately worse. The bands for blue light proxy and private car at peak travel time were therefore amended to reflect this, as shown in Figure 49 and Figure 50.

Figure 49: blue light proxy (revised bands)

% total pop access within 45 mins	% total pop access within 30 mins	Evaluation
=>95% access within 45 mins	=>75% access within 30 mins	++
85-94.9% access within 45 mins	65-74.9% access within 30 mins	+
<85% access within 45 mins	<65% access within 30 mins	/

Figure 50: private car at peak travel time (revised bands)

% total pop access within 45 mins	% total pop access within 30 mins	Evaluation
=>95% access within 45 mins	=>75% access within 30 mins	++
85-94.9% access within 45 mins	65-74.9% access within 30 mins	+
<85% access within 45 mins	<65% access within 30 mins	/

Workforce

The bands for gap in workforce requirements were amended following updates to the workforce baseline to make sure that they would still be differentiating. The changes are shown in Figure 51.

Figure 51: changes to workforce bands

Medium list evaluation (PCBC)		Revised evaluation	
Workforce gap	Evaluation	Workforce gap	Evaluation
>= 12	--	<=4	/
8>x=10	-	>4	-
>=8	/		

Ability to deliver

As part of the shortlisting of options, ability to deliver was developed using a self-assessment approach (see Section 4.4.2.4). Each organisation was asked to consider the expected time to deliver and the ease with which they would be able to do so. This was based on modelled bed requirements by site for each option and the Trusts' willingness to deliver the options.

Following feedback from consultation, it was agreed that:

- The impact of options on neighbouring hospitals needed to be reviewed in more detail as estimated figures had been used for the shortlisting of the options. This included the potential impact of each option on the Princess Royal Hospital (PRUH) in Orpington, Eastbourne District General Hospital (EDGH) and East Surrey Hospital in Guildford. Activity flow impact on bordering hospitals was reviewed for all five shortlisted options and the PRUH was directly impacted in options C and D. In option C this equated to 17% of activity and in option D it equated to 14%. It was therefore agreed that the ability to deliver criteria would include an assessment of the PRUH.
- A rigorous, externally supported process needed to be run to understand the likely go live date (and confidence in that date) for each of the sites in each of the options and the quality of the implementation plans. A panel of expert external assessors were convened, and reviewed trust implementation plans with senior clinicians and managers of the trust. The purpose of the panel was to:
 - To test and assess the robustness of the deliverability plans developed by each of the hospital sites for each of the options;
 - To award an evaluation in line with the agreed assessment methodology for each of the sites in each of the options; and
 - To provide feedback to the each of the panel attendees as to the outcome and the supporting rationale.

Further details on this assessment process is shown in Appendix W.

For the evaluation of the preferred option, the ability to deliver criteria was assessed by the independent panel using the following sub-criterion:

- **Go-live date:** Trusts were asked to assess how long it would take to them to deliver the option based on the capacity required (updated from the assessment made to evaluate the medium list of options following more detailed work on implementation planning – see Section 4.4.2.4).
- **Confidence in go-live date:** Trust were asked to present their current implementation plans to a panel (including regulators, clinicians and patients). The panel were asked to use their expert knowledge to determine if the changes from their current service to a HASU/ASU model could be delivered in the time predicted. This criterion was used because it is important that the timescales presented are not overly optimistic and unrealistic
- **Quality of implementation plan:** Trust were asked to present their current implementation plans to a panel (including regulators, clinicians and patients). The panel were asked to use their expert knowledge to evaluate the quality of their current planning including their track record, their understanding of capacity and their understanding of key risks when moving from their current service to a HASU/ASU model. This criterion was used because it is important that Trusts have a clear plan on how they would deliver a HASU/ASU model and how they will mitigate challenges.

Affordability and value for money

As part of the shortlisting options, affordability and value for money was assessed using a net present value calculation (see Section 4.3.7). A few days before the decision to go to consultation was made by the JCCCG, the NHS Investment Committee sent a letter confirming a maximum expected capital investment for the Stroke Review of £38m. This letter is shown in Appendix T.

It was therefore agreed, following advice from the Finance Group, that capital investment should be included as a new sub-criterion. £38m was taken as the mid-point with options requiring less than £35m being evaluated positively and options requiring more than £40m being evaluated negatively. The bands used in the evaluation are shown in Figure 52.

Figure 52 capital requirement (new sub-criterion)

Capital Investment Required	Evaluation
£x <30m	++
£30m < £x <£35m	+
£35m < £x <£40m	/
£40m < £x <£45m	-
£x >£45m	--

6.1.4 Changes in data used for evaluation

The data used for the evaluation of the medium list of options was reviewed and updated following consultation. The changes that were made are:

- **updating activity data:** the activity data was updated from 2016/17 to 2017/18 (the most recent year available)
- **updating the travel times data:** a refreshed version of the Basemap data from 2017/18 was used to update the analysis. This followed a commitment made to the public during the consultation process to review this data due to recent road alterations in the county.
- **Updating patient flows:** a principle was used in the analysis done for the evaluation of the medium list of options that patients would flow to their nearest HASU/ASU. This principle was reviewed for patients living in London (and therefore part of a different ambulance service network and a different local authority area) following feedback during consultation. It was agreed that patients living in Bexley who currently go to Kings College Hospital would continue to do so even though either DVH or the PRUH might be nearer, as the primary reason for these patients travelling to Kings College Hospital is likely not to be travel time.
- **Updating baseline workforce data:** the baseline workforce data was updated from 2016/17 to 2017/18 (the most recent year available),
- **updating financial data:**
 - the financial data was updated from 2016/17 to 2017/18 (the most recent year available).
 - the financial analysis was updated as the capital requirements and financial costs were refined as part of the development of more detailed implementation plans.

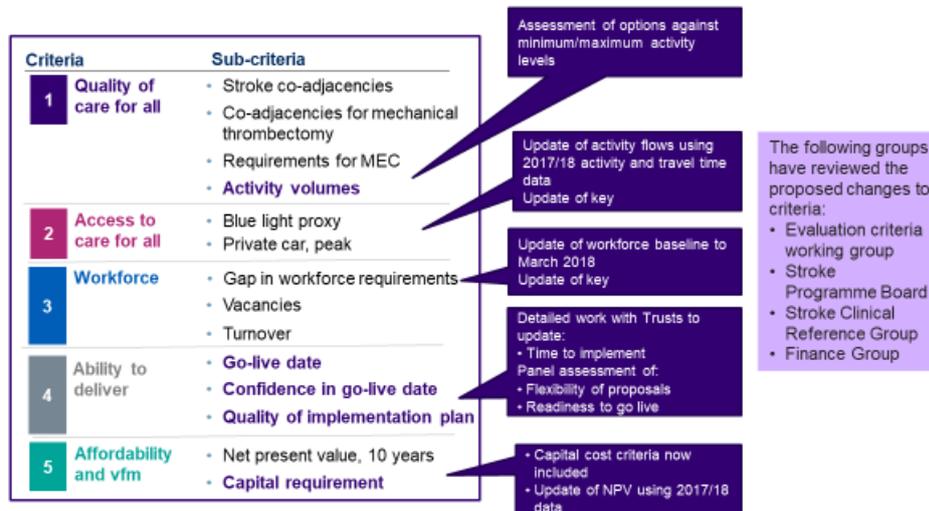
A more detailed explanation of these changes can be found in Appendix D.

6.1.5 Evaluation criteria

The evaluation criteria that were used in the evaluation of the preferred option are shown in Figure 53.

Figure 53: final evaluation criteria for preferred option

Updated evaluation criteria for preferred option



6.2 Evaluation of the preferred option

After careful consideration by the Joint Committee of Clinical Commissioning Group of all the feedback from consultation, it was agreed that there was no new material evidence which would support any alternative options being put forward. Further details of this consideration are shown in Section 5.4.1.

The five shortlisted options were assessed against the new evaluation criteria (as shown in Section 6.1.5). The five shortlisted options (as shown in Section 4.4.4) were:

- Option A - DVH, MMH, WHH
- Option B - DVH, MGH, WHH
- Option C - MGH, MMH, WHH
- Option D - MMH, TWH, WHH
- Option E - DVH, TWH, WHH

6.2.1 Quality of care for all

The following changes were made from the evaluation of the shortlist (see Section 4.4.2.1):

- Co-location with co-adjacent services: option D moved from ++ to + due to the change in the composite evaluation methodology
- Clinical co-adjacencies for mechanical thrombectomy: option D moved from ++ to + due to the change in the composite evaluation methodology
- Services required to constitute a major emergency centre: option B moved from + to / and option C moved from + to / due to the change in the composite evaluation methodology

Activity volumes was added as a new sub-criterion (see Section 6.1.3) and was evaluated as shown in Figure 54.

Figure 54: evaluation of volume of clinical activity

Quality of care for all

Volumes of clinical activity

	Option A DVH, MMH, WHH	Option B, DVH, MGH, WHH	Option C MGH, MMH, WHH	Option D TWH, MMH, WHH	Option E DVH, TWH WHH
WHH	1,327 ++	1,239 ++	1,231 ++	1,269 ++	1,321 ++
MMH	715 +		653 +	818 +	
MGH		896* +	552 /		
TWH				535 /	558 /
DVH	882 +	807 +			1,174 ++
PRUH	709 +	709 +	1,215 ++	1,141 ++	709 +
1a) Overall evaluation	++	++	++	++	++

*Within 5% of different evaluation banding – CRG requested to be noted

SOURCE: Basemap travel times (2018) (car off-peak) as blue light proxy, as confirmed by SECAmb, ONS (2016), CF (2018); Confirmed strokes from trust data returns (15/16 – 17/18); CD10161-164, ONS (2016), IMD (2016)

6.2.2 Access for all

The following changes were made from the evaluation of the shortlist (see Section 4.4.2.2):

- Blue light proxy: these changes are due to revised Basemap (travel) data which has been updated to 2018 and adjusted for a revised K&M catchment area in SE London
 - Option C has moved from ++ to +
 - Option D has moved from ++ to +
 - Option E has moved from ++ to +
- Private car peak: these changes are due to revised Basemap (travel) data which has been updated to 2018 and adjusted for a revised K&M catchment area in SE London
 - Option D has moved from ++ to +
 - Option E has moved from ++ to +

6.2.3 Workforce

The following changes were made from the evaluation of the shortlist (see Section 4.4.2.3):

- Gap in workforce requirements: these changes are due to the revised workforce baseline activity which means workforce at the WHH is over 1,300 at WHH in options A and E and requires a 1 in 8 rota and no longer considering consultants required at PRUH (as the PRUH is already a HASU/ASU and does not go over 1,300 activity in any option).
 - Option A has moved from / to –
 - Option C has moved from - to a /
 - Option D has moved from - to a /
 - Option E has moved from / to -
- Vacancy rates: this is due to the standard approach to taking the individual site evaluations to an option evaluation

- Option A has moved from / to -
- Option D has moved from - to --
- Turnover rates: this is due to the standard approach to taking the individual site evaluations to an option evaluation
 - Option C has moved from + to /
 - Option D has moved from + to /

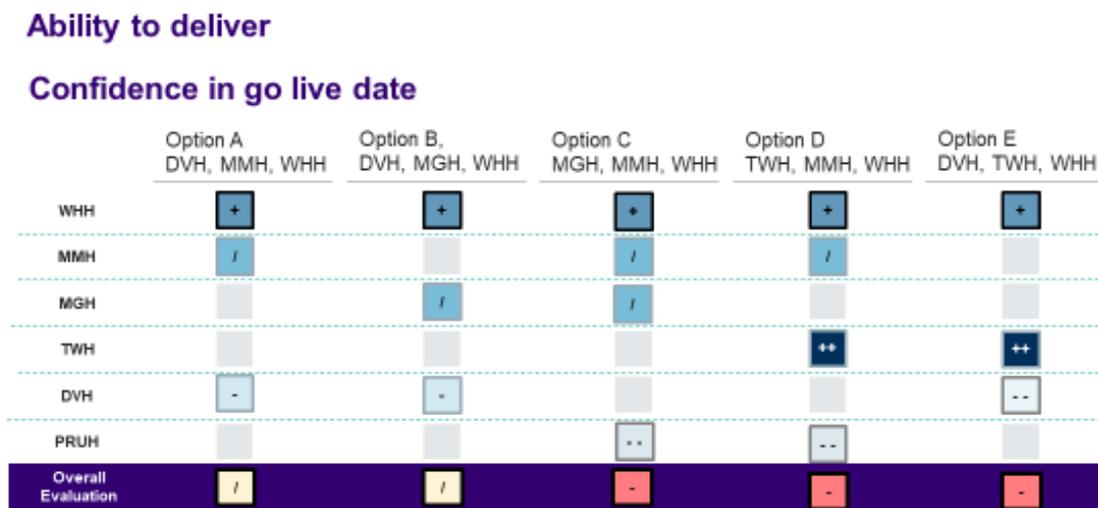
6.2.4 Ability to deliver

The following changes were made from the evaluation of the shortlist (see Section 4.4.2.3):

- Go live date: this was due to the Trusts doing more detailed implementation planning
 - Option A from / to -
 - Option B from / to --
 - Option C from + to --
 - Option D from - to --
 - Option E from - to --

Two new sub-criteria were used to evaluate ability to deliver. The evaluation of confidence in go-live date is shown in Figure 55.

Figure 55: evaluation of confidence in go live date



SOURCE: K&M Stroke deliverability panel 04/09/16

The evaluation of quality of implementation plans is shown in Figure 56.

Figure 56: evaluation of quality of implementation plans

Ability to deliver

Quality of implementation plans

	Option A DVH, MMH, WHH	Option B, DVH, MGH, WHH	Option C MGH, MMH, WHH	Option D TWH, MMH, WHH	Option E DVH, TWH WHH
WHH	-	-	-	-	-
MMH	-		-	-	
MGH		+	+		
TWH				-	-
DVH	/	/			-
PRUH			--	--	
Overall Evaluation	-	/	--	--	-

6.2.5 Affordability and value for money

The following changes were made from the evaluation of the shortlist (see Section 4.4.2.5):

- Net present value: this was due to the updated financial activity to 2017/18 and the updates to the financial analysis as more detailed implementation plans were developed
 - Option A from / to -
 - Option B from / to --
 - Option C from + to --
 - Option D from - to --
 - Option E from - to --

One new sub-criterion was used to evaluate affordability and value for money. The capital requirements sub-criterion is shown in Figure 57.

Figure 57: evaluation of quality of capital requirements

Affordability and value for money

Capital costings

	Option A DVH, MMH, WHH	Option B, DVH, MGH, WHH	Option C MGH, MMH, WHH	Option D TWH, MMH, WHH	Option E DVH, TWH, WHH
Overall Evaluation	29,104 ++	28,535 ++	36,493 I	49,644 --	40,310 -

Note: No two values are within 5% of each other and evaluated differently

Evaluation measure:	Evaluation key:												
Which options would have the lowest capital costs (cost of buildings and equipment)	<table border="1"> <thead> <tr> <th>Activity</th> <th>Evaluation</th> </tr> </thead> <tbody> <tr> <td>$x < 30$</td> <td>++</td> </tr> <tr> <td>$30 \leq x < 35$</td> <td>+</td> </tr> <tr> <td>$35 \leq x < 40$</td> <td>I</td> </tr> <tr> <td>$40 \leq x < 45$</td> <td>-</td> </tr> <tr> <td>$45 > x$</td> <td>--</td> </tr> </tbody> </table>	Activity	Evaluation	$x < 30$	++	$30 \leq x < 35$	+	$35 \leq x < 40$	I	$40 \leq x < 45$	-	$45 > x$	--
Activity	Evaluation												
$x < 30$	++												
$30 \leq x < 35$	+												
$35 \leq x < 40$	I												
$40 \leq x < 45$	-												
$45 > x$	--												
Note: £38m was agreed as the maximum envelope by the NHS E investment committee at the PCBC stage, and is taken as the mid-point for the neutral evaluation													

Note: WHH capital costings were updated by EKHUFT to £20.8m on 12/09 following the successful application for emergency capital funding to cover A&E requirements. Using the methodology consistent across Trusts the figure for WHH would be £20.3m and this figure was agreed in principle at the Finance Group 07/09. If the consistent method was used then Option E would be evaluated as a "I". As the total capital costs would be £39.7m. The difference between the capital costs provided by EKHUFT (£20.8m) and those signed off in principle by the FG (£20.3m) does not impact on the evaluation of any option.
SOURCE: Trust Data Returns, CF Analysis 2018

6.2.6 Summary of evaluation

The updated assessment across all five evaluation criteria, including their sub-criteria, was brought together onto a single evaluation matrix, shown in Figure 58.

Figure 58: evaluation matrix for preferred option

Final evaluation matrix

	A) DVH MMH WHH	B) DVH MGH WHH	C) MGH MMH WHH (PRUH)	D) TWH MMH WHH (PRUH)	E) DVH TWH WHH	
Quality	• SEC co-adjacencies	+	+	+	+	+
	• Co-adjacencies for mech. thromb.	+	+	+	+	+
	• Requirements for MEC	++	/	/	++	++
	• Activity thresholds	++	++	++	++	++
Access	• Blue light, proxy	+	+	+	+	+
	• Private car, peak	+	+	+	+	+
Workforce	• Gap in workforce requirements	-	/	/	/	-
	• Vacancies	-	+	-	-	++
	• Turnover	---	/	/	/	-
Ability to deliver	• Go live date	-	-	-	-	-
	• Confidence in go live date	/	/	-	-	-
	• Quality of implementation plan	-	/	-	-	-
Finance	• Net Present Value (NPV at 10 yrs)	++	++	+	-	/
	• Capital requirement	++	++	/	-	-

6.3 Choosing a preferred option

A workshop meeting to choose a recommended preferred option was held on the 13th September 2018. It was attended by representatives from all ten Clinical Commissioning Groups that make up the JCCCG plus representatives of local councils and expert advisors (including a patient representative, a stroke physician from outside K&M and the Medical Director from the South East Coast Ambulance service).

Following extensive review of the evaluation, discussion of anonymised evaluation matrix and consideration of the de-anonymised options, there was unanimous consensus that the recommended preferred option should be Option B (Darent Valley Hospital, Maidstone General Hospital, William Harvey Hospital).

The other options were not chosen as the preferred option because:

- Option A evaluated less strongly against the workforce criteria. The workshop participants also felt more confident in the ability to deliver Option B. Option B evaluated stronger against both confidence in go live date and quality of implementation plan. The workshop participants considered the assessment of co-adjacencies for a major emergency centre for Option B, and it was agreed that a networked solution for these services was clinically robust following discussion and input from the independent clinical expert.
- Option C evaluated more poorly on ability to deliver, most notably the quality of implementation plans, and assessment of the workforce criterion.
- Option D evaluated more poorly on ability to deliver, most notably the quality of implementation plans, assessment of the workforce criterion and net present value.
- Option E was agreed not to be the preferred option due to its assessment against ability to deliver compared to the preferred option. It was evaluated less strongly for confidence in go live date and quality of implementation plan and these were considered a risk to delivery. It

was also agreed that it was not better for access or quality than the preferred option, but it was more expensive and therefore represented lower overall value.

It was noted that the perceived and potential impact on deprived populations e.g. Thanet and Swale would need to be understood and mitigations developed. This has been considered as part of the updated integrated impact assessment as detailed in Section 8.4.

The information presented to the attendees at the workshop, list of participants and notes from the meeting can be found at Appendix Q.

6.4 Preferred option

The recommended preferred option of **Option B (Darent Valley Hospital, Maidstone General Hospital, William Harvey Hospital)** was then taken forward for more detailed work on implementation.

DRAFT

7 Assuring the preferred option

7.1 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 programme, 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 several different forms of assurance that have been undertaken during 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.

7.2 Clinical Senate review and feedback

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

- June 2015: review of the case for change
- January 2018: review of the care models and options appraisal
- November 2018: review of preferred option and draft implementation plans

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

7.2.1 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 findings⁶⁵. A copy of this report can be found at Appendix X.

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

Issue raised	Actions to address
<p>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 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.</p>	<p>Further text has been added in Section 3 to clarify the vision. This ambition has been reviewed and agreed by clinicians (as part of the stroke Clinical 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).</p>
<p>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.</p>	<p>The stroke case for change has been updated and further developed, including an opening paragraph, and is shown in Section 2. 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:</p> <ul style="list-style-type: none"> • 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 <p>Patient stories have been added to show the case for change and the benefits of the proposals for patients (see Section 3.6)</p>
<p>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.</p>	<p>The agreed model of care covers the entire stroke pathway from prevention to rehabilitation, as shown in Section 3.4. This includes descriptions of the proposed pathway for TIA and rehabilitation. However, the focus of the options for service change is on the HASU/ASU section of the pathway because of the urgency in addressing the significant shortfalls in the current urgent hospital services.</p> <p>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</p>

Issue raised	Actions to address
	<p>rehabilitation (led by the Programme Director and chaired by the Stroke Association). The rehabilitation workstream is working with the CCGs to commission the enhanced pathways as recommended in South East Coast Clinical Senate guidance, shown in Section 3.4.4.</p>
<p>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 <i>aim</i> 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).</p>	<p>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 cases⁶⁶. 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 Section 4.3.3. This approach means that all the new HASUs should see more than the minimum recommended stroke activity of 500 cases a year.</p> <p>The workforce section (3.5.1) describes the plans to provide consultant delivered stroke services, supported by the full range of other staff required to provide a 24/7 service.</p>
<p>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.</p>	<p>It is proposed that HASUs and ASUs will be co-located in all cases, as described in Section 3.3.3. This will include physical co-location on each site, where possible.</p> <p>As shown in Section 3.3.3, it has been agreed that the pathway for mimic patients admitted to a HASU/ASU site would include the following (after investigation):</p> <p>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</p>

Issue raised	Actions to address
	<p>c) If the condition requires further general hospital care they would be transferred within daylight hours (8-8/7):</p> <ul style="list-style-type: none"> 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
<p>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.</p>	<p>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 3.3.6. The co-dependencies formed part of the options appraisal as shown in Section 4.3.2 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 4.4.2.1.</p> <p>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.</p>
<p>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</p>	<p>Travel times have been reviewed in detail as part of the options appraisal (see Section 4.3.6) and the evaluation of options (see Section 4.4.2.2).</p> <p>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.</p> <p>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</p>

Issue raised	Actions to address
<p>between sites within the stroke network, and need to be articulated.</p>	<p>crews and there are costs associated with this that are being further evaluated now that a smaller set of options is agreed. £500k per year has been included in the financial costing to account for increased costs for the ambulance service. The additional cost to the ambulance service will be finalised in the financial section of the DMBC.</p>
<p>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. <i>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),</i> 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.</p>	<p>Kent and Medway have adopted the 120-minute call to needle time standard recommended by South East Coast Clinical Senate⁶⁷. 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 4.4.2.2).</p> <p>A key part of implementation planning will be to ensure that the standard is reached.</p>
<p>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</p>	<p>The workforce challenges to providing stroke services have been widely discussed by clinicians, patients, the public and operational managers. These are outlined in Section 2.4.2.</p> <p>A detailed workforce plan is being developed as part of implementation planning. Health Education England (HEE) have been supportive of the development of HASU and discussions continue with the Postgraduate Dean. HEE are members of the Workforce workstream working group.</p>

Issue raised	Actions to address
<p>training requirements of the workforce, as the 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.</p>	
<p>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.</p>	<p>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.</p> <p>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 incidence⁶⁸ and the GP Research Database showed a 30% reduction in incidence of stroke over 10 years⁶⁹). 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.</p> <p>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</p>

Issue raised	Actions to address
	<p>years (based on CCG data, not taking into account inflows)⁷⁰.</p> <p>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)⁷¹ where the incidence of stroke is low.</p> <p>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.</p> <p>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 3.3.1 and has been aligned with the Joint Strategic Needs Assessments.</p>

7.2.2 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 findings⁷². A copy of this report can be found at Appendix I.

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

Issue raised	Actions to address
<p>Recommendation 1: Make explicit the specific improvements in patient outcomes for the population of Kent and Medway that would stem from centralising stroke services.</p>	<p>Narrative has been added to link the vision section to the case for change and the anticipated outcomes and benefits from the new service model (see Section 10).</p> <p>Further work on fully quantifying the benefits of the proposals will be undertaken as part of implementation planning.</p>
<p>Recommendation 2: Specify the goals regarding future stroke service performance (using the SSNAP framework).</p>	<p>Narrative has been added to link the goals set out in the vision more explicitly</p>

Issue raised	Actions to address
	to the SSNAP metrics set out in the case for change (see Sections 3.1)
<p>Recommendation 3: Future stroke incidence modelling should take account of the projected population growth within Kent and Medway.</p>	<p>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.</p> <p>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 incidence⁷³ and the GP Research Database showed a 30% reduction in incidence of stroke over 10 years⁷⁴). 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.</p> <p>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)⁷⁵.</p> <p>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 population in the 300 homes already built in Ebbsfleet)⁷⁶ where the incidence of stroke is low.</p>

Issue raised	Actions to address
	<p>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.</p>
<p>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.</p>	<p>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 trends⁷⁷. 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.</p> <p>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.</p>
<p>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.</p>	<p>This has been corrected and references in the PCBC were correct.</p>
<p>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.</p>	<p>The agreed model of care covers the entire stroke pathway from prevention to rehabilitation, as shown in Section 3. This includes detailed descriptions of the pathway for rehabilitation. However, the focus of the options for service change is on the HASU/ASU section of the pathway because of the urgency in addressing the significant shortfalls in the current urgent hospital services.</p> <p>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</p>

Issue raised	Actions to address
	<p>three times in October and November 2017 and agreed to the adoption of the South East Strategic Clinical Networks recommended model of care⁷⁸.</p> <p>The work on rehabilitation is on-going and the latest progress is included in Section 3.4.</p> <p>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.</p>
<p>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.</p>	<p>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 protect beds for HASU/ASU. The resulting bed numbers were updated throughout the PCBC.</p>
<p>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.</p>	<p>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 3.3.2). South East Coast Ambulance Service are also undertaking work to reduce the time spent with the patient before transfer to a HASU.</p>
<p>Recommendation 9: Travel time references should not be confused with call to needle time (which includes ambulance response and assessment times before journey initiation).</p>	<p>Additional clarification was added to the PCBC, especially Section 4.4.2.2 to be clear that the travel time analysis refers to door-to-door travel.</p> <p>There is now consistency in reference to call to needle, door to needle, call to door etc.</p>
<p>Recommendation 10: Average travel times should be given in addition to the percentage of journeys falling within 60 minutes.</p>	<p>The average travel time to a hospital was calculated and included within the summary slides of the five shortlisted options in Section 5.1 of the PCBC.</p>
<p>Recommendation 11: There should be a formalised Kent and Medway stroke network that takes</p>	<p>The South East Coast Cardiovascular Network (which includes stroke) will</p>

Issue raised	Actions to address
responsibility for overseeing the implementation and quality improvement of stroke services across the pathway.	support implementation, and delivery of improved stroke services across the south east is one of its key objectives for 2017-2019 ⁷⁹ .
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 shortlisting, options were evaluated against the necessary co-adjacencies for a thrombectomy centre and those with more co-adjacencies have been evaluated more highly (see Section 4.4.2.1).
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 Section 3.3.3. Clinicians in Kent and Medway have agreed a TIA pathway based on National Institute of Clinical Excellence (NICE) guidelines ⁸⁰ 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 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 in Section 3.3.3. Clinicians have agreed a pathway for mimics, as shown in Section 3.3.3 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.

Issue raised	Actions to address
	<p>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.</p> <p>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.</p>
<p>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.</p>	<p>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 section (3.5.1)</p> <p>A minimum of two SPAs is allocated for all stroke consultants.</p>
<p>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.</p>	<p>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.</p> <p>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.</p> <p>This has been updated in the workforce section (3.5.1)</p>
<p>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,</p>	<p>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.</p> <p>The consultant workforce modelling has been revised to reflect the clinical time</p>

Issue raised	Actions to address
<p>even though at least six will be required on the on call rota.</p>	<p>required to cover the stroke service in totality, including prospective cover for Direct Clinical Care (DCC) PAs, as 48 PAs per week.</p>
<p>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.</p>	<p>The Joint Committee of CCGs and the Stroke Programme Board both have senior nursing representation.</p> <p>The 'Leading Change, Adding Value' framework will be considered in developing the nursing workforce model, as part of the implementation process.</p> <p>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.</p>
<p>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.</p>	<p>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 section (3.5.1)</p> <p>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.</p>
<p>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.</p>	<p>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</p>

Issue raised	Actions to address
	TWH in options D and E.
<p>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.</p>	<p>Modelling has shown which LSOAs are within which HASU network based on travel time to nearest hospital. The Senate recommendation was that LSOAs should be assigned to each hospital to guide ambulance conveyances and these details have been shared with SECAMB. This effectively would direct patients to each hospital and establish the catchment areas and ensure they are above the required minimum activity.</p>
<p>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 and patient outcomes that centralised stroke services can deliver.</p>	<p>Following analysis of potential changes to travel flows, as outlined in Section 4.3.3, it was agreed that some options with fewer than 500 cases per annum would be considered further, especially given the quality evaluation. Further work has been completed as part of the Decision Making Business Case to assess potential catchment areas and ensure that the chosen option delivers sufficient volume at all sites. All sites in all options are above 500 cases, as shown in Section 6.2.1.</p>
<p>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.</p>	<p>The modelling was reviewed following consultation with 17/18 Basemap data allowing the impact of the improved road network to be better evaluated.</p>
<p>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.</p>	<p>All HASU/ASU beds will be co-located at each site, where possible, as shown in Section 3.3.2.</p>
<p>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.</p>	<p>This is included and was assessed as part of the evaluation process, as shown in Section 4.4.2.2.</p>
<p>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.</p>	<p>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.</p>
<p>Recommendation 27: More clarity about the realistic date when the trusts' additional bed capacity would</p>	<p>Please see the implementation planning section of this document (Section 9) for</p>

Issue raised	Actions to address
be in place will help sequence planning and recruitment to the posts, and help to align stakeholders' expectations with the likely implementation date.	the more detail on implementation phasing and dates.

7.2.3 South East Coast Clinical Senate review of preferred option and implementation plans

The South East Coast Clinical Senate reviewed the preferred option and implementation plan in October 2018 and published a formal report on their findings⁸¹. A copy of this report can be found at Appendix Y.

The South East Coast Clinical Senate raised many important points on review of the preferred option and implementation plans, which have been addressed as part of this DMBC.

Issue raised	Actions to address
Stroke prevention and addressing inequalities	
1. P8 The DMBC would benefit from a clear overview and summary up front of the preferred option, which is of course the main focus and conclusion from the processes described within the document.	A summary of the preferred option has been added to the Executive Summary and in more detail in Section 6.4.
2. P8 There should be a stated ambition to achieve SSNAP grade As across the board in all three HASU/ASUs. This should include the criteria in the post-acute as well as the acute organisational and clinical audit. [...]. The timescale for achieving this will be challenging in the short term, so providing a timescale for when it is intended to achieve such high performance would also be required.	The JCCCG agreed that the ambition should be to achieve SSNAP Grade A. The CRG recommended that this could be done within 6 months of go-live for the new model of care (+3 months for reporting). This was agreed by the SPB on 28 November 2018 and has been added to the DMBC in the benefits section (see Section 10.5).
3. P8 The DMBC should make clear the intention to comply with the Royal College of Physicians' recommendations for stroke care by those delivering and commissioning stroke care.	This has always been the intention and has now been clarified in Section 3.3.3.
4. P9 A clearer statement of the ambitious targets from the STP that are being aimed for across these various risk factors for stroke [obesity, physical inactivity, diabetes, atrial fibrillation and hypertension] would give more weight to the prevention strategy in the DMBC. These should include interventions that cover wider determinants of health and cover primary and secondary prevention interventions.	Details of the STP targets can be found in Section 3.3.1.
5. P10 The integrated impact assessment (page 3) highlights that the preferred option will have disproportionately longer journey times for those from deprived areas. The DMBC should be clearer as to how the risks to worsening inequalities might be mitigated by the better patient outcomes that will result from the improved stroke care that will result	Agreed. This is shown in Section 8.4.

Issue raised	Actions to address
from treatment in a high performing centralised stroke service.	
<p>6. P11 The projected increasing proportion of elderly people in the population, together with the forecast increase in the overall population of K&M, is [...] likely to result in an actual rise in the total number of stroke cases per year, even if the age-related stroke incidence remains the same. In this regard, note should be made of the important recent publication 'The burden of stroke in Europe' which forecasts a rise across Europe in total stroke events of 34% between 2015 and 2035. For the UK Kings College estimates an increase in the UK of 44% from 2015-2035.</p> <p>It is therefore recommended to take note of this longer term predicted trend and explore what the implications of this could be in the final DMBC (including the impact on HASU/ASU bed capacity requirements), or re-model activity using a range of activity that includes the current "no increase" and a moderate increase in later years in line with the conclusions of the Kings College report. It would also be worth re-examining the data for the under 75s especially in relation to health inequalities and areas of deprivation, as it has been shown that patients from lower socioeconomic groups have strokes around seven years earlier than the highest, so the incidence of stroke is likely to be higher in deprived areas in this age group.</p>	[DN to be drafted]
Bed modelling	
<p>7. P12 The catchment populations for each HASU and of the neighbouring HASUs outside of K&M need to be agreed, so that capacity is aligned with demand.</p>	This work has already been completed and is shown in Appendix D.
<p>8. P12 The ability to deliver the additional beds for the HASUs and ASUs on time and with sufficient capital needs careful review once plans are presented. The DMBC needs to acknowledge more explicitly the risks around this.</p>	This work has been completed and is shown in Section 9.4.
Hyper acute stroke pathway	
<p>9. P13 Longer travel times can be mitigated by slicker processes on arrival at the HASU hospital. This is one of the many benefits of HASUs, where systems, staff and equipment are in place to deliver an efficient pathway. This point should be emphasised to partly address the concerns of those faced with longer ambulance travel times to get to their nearest HASU hospital.</p>	Agreed. This is shown in Section 8.4.
<p>10. P14 We recommend that South East Coast Ambulance (SECAmb) provide actual blue light travel time data for pPCI or trauma transfer from Thanet to</p>	SECAmb have reviewed the blue light for pPCI and trauma and the travel times are slightly shorter than the ones used for

Issue raised	Actions to address
William Harvey Hospital, Ashford, as it is expected that this would be less than that estimated by Basemap. If the blue light data is available for other journeys, this would add further data and perspective.	stroke from base map, and all within the 60 mins. See Appendix R for further information.
11. P14 There should be greater transparency provided in the DMBC about the travel times for residents living furthest from HASUs. This particularly applies to residents in Thanet who have the further journey times (to Ashford). The travel time map (figure 6) in the Integrated Impact Assessment (Mott Macdonald Sept 2018) provides a clear visual demonstration of the areas of K&M (and of East Sussex) of the issue.	<p>Travel times have been a key part of the work to date and have been part of the evaluation process at all stages.</p> <p>Travel times for people in Thanet have been reviewed extensively and further details are shown in Section 8.3.3.</p> <p>The travel time map from the Integrated Impact Assessment has been included in the DMBC in Section 8.3.2.</p>
12. P14 The standard for ambulance response times for category 2 calls (that includes FAST stroke calls) is 18 minutes, though we understand that currently 90% respond within 40 minutes. We understand that SECAmb believes the standard is achievable, but with additional funding and resources, which would need to be agreed.	Additional funding of £500k for the ambulance service has been included in the revenue costs. This is shown in Section xx [DN to be cross-references with finance section].
13. P15 It is the expectation that hospitals housing HASUs have at least two functioning CT scanners, and that they prioritise new stroke patients accordingly.	This has been confirmed by EKHUFT and DGT. One scanner at MGH is outside the ED but MTW have confirmed that it is quickly accessible and will be staffed to allow 24/7 imaging for HASU. [DN MTW to provide written confirmation]
Mechanical thrombectomy	
14. P16 The case for a K&M thrombectomy centre could be strengthened by estimating the potential number of patients who should receive it, and the health impact.	Thrombectomy is not currently part of this DMBC and activity analysis would be considered as part of any separate, future, business case. However, EKHUFT are undertaking a thrombectomy pilot and details of this are shown at Appendix H.
15. P16 We were provided with the vision to have a single 'spoke' thrombectomy associated with one of the three HASU sites in place by April 2020, which might provide the service (initially at least) Monday - Friday day time, but with the hub centre (at BSUH or Kings) providing out of hours cover, training and support. More detail about this could be included, and how the service would be staffed (e.g. by training non-neuro interventional practitioners (e.g. interventional cardiologists and interventional radiologists)), though it is recognised that stroke units around the country are currently grappling with the same issues.	Thrombectomy is not currently part of this DMBC and these details would be considered as part of any separate, future, business case. However, EKHUFT are undertaking a thrombectomy pilot and details of this are shown at Appendix H.
16. P16 There will presumably be capital investment requirements to deliver a de novo thrombectomy	Thrombectomy is not currently part of this DMBC and any capital costs would be

Issue raised	Actions to address
service, which should be appear somewhere in the final DMBC as a future cost.	considered as part of any separate, future, business case. However, EKHUFT are undertaking a thrombectomy pilot and details of this are shown at Appendix H.
17. P16 Confirmation that all three HASUs will be able to provide 24/7 CT angiography should be sought, as this is required to select patients urgently for thrombectomy.	This has been confirmed by all trusts.
18. P16 The HASU hospital that ends up providing the thrombectomy service for K&M would increase admissions to that HASU. The impact that this may have on patient flows and bed capacity required at the thrombectomy hospital and the other non-thrombectomy HASU hospitals should be explicitly considered, as part of the risk analysis of the overall bed modelling.	Thrombectomy is not currently part of this DMBC and this issue would be considered as part of any separate, future, business case. However, EKHUFT are undertaking a thrombectomy pilot and details of this are shown at Appendix H.
Presence of onsite co-dependent and supporting clinical services	
19. P17 The stroke pathway as described in the DMBC (section 2.3.4) refers to the South East Clinical Senate's report 'The clinical co-dependencies of acute hospital services' in which is described the clinical services that should co-locate with a HASU. It is assumed, but not stated in the document, that each of the three HASUs in the preferred option meets that guidance. It would be important to confirm that for each of the three HASU hospitals.	All the HASUs in the preferred option meet this guidance as one of the hurdle criteria for site options was that sites must have these co-located services. This is shown in Section 4.2.2.
20. P17 The evaluation criteria for the selection of the preferred option (section 3.5.1 [now 4.4.2.1]) does however refer to the 'co-adjacencies' with vascular surgery and trauma, to mechanical thrombectomy co-adjacencies (on site availability of pPCI and interventional neuroradiology) and 'major emergency centre requirements – whether all services are available on site' (though what those services are, is not specified).	<p>The major emergency centre requirements are set out in Appendix N and are:</p> <ul style="list-style-type: none"> • Acute cardiac ppci • A&E • Emergency surgery • Full obstetrics <p>The CRG recommend that, although a required service for a major emergency centre, a level 3 NICU has marginal clinical relevance to a HASU so its availability was not considered in the evaluation.</p>
Pathways for stroke mimics	
21. P17 The proportion of stroke mimic patients admitted to HASUs is estimated to be 25% of confirmed stroke cases, and it is advised that the pathways of care are presented in more detail than is currently available in the DMBC.	Further work has been done on pathways for stroke mimic patients. These have been agreed by the CRG [DN CRG in process of final sign off] and the SPB. More detail is shown in Section 3.3.3.
22. P17 The DMBC refers to ongoing care in the HASU hospital under the 'general team' if predicted LoS is 2 days or less, or transfer of care to the general team at	Agreed. Further work on these pathways will be done as part of the implementation phase.

Issue raised	Actions to address
<p>the patient's local hospital (if not the HASU hospital) of predicted LoS is >2 days. There will need to be flexibility in this outline pathway depending on the clinical condition of the patient, what their other specialty needs are, and to avoid unnecessary breaks in the continuity of care. It is likely that a significant number of such patients will remain in the HASU hospital till discharge, and those hospitals should factor in the implications of this for their non-stroke bed base.</p>	<p>The impact on the bed base was considered by the CRG who agreed that the impact is likely to be 2-3 beds per site. This has not been included in the HASU/ASU bed base but was included in provider presentations to the deliverability panel and in the provider business cases (see Appendix W and Appendix K).</p>
<p>Rehabilitation pathways</p>	
<p>23. P18 Meeting the length of stay on ASUs (modelling an average of 15 days) requires the capacity in the community to discharge patients to, whether to home with early supported discharge, to inpatient rehabilitation, or to nursing home or palliative care. Therefore addressing the current apparent capacity gap is critical for the sustainability of the proposed new HASU/ASUs. Inpatient rehabilitation capacity should be considered alongside ASU bed requirements, not separately.</p>	<p>Inpatient rehabilitation capacity that sits alongside current acute stroke beds (e.g. at MTW) has already been included in the modelling (as ring-fenced beds). Inpatient rehabilitation capacity will be further reviewed as part of the rehab business case that is currently being prepared (see Section 3.4).</p>
<p>24. P19 The input from and collaboration from adult social care is critical to the success of the rehabilitation pathway. Social worker input to stroke units is vital to planning onward care in the community, and this should be emphasised. Social worker assessment is complicated by the centralisation of acute stroke care, and the need for input from the patient's local social work services. This issue should be considered and ways developed to ensure patients are not stranded in the HASU/ASU whilst waiting for their needs and local service provision to be evaluated and set up.</p>	<p>Agreed. This is being discussed as part of the work on the rehabilitation business case, as detailed in Section 3.4.</p>
<p>25. P19 The membership of the RWG was not provided, so it is unclear if there is representation from local authority adult social care services. Collaboration with local authorities is vital to the provision of a comprehensive, holistic rehabilitation pathway, and planning should be integrated between health and social care.</p>	<p>There is representation from local authority adult social care on the rehabilitation working group (RWG).</p>
<p>26. P19 The timescales provided for the RWG's work in the DMBC (High level plan for community rehabilitation, fig 16) indicate that a business case will be produced in Spring 2019. Given the time required to approve the business case then recruit the staff required, this must be seen as a risk to the smooth running of the new HASU/ASUs at their predicted go live dates, and planning for any community rehabilitation transition period should be undertaken.</p>	<p>This has been added to the programme risk register (see Section 9.4).</p>

Issue raised	Actions to address
<p>27. P19 Commissioning principles for rehabilitation are listed in the DMBC and have been agreed by the RWG and the stroke CRG. We did not get a sense of the firm commitment of the K&M commissioners to these principles and the importance of resourcing this key aspect of the stroke pathway, but this is clearly required.</p>	<p>The JCCCG has discussed rehabilitation on a number of occasions. There is a firm commitment to developing a business case for rehabilitation.</p>
<p>28. P19 For patients with devastating strokes, end of life care is often appropriate, and the DMBC should refer to this palliative care pathway and how it would be provided.</p>	<p>All providers currently have palliative care pathways for stroke and CRG agreed that these will continue to be used.</p>
Workforce	
<p>29. P20 There is an appropriate major focus on the workforce requirements and implications of HASUs and ASUs, and K&M have demonstrated in the DMBC a wide range of initiatives and collaborations to address this challenge. A detailed workforce implementation plan is contained in the DMBC, but the risks around it need to be made more explicit, with the need for interim contingency planning.</p>	<p>The risks have been more explicit and are shown in Section 9.4.</p>
<p>30. P20 The gap between current staffing levels (medical, nursing and therapies) and that required for the three preferred HASU/ASUs to comply with national recommendations is very significant, and there was concern from the panel about the ability to address these gaps in the timescales being proposed, and creative interim solutions are likely to be required.</p>	<p>It is essential that there is an agreed, robust monitoring process of the workforce gap and a collective focus on driving and delivering the recruitment and retention plan. Providers will consider how to better utilise their temporary workforce (bank and agency staff) and how staff are redeployed from other areas within the Trust. This work will be done as part of implementation, following a decision.</p>
<p>31. P21 Given the current national shortage of stroke consultants, the upskilling of other medical specialties in stroke competencies to support stroke units and on call rotas (particularly Care of the Elderly consultants, whose traditional skill set would provide additional value for the care of older stroke patients) should be considered.</p>	<p>Agreed. Work has started on considering a range of roles, as set out in Section 3.5.1. Further work will be done as part of implementation, following a decision.</p>
<p>32. P21 We were concerned from what we heard that the Medway stroke service might become unsustainable before early 2020 (when services are anticipated to have been moved to Darent Valley and Maidstone) based on stroke consultant staffing levels. It may be helpful to consider the feasibility of transferring services/patients earlier to Maidstone, particularly if the one full time stroke consultant could move with the service. This would support the development and establishment of a critical mass at Maidstone, though the interim implication for beds at Maidstone would need to be addressed.</p>	<p>Work has been done to support Medway and the immediate workforce issues have been resolved.</p> <p>Phasing was considered as part of the work on implementation. It was agreed that the disadvantages of transferring patients earlier to Maidstone outweighed the advantages (see Section 9.1). However, capacity could be available at Maidstone, if required.</p>

Issue raised	Actions to address
<p>33. P22 It is considered less likely that nursing and therapies staff would move to work in a different hospital, so assumptions about utilisation of stroke staff from hospitals losing their stroke units (e.g. QEQM to William Harvey) need to be qualified and alternative ways of staffing the HASU/ASUs considered.</p>	<p>Providers are developing plans to transfer staff between hospitals. It is expected that providers will continue to engage and involve staff in this work. Providers may initiate a staff consultation aligned to their HR policy. This work will be done as part of implementation, following a decision.</p>
<p>34. P22 Rotational posts, working both in the hospital and the community, should be considered for stroke nursing and therapies staff. This would develop broad skills, and may enhance recruitment and retention.</p>	<p>Plans for rotational posts are being developed including a Kent and Medway Education and Training Competency Framework. There is also an opportunity to work with the deanery and the new Medical School regarding trainee doctors' rotation to stroke services across Kent and Medway. In the first instance, work will be undertaken with Health Education England on the steps required to achieve this goal.</p> <p>Further work will be completed as part of implementation, following a decision.</p>
Non-HASU hospitals	
<p>35. P23 The South East Clinical Senate has previously produced detailed guidance for stroke networks on hospitals without acute stroke units. It is strongly recommended that the K&M stroke programme board and its stakeholders review this document and the recommendations contained within it, as they are all highly relevant to the current K&M plans and their ability to deliver the benefits of centralised acute stroke care.</p>	<p>This document was considered by the CRG at their meeting of 13/11 and formed the basis for proposals for pathways for non-HASU patient transfer (see Section 3.3.4). These were considered and agreed by SPB on 28/11.</p>
<p>36. P23 Of the seven acute hospitals in K&M, four of them will not have stroke units in the future. Medway is the only hospital whose trust does not have a HASU on another of their sites, but many of the issues are similar for all four, and the DMBC should outline how these four hospitals will work with the HASUs in the future, and provide greater clarity on the patient pathways. There is currently insufficient detail about this in the DMBC.</p>	<p>Further work has been done on this pathway as shown in Section 3.3.4. This pathway was formulated by CRG and signed off by SPB on 28/11.</p>
<p>37. P24 As described in the section on the implementation of the model, there is a high level of risk that the stroke service as it currently exists will not endure through to the formal date of HASU opening, though staff redeployments or choice. Detailed discussions with stroke care staff in these hospitals is required to explain the transition, and to understand the opportunities for and plans of such staff.</p>	<p>Detailed on-going engagement is taking place with stroke care staff. This is planned to continue throughout implementation, as outlined in Section 9.5.</p>

Issue raised	Actions to address
<p>38. P25 The many benefits of centralising stroke services to patient outcomes following a stroke must be clearly communicated to the public and service users. The inevitable concerns from the local population of losing stroke services from their local hospital must be met with a clear explanation of the new pathways, providing re-assurance that patient safety issues are addressed, that patient transfers to the centre will be appropriate and timely, and that post-acute stroke care will be of a high standard that maximises rehabilitation outcomes, with rehabilitation at home as soon as possible.</p>	<p>This message has been a key part of communications throughout the Stroke Review and this will continue during implementation. Further details of the communications and engagement plan for implementation is shown in Section 9.5.</p>
<p>39. P25 Commissioners and providers should engage with the public, stroke patients and their carers in considering the impact of their local hospital not having a specialist stroke unit. Meaningful and demonstrable engagement should be part of any commissioning specification. Such engagement needs to acknowledge the potential trade-off between the benefits of travelling for specialist treatment, and the lack of more local provision of the service.</p>	<p>This message has been a key part of communications throughout the Stroke Review and this will continue during implementation. Further details of the communications and engagement plan for implementation is shown in Section 9.5.</p>
<p>40. P25 Any steps that could be taken to mitigate the impact on relatives and carers who may have to travel longer distances to visit the patient whilst in the HASU or ASU should be considered. This might include longer permitted visiting hours, and support with transport.</p>	<p>A Transport Advisory Group including stroke patients, carers and patient representatives is being convened. This group is part of the programme governance structure (see Section 9.3) and will meet and make recommendations throughout implementation.</p>
Implementation	
<p>41. P26 There was particular concern that the Medway stroke unit could cease to be able to provide adequate services quickly after the decision on the preferred options for HASUs is made, and plans should be prepared for a rapid transfer of stroke activity to the hospitals that will take on this activity (Maidstone and Darent Valley).</p>	<p>Work has been done to support Medway and the immediate workforce issues have been resolved.</p> <p>Phasing was considered as part of the work on implementation. It was agreed that the disadvantages of transferring patients earlier to Maidstone outweighed the advantages (see Section 9.1). However, capacity could be available at Maidstone, if required.</p> <p>This issue is included as a programme risk (see Section 9.4).</p>
<p>42. P26 The implementation period should be minimised.</p>	<p>Agreed. This was discussed as part of the work on implementation planning and phasing. The local ambition is to implement the new services as quickly as possible whilst ensuring that quality and</p>

Issue raised	Actions to address
	patient safety are not compromised. Further details are in Section 9.1.
<p>43. P26 There are parallel discussions ongoing about the future configuration of acute hospitals in East Kent, with an alternative major emergency hospital located in Canterbury being considered. The potential impact of such a future reconfiguration on the flow of patients with acute stroke, are not discussed in the DMBC. Whilst there is significant uncertainty about this alternative at present, and if agreed and implemented it would likely be some years before it was established, there should be explicit reference to this issue in the DMBC.</p>	<p>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.</p> <p>This reference is already included in the DMBC and was in the PCBC. See, for example, Section 4.3.2. It was clearly communicated during consultation.</p>
Stroke networks and clinical leadership	
<p>44. P27 Strong and effective clinical leadership and programme management will be required in setting up the new stroke pathways and HASU/ASUs within Kent and Medway. There needs to be commitment to this need, and appropriate resourcing. A clinical director for stroke services across Kent and Medway is recommended, with appropriate managerial support. In addition, each HASU should have strong clinical leadership from the medical, nursing and therapies professions to oversee implementation, and be responsible for the quality of stroke care in the HASU, ASU and the local stroke network it is responsible for.</p>	<p>A clinical director lead across Kent and Medway will be appointed across Kent and Medway. In addition, each provider has appointed strong clinical leadership for the individual HASU/ASUs. See Section 9.3 for more details.</p>
Summary	
<p>P28 The panel was not entirely confident in the current projections for no growth in stroke activity in the years ahead, given the growth in the projected size and age of the population of K&M, and recent publications. This underlines the importance of prevention measures (that also impact on the development of many other long term conditions) in improving population health and reducing future need and demand for stroke care, and reducing health inequalities. Meanwhile, capacity planning at the trusts hosting the HASU/ASUs should take account of a potential increase in activity in the years ahead.</p>	<p>[DN to be drafted]</p>
<p>P29 The evidence base for thrombectomy (mechanical clot extraction) after or instead of thrombolysis in a selected group of stroke patients is now strong, and</p>	<p>Thrombectomy is not currently part of this DMBC and this issue would be considered as part of any separate,</p>

Issue raised	Actions to address
the implications of this new standard of care are being worked through nationally as well as locally. The DMBC describes plans for a single thrombectomy service for K&M, though the siting of this is yet to be decided. The impact of such a centre on patient flows and capacity planning of the three proposed HASUs across the county will need to be considered in more detail.	future, business case. However, EKHUFT are undertaking a thrombectomy pilot and details of this are shown at Appendix H.
P29 Patients with stroke mimic symptoms make up around 25% of admissions to HASUs, and the subsequent pathways of care need to be mapped out in more detail, particularly for those patients initially admitted from more distant sites, and for whom the location of their ongoing care needs to be carefully considered.	Further work on this is shown in Section 3.3.3.
P29 Once the decision has been made about the future siting of the HASU/ASUs, there is a risk of destabilising the stroke workforce in units that won't be providing stroke care in future, and full and meaningful engagement with affected staff in exploring the opportunities available at the future HASU/ASU units, should continue.	Agreed. This risk and mitigations is shown in Section 9.4.

7.3 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 5.4.2, Appendix Z and Appendix AA.

7.4 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 7.5 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.

7.5 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 enough 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 DMBC will result in the reduction of 3 beds (2% of modelled hospital stroke beds – from 132 beds currently to 129 beds in 2021⁶). This small reduction in beds will be achieved by reducing average length of stay for patients from 15.3 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 3.3.3. 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 2011⁸². Sensitivity analysis has also been undertaken to understand the financial impact of a higher average length of stay than planned, as shown in Section 0.

⁶ 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. These numbers have changed slightly since the PCBC due to updated activity figures and a change in catchment populations. The numbers have been re-validated with NHS England.

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 DMBC 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.

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

- The work undertaken to date prior to consultation
- Work undertaken during and since consultation, in support of this DMBC

7.5.1 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 reviewed the content of the PCBC with their Governing Body and each chair signed the foreword to the PCBC.

7.5.1.1 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 Z). 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.

7.5.1.2 Activities during and since consultation

During consultation, the following events and activities were undertaken. All public events were promoted via local channels, networks, posters and online. CCGs and GPs were specifically involved in the following:

- As ambassadors for the Stroke Review, attending roadshows, public events and as media spokespeople. A cohort of clinical spokespeople were identified and trained, including stroke clinicians, GPs, senior medical leaders and ambulance staff.
- Provider-led events for staff. The aim of these was 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 were considered and, within reason, accepted.
- Displays in key locations

CCGs remained part of the Stroke Programme Board which continued to meet during the consultation phase and the development of the DMBC. During consultation, the usual, trusted communication and engagement channels with GPs were used to raise awareness and to ask for feedback in response to the consultation.

In addition, the Stroke Review:

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

7.5.2 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 shows how the public and patients have contributed to the direction of the Stroke Review since consultation.

A letter of support for the consultation was 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 was sufficient pre-consultation public engagement and that Healthwatch Kent fully supports the robust process used by the Stroke Review. The full review is shown at Appendix BBii. A detailed list of pre-consultation public and patient engagement is shown in Appendix Z, a full description of consultation activities is shown in Appendix P and a list of post-consultation activities are shown in Appendix AA.

A letter of support for the Stroke Review was also been received from the Stroke Association and is shown at Appendix BBi.

7.5.2.1 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, as shown in Appendix O. Input from patients and public was also used to develop criteria for evaluating the options. The results of this are shown in Section 4.4.1.

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 several 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.
- Consultation feedback
- Preferred option
- Implementation plans

- Consultation response
- Evaluation criteria for preferred option
- Preferred option and detailed implementation plan

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 join the Joint Health Overview and Scrutiny Committee with colleagues in Kent and in Medway.

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.

The Kent and Medway JHOSC met on 5 July 2018 to discuss the consultation and responses. Overall, the members were pleased with, and supported, the extent of the activity undertaken, and they commented on the quality of the formal public consultation and engagement. The Chair of the JHOSC took the unusual step of formally recording that all the JHOSC members noted the high quality of the consultation activity and agreed it had been comprehensive and well managed.

Information has been presented in a clear, non-technical, user-friendly way and this was a major focus when 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 have been used to inform the development of the Stroke Review (for example, in the development of the evaluation criteria – see Section 4.4.1).

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 was 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.

7.5.2.2 Activities during and since consultation

During consultation, different events and activities were undertaken to strengthen public and patient engagement (these are outlined in more detail in Section 5.2). These includes:

- Holding twenty listening events across Kent and Medway and affected neighbouring areas
- Hosting hospital events primarily aimed at NHS staff but also open to patients
- Attending 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
- Focussing on an outreach programme, particularly for 'hard to reach' groups and seldom heard voices
- Participating in clinical engagement events aimed at both GPs and provider staff
- Distributing consultation materials to public outlets including hospital sites involved in the consultation, and community spaces (and offer them in alternative formats where required)
- Setting up a consultation response unit to answer questions and deal with responses from stakeholders including members of public
- Continuing to attend meetings with JHOSC, local authorities, MPs and other statutory bodies and consultees.

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

Since consultation, feedback from public and patients has continued to be used to inform the Stroke Review. A formal and independently analysed report of the consultation responses and feedback was considered by the Joint Committee of the CCGs in detail on 28 August 2018. The progress of the Stroke Review has been updated through the STP website, newsletters and other consultation materials produced, and by hosting and participating in meetings with stakeholders. Engagement and involvement activities are ongoing and are focussed on explaining the preferred option and support and co-design for implementation planning.

7.5.3 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 2.4 and Section 3. A review of evidence was also undertaken and is shown at Appendix C.

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.

7.5.3.1 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. Further work has been done since consultation to develop clinical pathways including for TIA, mimics, strokes at non-HASU/ASU units and rehabilitation. This work is shown in Sections 3.3 and 3.4.

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 scarce 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 enough 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 has been 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 care⁸³. Since consultation, the group has met three more times and has agreed more detailed pathways and detailed workforce requirements, as shown in Section 3.4. A business case for changes to rehabilitation is expected to be completed in Spring 2019.

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 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 three times (at case for change, at options and at preferred option) 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 7.2.1, 7.2.2 and 7.2.3 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.
- Prior to consultation, an independent chair of the Clinical Reference Group ensured that discussions and proposals followed best practice guidelines and ensured the impartiality of proposals.

7.5.3.2 Activities during and since consultation

The structure that is already in place has been maintained; providing clinical leadership and ensuring that the clinical evidence base underpins the programme of work.

The stroke Clinical Reference Group has continued 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 has taken forward the additional work recommended by the South East Coast Clinical Senate in its report including around stroke rehabilitation (see Section 3.4) and mechanical thrombectomy⁸⁴ (see Section 3.3.3). The Clinical Reference Group has also provided information and recommendations to the

Stroke Programme Board to support the finalisation of proposals for change p it is expected that they will continue to support and inform implementation planning once a decision on the preferred option has been made.

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

CCGs, as the leaders for commissioning services, are working 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 (see Section 10 for more details).

7.5.4 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 considered when considering patient choice. Quality of service is ranked highest by local patients and clinicians and, for patients, closely followed by access.

7.5.4.1 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 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 paramount⁸⁵. 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.

7.5.4.2 Activities during and since consultation

Patient choice has continued to be considered by the Stroke Review and has continued to inform the proposals where it is relevant (for example, for rehabilitation services). The proposals will continue to be assessed for the impact on patient choice during implementation

8 Assessing the implications of the preferred option

8.1 Description of preferred option

This section describes the preferred option for acute stroke services in Kent and Medway. More detailed implementation plans are set out in Section 9. For the preferred option:

- 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 3.2.
- There will be work undertaken to improve stroke prevention and rehabilitation services.
- There will be a combined HASU/ASU unit at Darent Valley Hospital, Maidstone General Hospital and William Harvey Hospital.
- There will be no acute stroke services at Medway Hospital, Tunbridge Wells Hospital, Queen Elizabeth the Queen Mother Hospital and Kent & Canterbury Hospital. Robust protocols will be put in place to transfer any patient at a hospital without a HASU/ASU who is suspected of having a stroke. It is also the expectation that patient who are taken to a HASU/ASU and have not had a stroke (mimics) and people who have had a stroke but no longer require specialist acute care will be expatriated to services in their local area as long as it is clinically safe to do so.
- Discussions are currently taking place in East Kent about options for the configuration of a wider range of services. One of these options is 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.
- There will be an increase in specialist stroke staff including an estimated xx additional consultants, xx additional nurses and xx additional therapists and an opportunity for more nurses and allied health professionals to become stroke specialists [DN numbers to be added].
- Some patients will have to travel further for the urgent aspects of their stroke care, but no more than 63 minutes. However, consolidating hospital stroke services will save lives and reduce disability.

8.2 Activity implications

The activity implications for the preferred option can be shown as strokes, mimics and TIAs. This is then converted into HASU and ASU beds using a set of assumptions on occupancy rates and of stay. The required beds for each site in the preferred option are shown in Figure 59.

Figure 59: activity and bed numbers for the preferred option

Site	Strokes	TIAs	Mimics	HASU beds	ASU beds	Total beds
DVH	807	81	202	10	24	34
MGH	896	90	224	11	27	38
WHH	1,239	123	309	14	38	52
Eastbourne*	94	9	24	1	3	4
Other outflows*	18	2	4	0	1	1
Total	3,054	305	763	36	93	129

*This is the activity and bed numbers for "K&M catchment area" strokes not the total activity seen – 45 of these patients are currently seen at Eastbourne, despite TWH being closer

NOTES: Volume of stroke activity based on 3 years of provider data (2014/15 – 2016/17) and (2015/16 – 2017/18), 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 has a HASU stay of 2 days. The remaining 80% of stroke activity has a HASU length of stay of 3 days. Two-thirds of stroke activity has 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) and (2015/16 - 2017/18), Basemap travel time data (car, off-peak), ONS population data (2015) and (2016), IMD deprivation data (2015) and (2016), Carnall Farrar analysis

The largest HASU/ASU will be at the William Harvey hospital, where there will be just over 1200 strokes and a unit of 52 beds. There will be similar sized HASU/ASUs of around 800 strokes (34 beds) at Darent Valley Hospital and around 900 strokes (38 beds) at Maidstone General Hospital. There will be a small number of just under 100 strokes (4 beds) seen at the HASU/ASU at Eastbourne District General Hospital (these strokes are only patients who are from the Kent and Medway catchment area, not the total number of strokes seen at EDGH).

The flow of activity from current sites to the future HASU/ASUs are shown in Figure 60. This shows that the strokes from current units will often throw to multiple other units once HASU/ASUs are established in addition, it is expected that around 200 strokes (eight beds) of strokes that are currently seen at the Princess Royal University Hospital (which is already a HASU) will be seen at Darent Valley Hospital once it is established as a HASU/ASU.

Figure 60: flow of activity for the preferred option

Current site

	Darent Valley Hospital	Maidstone General Hospital	Tunbridge Wells Hospital	Medway Maritime Hospital	William Harvey Hospital	QEQM Hospital
Darent Valley Hospital*	604	0	93	110	0	0
Maidstone General Hospital	0	314	197	385	0	0
William Harvey Hospital	0	0	21	7	643	568
Princess Royal University Hospital	0	0	2	0	0	0
Eastbourne Hospital**	0	0	94	0	0	0
East Surrey Hospital	0	0	18	0	0	0

* 209 of these strokes (8 beds) are currently seen at PRUH despite DVH being closer. It is anticipated that these strokes will flow to DVH when it is a HASU/ASU.

**45 of these strokes (2 beds) are currently seen at Eastbourne, despite TWH being closer

8.2.1 Estates plans

Detailed estates plans have been developed by the providers to show where the new facilities will be located on each hospital site. These are shown in Figure 61, Figure 62 and Figure 63. Further details can be found in the trust business cases in Appendix K.

Figure 61: estates plans for William Harvey Hospital



Figure 62: estates plans for Darent Valley Hospital



Figure 63: estates plans for Maidstone General Hospital
[DN being finalised by MTW]

8.3 Travel and access implications

Clinicians recognise the importance of access to AHSU/ASU for the local population and at the very earliest stages of the Stroke Review agreed that travel and access would be a key element to the development of the recommendation. Section 4.3.6, 4.4.2.2 and 6.2.2 describe how travel analysis was used during the process to identify the options that were taken to public consultation and the

preferred option. This section describes the travel time impact on the preferred option in more detail.

8.3.1 Feedback from consultation

Travel times were the key area of concern for people during the consultation. Issues that were raised include:

- travel times are too long
- travel times stated are unrealistic
- impact on people visiting stroke patients
- impact on deprived populations
- whether the ambulance service can cope with increased travel times

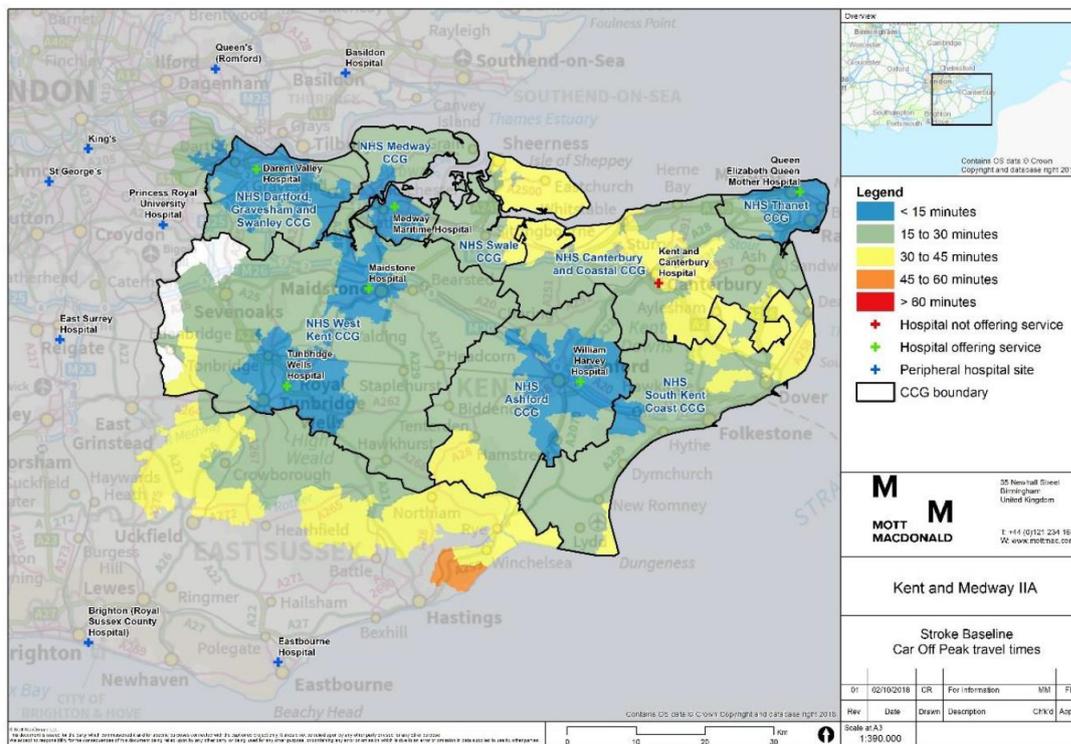
The consideration and response to these issues can be found in Section 5.3.3 and 8.4.4.

During consultation, questions were also raised about the impact on people in Thanet where travel times will be the longest. This issue is explored in further detail in Section 8.3.3.

8.3.2 Travel times for the preferred option

The travel times to access current acute stroke services (none of which are HASU/ASU services in Kent and Medway) are shown in Figure 64. This shows that currently everyone (100%) can access current acute stroke services within 60 minutes and almost everyone (99.8%) can access services with 45 minutes.

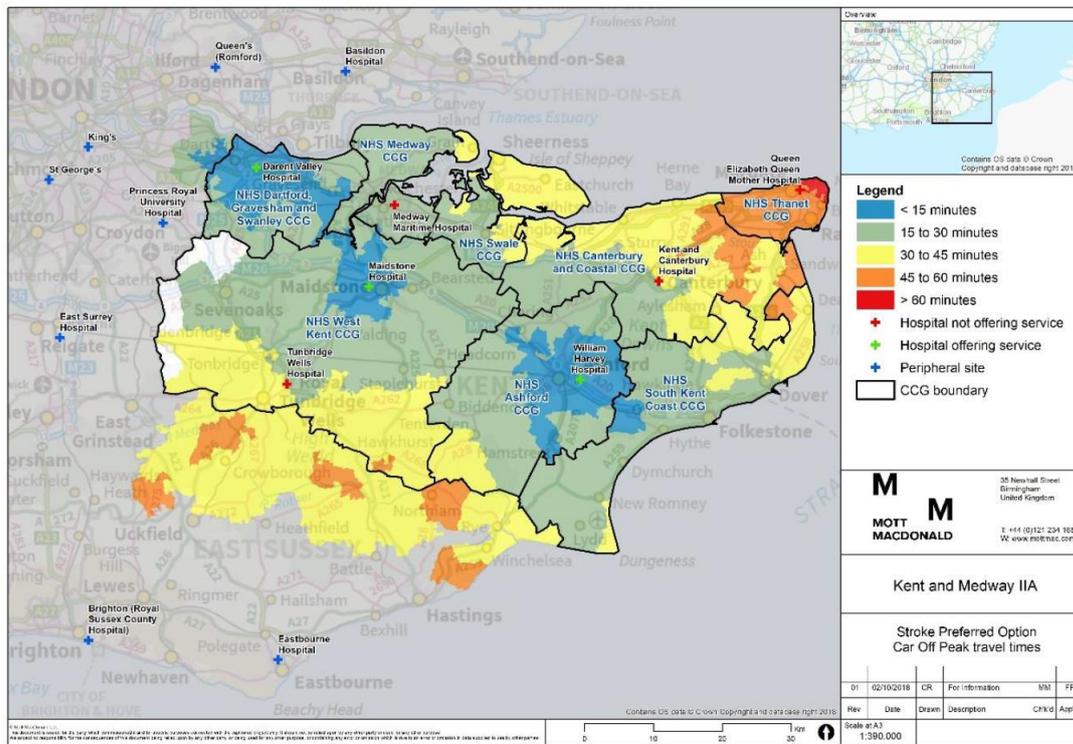
Figure 64: travel times to current acute stroke services (blue light)



Source: Mott MacDonald

The travel times to a HASU/ASU for the preferred option are shown in Figure 65. This shows that almost everyone (98.3%) can access services within 60 minutes and most people (92.4%) can access services within 45 minutes. The maximum travel time is 63.5 minutes.

Figure 65: travel times to HASU/ASU for the preferred option (blue light)



Source: Mott MacDonald

Further information on travel times can be found in the integrated impact assessment (Appendix S) and in Appendix D.

8.3.3 Travel times for the Thanet population

Concerns have been raised regarding the extended travel time for the Thanet population, especially from deprived areas. Of Thanet's population, 83% will be able to access a HASU/ASU in 60 minutes, with the average time being 55 minutes and the maximum travel time being 63 minutes. It is important to understand that **whilst the changes will result in some patients having to travel further to access some stroke services, this will be offset by the quality benefits of having access to a streamlined and fully resourced hyper acute stroke unit on arrival at hospital.** Negative impacts associated with increased journey times include increased stress and anxiety, increased costs associated with travel for relatives and carers and a lack of acceptable alternative transport methods. However, the positive health impacts from the proposed changes, including improved clinical outcomes, are likely to be experienced disproportionately by this group due to their higher propensity to require stroke services. The impact of increased travel times will be felt mainly by visitors and carers who will need to travel further to visit patients, rather than patients who will experience improved care and outcomes despite travelling further to access services.

There have been detailed discussion ways to mitigate or reduce the effect of this increased travel time. These are shown in detail in Appendix A.iii (this list is being reviewed and updated at an integrated impact assessment workshop with key stakeholders in December 2018) and include:

- A focus on health promotion and prevention particularly for deprived populations as a way of reducing the number of people having a stroke and therefore requiring treatment.
- Close monitoring of activity and outcome information during implementation and beyond to ensure that quality standards are being met and the benefits of the changes are being realised, especially for deprived populations.
- Work with voluntary transport services to ensure remote and deprived populations can access services and visit patients.
- Review of the cost/availability of car parking spaces for patients and carers as part of the implementation of the plans.

8.4 Equalities implications

8.4.1 Introduction

An integrated impact assessment on the preferred option was undertaken in September 2018. A copy of this report can be found at Appendix S. This was an update to the integrated impact assessment that was undertaken prior to consultation on the five options for consultation. A copy of that report can be found at Appendix CC.

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 preferred option and were therefore considered as part of the work: age, disability, pregnancy and maternity, sex and race. Deprivation was also considered as there are some deprived populations within Kent and Medway, although it is not a protected characteristic.

8.4.2 Feedback from consultation

During the consultation, there was a focus on ensuring that people from impacted groups with protected characteristics were represented in the feedback received. Activities included:

- Outreach engagement with hard to reach groups.
- Telephone survey of underrepresented groups.
- Production of materials in different formats including easy read and translations into other languages.
- Distribution of materials through a range of locations including GP surgeries, public libraries and pharmacies.

The main area of concern raised during consultation (that is relevant to the integrated impact assessment) is longer travel times to access services for patients and for carers, particularly for deprived or elderly populations.

8.4.3 Overall impact of preferred option

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 with other clinically dependent services 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.

The assessment also considered the sustainability impact of each proposal. The preferred option has a very small negative impact on greenhouse gas emissions.

8.4.4 Impact on travel and access for protected (and deprived) populations

People from the most deprived quintile will be disproportionately impacted by the proposed changes in terms of travel and access, compared to the general population. This is shown in Figure 66.

Figure 66: preferred option travel time by blue light ambulance (protected characteristics plus deprivation)

	Preferred Option - Within 30 minutes %	Percentage point change from baseline	Preferred Option- Within 45 minutes %	Percentage point change from baseline
Population overall	69.6%	-19.9%	92.4%	-7.4%
Females aged 16-44	71.5%	-17.9%	93.2%	-6.7%
Population with LLTI	66.2%	-22.2%	89.9%	-9.8%
Most deprived quintile	61.8%	-22.9%	81.3%	-18.7%
Population aged 65 and over	65.1%	-22.8%	90.5%	-9.1%
Males	69.7%	-19.7%	92.5%	-7.3%
BAME population	78.0%	-13.4%	94.5%	-5.4%

Source: Basemap travel time data, UK Census 2011/ MYE 2016/IMD 2015

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. However, the positive health impacts from the proposed changes, including improved clinical outcomes, are likely to also be experienced disproportionately by this group due to their higher propensity to require stroke services. The impact of increased travel times will be felt by visitors and carers who will need to travel further to visit patients, rather than patients who will experience improved care and outcomes despite travelling further to access services.

8.4.5 Mitigations

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 include:

- A focus on health promotion and prevention particularly for deprived populations as a way of reducing the number of people having a stroke and therefore requiring treatment.
- Close monitoring of activity and outcome information during implementation and beyond to ensure that quality standards are being met and the benefits of the changes are being realised, especially for deprived populations.
- Engagement with stroke care staff to support them through the changes and encourage them to remain in Kent and Medway.
- Continued engagement and clear communication with the public to ensure they understand the changes and where to access services.
- Work with voluntary transport services to ensure remote and deprived populations can access services and visit patients.
- Review of the cost/availability of car parking spaces for patients and carers as part of the implementation of the plans.

Prior to consultation, these mitigations 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) and agreed by the Joint Committee of CCGs. The updated Integrated Impact Assessment was reviewed in detail by the Clinical Reference Group, the Stroke Programme Board and the Joint Committee of CCGs. It was also considered by a range of stakeholders including patients, patient representatives, clinicians and local authority staff at an Integrated Impact Assessment workshop.

A detailed list of the impacts and mitigations can be found in Appendix A.iii (these will be reviewed and updated at a workshop with key stakeholders in December 2018).

8.5 Workforce implications

Workforce changes will be required to support delivery of the clinical standards for hyper acute and acute stroke services. This will require an estimated additional [DN to add] whole time equivalent (WTE) staff, including the filling of a range of new and enhanced roles. A fundamental part of achieving the clinical standards and clinical service delivery model will be recruiting, upskilling and retaining an appropriately skilled workforce across Kent and Medway. In order to deliver the recommended changes a fundamental shift is required towards integrated and proactive care. This will require new skills, competencies and enhanced roles working across stroke pathways and in partnership with primary, community and third sector partners.

8.5.1 Feedback on workforce during consultation and beyond

During consultation, there were concerns raised about workforce. These were many around concerning the shortage of specialist staff and whether it would be possible to recruit enough staff especially given national shortages. Questions were also raised whether additional staff could be recruited to allow additional eight HASU/ASU to be opened. This issue is addressed in Section 5.3.3.

Following consultation, four staff face-to-face engagement sessions were held with 43 members of staff from across nine organisations in attendance. Forty-five members of staff also completed an online survey. The questions focussed on three main areas:

1. How are you feeling about the consultation?
2. What are your concerns and fears?
3. What are the challenges?

From this engagement, four key themes emerged:

- **Rehabilitation and social services:** staff wanted to know about the rehabilitation plan and how this will be a seamless pathway back to the community. They were concerned about the resources required for rehabilitation and the importance of social service input in care planning.
- **Staffing/workforce:** plans to recruit into current vacancy and incorporate new roles and career pathways. In addition, staff wanted to know about education and development for new and existing staff.
- **Decision-making process:** staff wanted to know about the process for choosing a preferred option for the location of the HASU/ASUs and the impact on hospitals that were not selected. Redeployment opportunities for staff working at sites that are not selected.
- **Equitable quality of care:** regardless of where patients live, whether SECAMB have the capacity to respond within an acceptable timeframe given the distance some patients will live from a HASU/ASU.

Several other pieces of work have been undertaken since consultation to further develop workforce plans and ensure continued clinical input:

- The **Clinical Reference Group** have undertaken a more detailed consideration of the **impact on the workforce**
- A **Stroke Workforce Group** consisting of provider clinical and operational leads supported by the STP workforce team has developed the Kent and Medway workforce plan
- East Kent University Hospitals Foundation Trust has led work with the University of Keele to develop a **minimum competency for all acute stroke staff in Kent and Medway**, undertaking detailed bottom up assessment of current workforce competency against future requirements

Communication and engagement with staff throughout consultation through staff engagement events and briefings and following the decision to proceed with reconfiguration, in planning and through transition is a core component of the communications plan (see Section 9.5). The changes being proposed may cause uncertainty amongst staff and there will be information that will need to be provided to help staff understand and contribute to the reconfiguration.

8.5.2 The current stroke workforce

Stroke services are composed of several different staff groups working together as a multidisciplinary team to deliver care to stroke patients. Stroke is a consultant-led service supported by medical staff, nursing, physiotherapy, occupational therapy, speech and language therapy, dieticians and clinical psychologists. The baseline whole time equivalent workforce numbers in post for stroke services at each current site is shown in Figure 67.

Figure 67: stroke workforce baseline - Kent and Medway

[DN to be added]

8.5.3 Current workforce challenges

Workforce has been identified as a key constraint to providing stroke services in Kent and Medway. Nationally there are workforce challenges within stroke services; with 40% of stroke consultant roles vacant⁸⁶. There are also national and Kent and Medway challenges within other clinical professions such as nursing and allied health professionals. It is expected that both turnover and vacancy rates will improve within stroke services with the introduction of HASU/ASUs as a result of improved career pathways and developmental opportunities such as the introduction of advanced clinical practitioner roles and interdisciplinary training and education. The reduction of duplication of workload and effort through the introduction of new roles such as Clinical Assistants (administrative staff working with the medical teams to follow up administrative tasks) will also help to improve the position.

8.5.4 Workforce gap analysis

Consultant and other clinical staff numbers used to assess the gap have been calculated using NHS South East Strategic Clinical Network Stroke Service Specification guidelines and are based on the recommended ratio of activity to clinical cover.

8.5.4.1 Consultants

Figure 68 shows the gap for consultants in post for the three sites in the preferred option. Required consultant numbers have been calculated using NHS South East Clinical Network Stroke Service Specification guidelines and are based on recommended ratio of activity to medical cover, as set out in Section 3.5.1. This shows that xx consultants are required with xx currently in post leaving a gap of xx to be recruited [DN to be updated].

Figure 68: gap analysis for preferred option (consultants)

[DN to be added]

Other stroke clinical staff

Figure 69 shows the gap for other stroke clinical staff for the three sites in the preferred option. Required staff numbers have been calculated using NHS South East Clinical Networks Stroke Service Specification clinical standards, as set out in Section 3.5.1. Sensitivity analysis has also been undertaken to understand the impact of different numbers of staff moving between sites. This shows that up to an additional xx registered nurses will be required plus a large increase in all therapists [DN to be added].

Figure 69: gap analysis for preferred option (other stroke clinical staff)

[DN to be added]

8.5.4.2 Wider workforce

Further engagement in modelling will be required with the wider workforce that support stroke services such as mental health and diagnostics. This will be undertaken as part of the transitional planning through engagement workshops with staff within services. Engagement will also be undertaken with the Stroke Association to consider the role of volunteers within the new model of care.

8.6 Financial impact of preferred option

[To be added following provider business case sign off]

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9 Implementation plan

Any decision to proceed with the preferred options is dependent on decisions taken by the JCCCG. However, in order to take a decision to proceed, the JCCCG needs to be assured that detailed implementation plans are in place. With that in mind, the Stroke Review has developed a more detailed implementation plan for the preferred option to show how the transition would take place. Following decision-making, it is expected that some transition time would be required to set up governance arrangements and finalise plans to progress implementation, but this time will be kept as short as possible to support early implementation.

9.1 Outline programme implementation plan

The local ambition is to implement the new services as quickly as possible whilst ensuring that quality and patient safety are not compromised. Several planning principles were agreed to support the development of a detailed implementation plan:

- To assess the ability of site operational teams to accommodate the transition based on seasonal variation in demand and staffing shortfalls
- To recognise the risk of closing units becoming unsustainable due to an inability to retain and recruit staff
- To reflect the projected flows between hospitals and the impact on activity, beds, travel time and workforce over the transition period
- To understand the impact of a phased approach on the workforce, ambulance service and patients

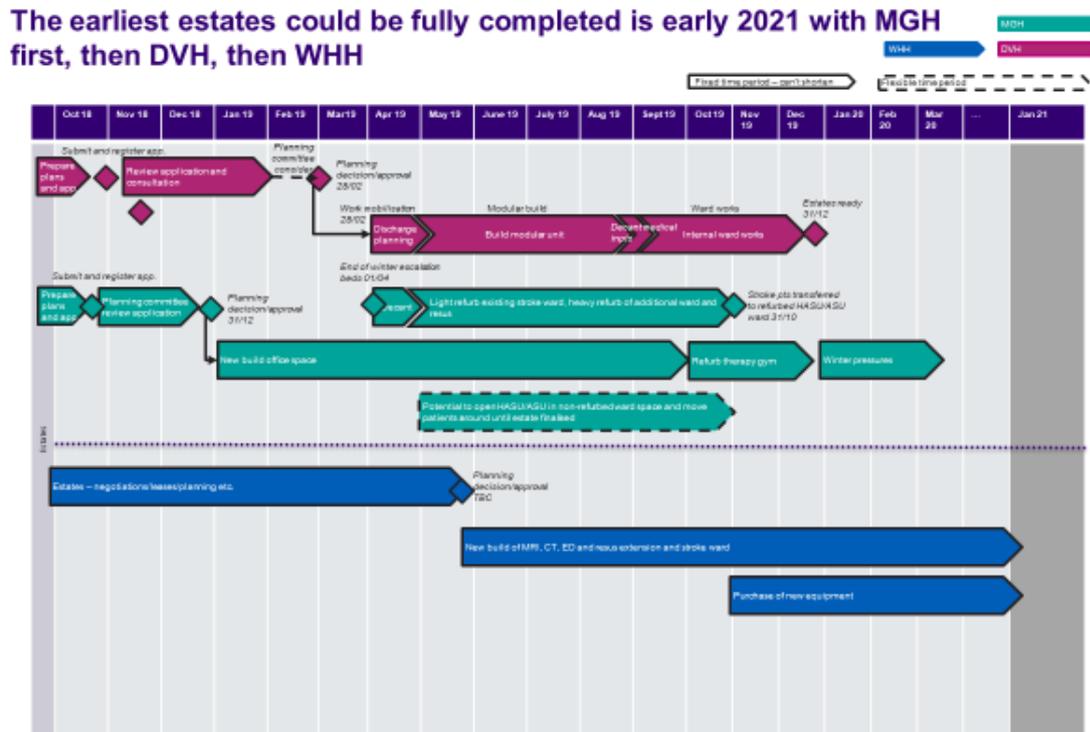
The key constraints for implementation of the plans are the lead time for capital developments, the flows of activity between hospital sites (i.e. that capacity is ready in a HASU/ASU when an adjacent acute stroke service is closed) and the availability of the workforce to staff units.

The lead time for capital developments was explored in detail and it was agreed that the earliest dates capital would be ready were:

- William Harvey Hospital: January 2021
- Darent Valley Hospital: end December 2019
- Maidstone General Hospital: end October 2019

This is shown in detail in Figure 70.

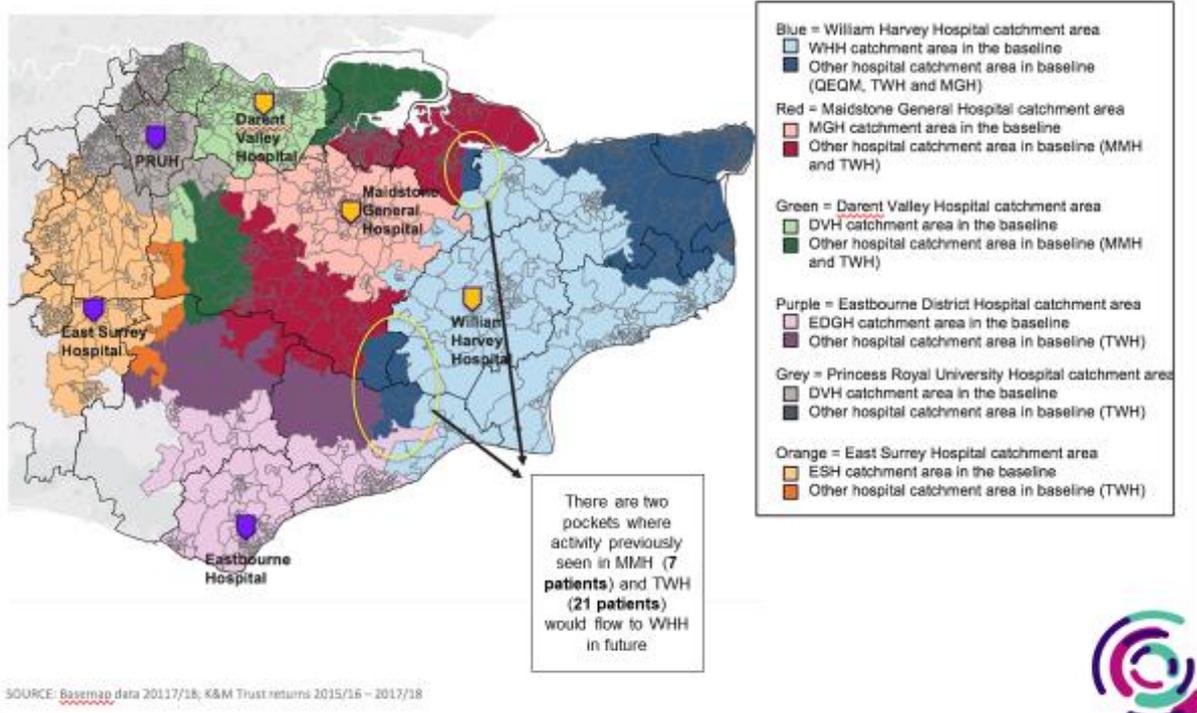
Figure 70: shortest capital development timelines for each hospital site



The flow of activity between sites was also reviewed and modelling showed that there are two distinct areas of flows, with only a small flow between East and West Kent. This is shown in Figure 71.

Figure 71: flows of activity between East and West Kent

There are two small areas of activity that switch between East and West Kent



This means that virtually all the acute stroke activity that is currently seen at Queen Elizabeth, the Queen Mother Hospital and Kent and Canterbury Hospital is expected to flow to William Harvey Hospital once it becomes a HASU/ASU. Conversely, virtually all the acute stroke activity that is currently seen at Tunbridge Wells Hospital and Medway Hospital is expected to flow to either Darent Valley Hospital or Maidstone General Hospital once they become HASU/ASUs. A small amount of activity from Tunbridge Wells Hospital is also expected to flow to Eastbourne hospital. This containment of flows of activity in two separate areas means that it is possible to implement the proposed changes in a two-step approach.

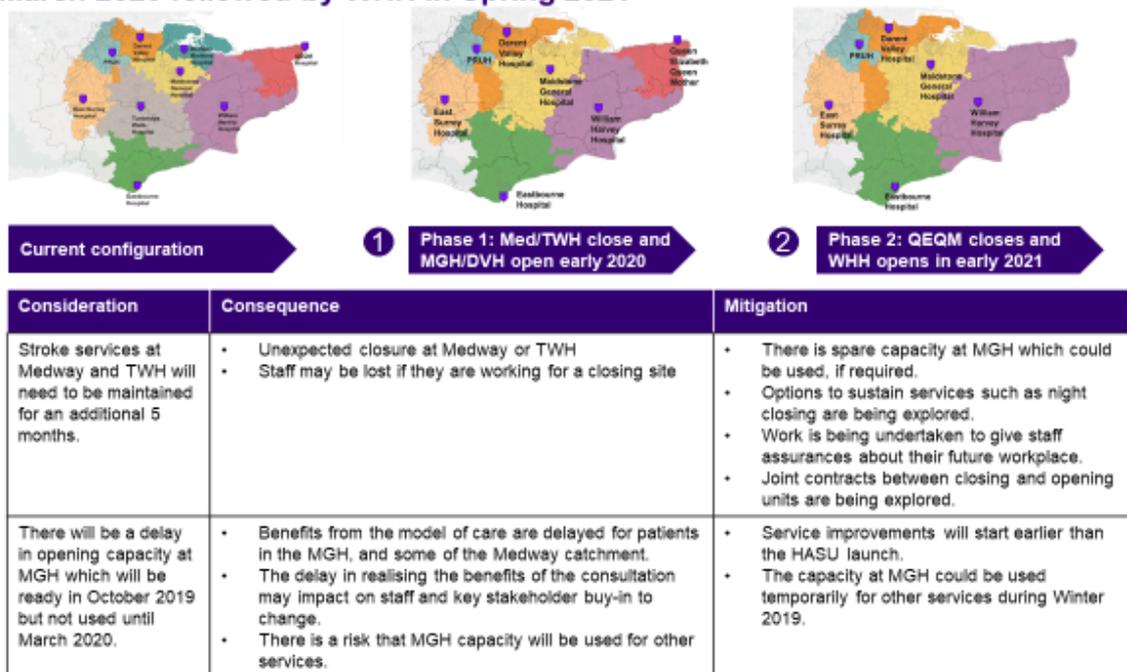
Clinicians agreed that there should be a two-phased approach to implementation. As outlined above, it was agreed that a one phase approach (implementation in early 2021 when WHH is ready) would not be explored further because:

- There are very few flows between East and West Kent
- Waiting for the estates in East Kent would delay benefits for patients in West Kent for 12-18 months

A two-phase plan was agreed where the HASU/ASUs at MGH and DVH go live in March 2020 followed by WHH in Spring 2021. This is shown in Figure 72 alongside the potential risks and mitigations for this approach.

Figure 72: two phase approach

A two phase plan was agreed where the HASUs at MGH and DVH go live in March 2020 followed by WHH in Spring 2021



Three-stage approaches were considered, as follows:

- implementation as soon as estates are ready
- Tunbridge Wells Hospital closes as soon as Maidstone General Hospital is ready

These approaches were **rejected** because:

- They are complex and likely to cause confusion for patients and the ambulance service.
- There is a high risk that units will be overwhelmed if patients don't flow as expected/directed (particularly at DVH, the PRUH and MGH).
- There are number of mitigations that can be put in place to reduce the risk of services at TWH, Medway and QEQM becoming unsustainable (night closing, joint contracts for staff, etc).

The two-phase implementation timeline was considered in the light of potential availability of workforce to staff units. It was agreed that units will need to be accredited before becoming a hazard/adding and that recruitment of workforce will be very important in gaining this accreditation. Final accreditation criteria will be agreed as part of implementation and will include:

- Capacity available
 - Beds
 - Diagnostics
- Staffing in place
 - Consultants
 - Nurses

- Therapists
- Risk management system in place
- Simulation exercise completed

9.2 Key implementation activities and programme plan

There are several activities that will need to take place following a decision, as part of implementation.

Workstream	Activities Required
Workforce	<p>Leadership</p> <ul style="list-style-type: none"> • A Stroke Clinical Lead and enhanced Stroke programme leadership is being implemented to support the leadership of the Stroke programme • Stroke implementation workforce principles being agreed for a one Kent and Medway team approach to workforce activities • Leadership development and change support package being developed for Stroke leaders to support staff through change • Kent and Medway stroke team development programme development • Kent and Medway OD toolkit to support local team development <p>Engagement</p> <ul style="list-style-type: none"> • Regular site staff briefings undertaken to update on implementation and decision making • Staff engagement sessions (incorporated into team development as launched) • Staff pulse surveys undertaken (quarterly) • Frequently asked questions regularly updated • Site staff open sessions by K&M Stroke leadership teams across transition <p>Attraction and retention</p> <ul style="list-style-type: none"> • Kent and Medway presence at Stroke national recruitment event • Kent and Medway Stroke Recruitment campaign developed • Kent and Medway attraction offer as part of K&M Workforce Strategy development (Stroke included) <p>Education and training</p> <ul style="list-style-type: none"> • East Kent analysis from bottom up competency assessment undertaken, to be applied across Kent and Medway and identify opportunities for workforce redesign and upskilling • Kent and Medway Competency Framework developed • Kent and Medway multidisciplinary education programme and platform developed to upskill current workforce <p>New roles development</p> <ul style="list-style-type: none"> • STP Deputy Director of Nursing Workforce commence to work with stroke teams on new role development at scale with HEE • Rotation development and launched

Workstream	Activities Required
	<ul style="list-style-type: none"> • Focus on growth of Clinical Assistants, Nurse Associates, Advanced Clinical Practitioners at scale • STP Academy of Health and Social Care launch for career development, apprenticeships and new and enhanced role development at scale • Kent and Medway Stroke career pathway developed and launched
Operations	<ul style="list-style-type: none"> - Co-ordinate the further development and implementation of clinical pathways including visits to HASUs and staff/patient planning sessions - Support implementation through the tracking of co-dependent work relevant to the delivery of the HASUs (e.g. inpatient rehabilitation) - Co-ordinating and aligning work across the providers including the ambulance service - Model the TIA service demand across the system in further detail, finalise plans and confirm technology requirements - Implement pathways for those self-presenting with stroke at non-HASU sites, those suffering from a stroke as an inpatient, those requiring admission without a stroke and those needing to be repatriated following the ASU phase of their care. - Confirm the peaks and trough in bed requirements including seasonal variations and create supporting plans - Identify and procure additional equipment requirements - Pilot new processes ahead of transition - Plan the re-use of closing wards
Estates	<ul style="list-style-type: none"> - Refine plans further with staff and patients input into design and requirements - Confirm planning permission through detailed planning submissions and working with local borough councils - Establish contingency plans to facilitate an earlier reconfiguration of services if required - Commence estates development as per the plans as soon as funding is secured and operationally feasible
Finance	<ul style="list-style-type: none"> - Use central financial model to provide underlying activity and finance assumptions for business case, including the period of double running - Clear process for measuring benefits and baseline measuring (including IT requirements) - Agree CCG funding to provide best practice care is incorporated into contracts
PMO	<ul style="list-style-type: none"> - Oversight of the plan's implementation and support for provider sites - Maintenance of a central risk register, ensuring ownership and mitigation of system wide risks - Establishing and running the benefits realisation monitoring and evaluation of the programme - Continuing to manage the relationship with key stakeholders - Ensure that equalities are considered across the programme and recommendations from the IIA are actioned - Establish a travel advisory group and co-ordinate the implementation of any recommendations
Comms	<ul style="list-style-type: none"> - Co-ordinating the communication of the changes to the public and key stakeholders - Ensuring a consistent approach to general communications across all sites

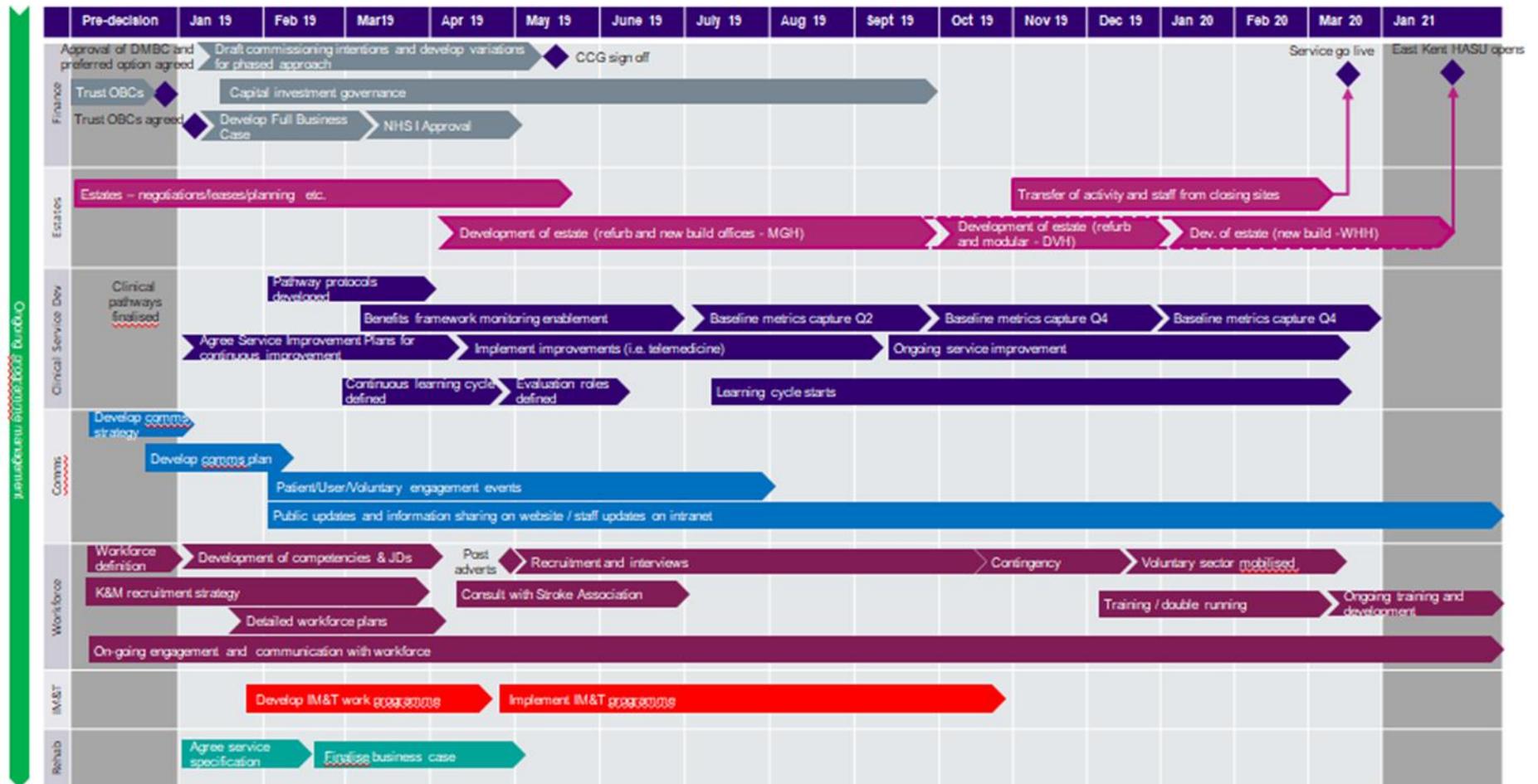
Workstream	Activities Required
	<ul style="list-style-type: none"> - Specific communications at the sites depending on the future service provision, including regular updates and transition notices - Promoting the opportunities to participate in the design of the new service, ensuring the inclusion of those at closing sites - The use of suggestion boxes in current units to capture staff and patient thoughts about the new service - FAQs and key lines to support staff engagement events

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 was undertaken pre-consultation can be found in Section 8.4.

A programme plan has been developed, assuming a decision to proceed at the JCCCG in January 2019. This is shown in Figure 73.

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Figure 73: implementation programme plan

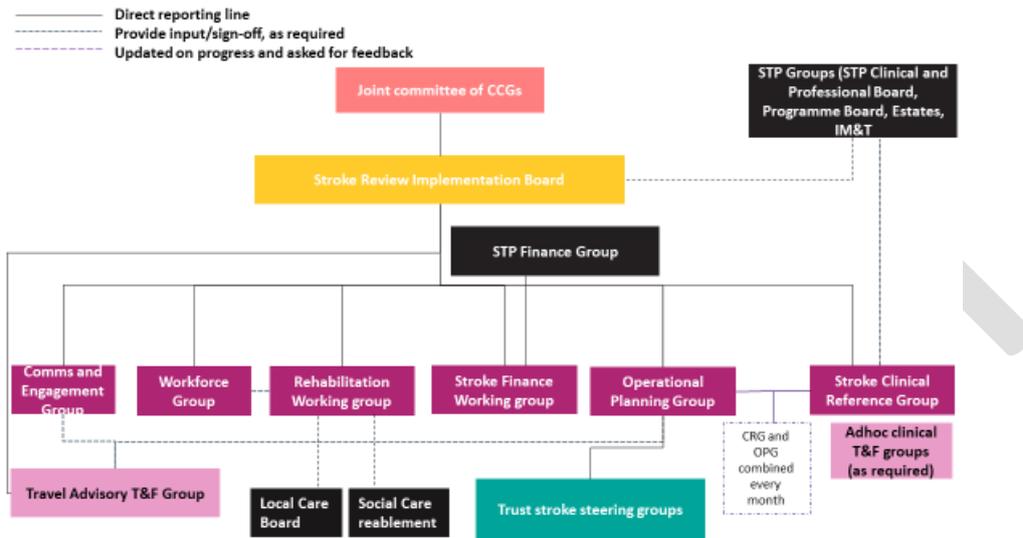


9.3 Governance arrangements for implementation

Clear, consistent and effective governance arrangements at all levels across the system wide implementation will be key to manage risks and dependencies across the providers. The governance arrangements will build on the governance structures and processes that have been in place to allow the Stroke Review. The structure for implementation is shown in Figure 74.

Figure 74: governance structure for implementation

Governance structure for implementation



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Oversight of the implementation process will be the responsibility of the relevant governance groups within each of the Kent and Medway CCGs. The JCCCG will continue to meet during implementation to ensure that implementation is progressing as planned and that all statutory responsibilities continue to be met. Governance arrangements will have clear links with the CCG governance arrangements to ensure that implementation plans across sectors are aligned.

A Stroke Programme Board was established in January 2015 and will become a **Stroke Review Implementation Board** to 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 Review Implementation Board will include senior representatives from the CCGs and affected Trusts as well as leads for each of the workstreams, representatives from primary care, public health, the Stroke Association and Healthwatch. It will ensure that the K&M Stroke Services Review fulfills the aim of the review and make recommendations on to the JCCCG on the implementation of the clinical model and commissioning recommendations for the whole stroke pathway.

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 Clinical Lead will be appointed to provide leadership across the stroke network, chair the Clinical Reference Group and support the implementation of the changes.

Several workstreams will be established to lead on both the planning and development required to support changes to service provision. This includes:

- **Stroke Clinical Reference Group:** To provide oversight, advice and clinical leadership to the K&M Implementation of the Stroke Review. To act as a reference group to the K&M Stroke Review and provide recommendations to the Stroke Programme Board. To ensure that any recommendations for the implementation planning are aligned to relevant clinical pathways.
- **Operational Planning Group:** To develop Trust implementation plans and co-ordinate between the Trusts. To facilitate data collection. To act as a communicator from the programme back to the Trusts
- **Stroke Finance Working Group:** To provide financial oversight and leadership to the K&M Stroke Review. To maintain the central financial model to provide underlying activity and finance assumptions for business cases. To agree commissioning intentions and variations for the phased approach.
- **Rehabilitation Working Group:** to develop the business case for stroke rehabilitation services and oversee the implementation.
- **Workforce Group:** To lead on workforce modelling. To develop a pan K&M workforce strategy, job plans, recruitment process and training plan. To develop leadership dev. and support package
- **Communications and Engagement Group:** To co-ordinate communications and engagement during implementation. To organise and run engagement events
- **Travel Advisory Group:** To recommend to the Stroke Review Implementation Board improvements to patient and public travel arrangements

The Stroke Review Implementation 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. Each provider Trust will have an internal project structure including a Steering Group which will co-ordinate the implementation of the Review within the Trust. These groups will report into the Operational Planning Group. Provider Trusts will also appoint a lead clinician to oversee the changes within their Trust; these clinicians will be part of the Clinical Reference Group.

Commissioning intentions include the expectation that services can 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 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 2017-2019⁸⁸.

9.4 Implementation risks

The consolidation of clinical services across organisations brings risks which will need to be carefully managed throughout implementation and beyond. Risks are identified at all levels within the programme and are noted on a central risk register, held by the PMO. Risks are then rated based on their probability and impact, as shown in Figure 75. During implementation, the Stroke Review Implementation Board will take responsibility for managing risks supported by other groups who will regularly review risks to delivery.

Figure 75: risk rating matrix

- All implementation risks and agreed will be collated on a central programme risk register
- This will be reviewed at every implementation planning group and stroke programme boards

STP Risk Register Matrix:

			Impact					
			Probability	Insignificant	Minor	Moderate	Major	Catastrophic
			Percentage Chance	0 – 20 %	20 – 40 %	40 – 60 %	60 – 80 %	80 – 100 %
			Score	1	2	3	4	5
Probability	Rare	0 – 20 %	1	1	2	3	4	5
	Unlikely	20 – 40 %	2	2	4	6	8	10
	Possible	40 – 60 %	3	3	6	9	12	15
	Likely	60 – 80 %	4	4	8	12	16	20
	Almost certain	80 – 100 %	5	5	10	16	20	25

Figure 76 sets out the risks identified to date. They have been reviewed by all the groups within the programme as well as during a risk focused workshop. The risks are regularly reviewed and are updated when new risks are identified or amendments are required.

Figure 76: risks identified to date

	Score	Level	Owners	Possible mitigation
Clinical quality is not maintained prior to implementation	16	Very high	Medical directors of Trusts	<ul style="list-style-type: none"> • Establish clinical governance systems around changes to / transfer of services – agree KPIs and plan for staged and safe transfer (developed as part of the implementation decision making framework) • Plan the double running of services during transition • Ensure quality metrics are tracked post-change so any undesirable trends (e.g. sudden dip in performance as a result of increase in

	Score	Level	Owners	Possible mitigation
				activity) can be identified early
Retention of the clinical workforce at the non-HASU/ASUs becomes increasingly difficult due to low staff morale and uncertainty in the system	16	Very high	Comms and engagement team Trust directors of HR	<ul style="list-style-type: none"> Develop communications and engagement plan for the implementation phase that specifically considers messaging to staff Ongoing programme of clinical engagement Transactional changes to provider trusts, building greater security for staff
Difficulties recruiting the number of clinical staff required (with the right skills and experience) to staff the HASU/ASU and/or staff not transferring between sites	16	Very high	Medical directors of Trusts Trust directors of HR	<ul style="list-style-type: none"> Mapping of current workforce skills to future workforce skills to identify gap and how current workforce can be best utilised Early determination of new roles with creative thinking to fill gaps Programme to convert agency staff to permanent Increased rotation of staff, including from outside stroke services Further development of Trust workforce development and retention strategies Agreed competency framework for all stroke staff across Kent and Medway Identification of potential ways to recruit from overseas Working collaboratively with new medical school and deanery on doctors training
Activity is moved to providers before they have the capacity or capability to respond to demand	12	High	Trust directors of HR	<ul style="list-style-type: none"> Modelling has considered the capacity requirements at each site Work with the Trust HR/STP workstream to ensure the

	Score	Level	Owners	Possible mitigation
				<p>right skilled workforce are in place to support change</p> <ul style="list-style-type: none"> • Develop implementation plans that identify capacity and capability requirements within receiving HASUs
Judicial review or referral to the Secretary of State delays implementation plans and timeline	12	High	Stroke Programme Board	<ul style="list-style-type: none"> • Work with local HOSCs and JHOSC to reduce risk of referral • Continued communication and engagement with stakeholders • Identification and prioritisation of work that can happen during a referral or review.
The rehabilitation business case is delayed, or staff cannot be recruited, meaning that patients cannot be discharged from acute care as planned.	12	High	Stroke Programme Board	<ul style="list-style-type: none"> • Tight programme management and focus on getting business case approval • Engagement with current staff to ensure they are retained during service changes.
Services at sites which currently provide acute stroke services but will not be a HASU/ASU are destabilised and are unable to continue to provide services until the HASU/ASU sites are ready.	12	High	Stroke Programme Board	<ul style="list-style-type: none"> • Work with stroke care staff to ensure they are retained during service change • Offer guarantees about roles at future sites to staff at non HASU/ASU sites • Develop shared policies around transfers • Ensure clear communication with the public on when services will change and where to go in the short term • Ongoing monitoring of vacancies, turnover and sickness.
CCGs and providers are unable to prioritise and engage in implementation of the proposals due to	12	High	Programme Team	<ul style="list-style-type: none"> • Design governance arrangements for implementation phase and agree these with CCGs

	Score	Level	Owners	Possible mitigation
competing demands on their resources				<ul style="list-style-type: none"> Resource will be identified in each organisation to manage the implementation and secure the budget Programme governance will be established that ensure senior staff are part of all stages of implementation
Several of the risks above are realised, delaying implementation	10	High	Programme Team	<ul style="list-style-type: none"> Active risk and issue management from the outset of the programme to ensure effective mitigation strategies in place
Patient confidence is lost during the implementation leading to patient dissatisfaction	9	High	Comms and engagement team	<ul style="list-style-type: none"> Develop communications and engagement plan for the implementation phase that specifically considers engagement with, and messaging to, patients Continue to track patient outcomes and publicise good news stories Ensure quality metrics are tracked post-change so any undesirable trends can be identified early
The provider business cases do not align with the proposed changes or assumptions in the DMBC Not all capital required can be secured	9	High	Programme Team	<ul style="list-style-type: none"> The DMBC will be the basis for all Trust business cases and will include provider level detail for capital requirements Post-decision making the programme team will provide support to the providers to ensure alignment on business cases Engagement with NHSE will continue to ensure they are aware of timelines
Confusion for the Ambulance service as to which site to transport patients to during implementation as sites go live	8	High	SECAMB	<ul style="list-style-type: none"> SECAMB and LAS to meet with providers to discuss the implementation plans and agree dates that transfer protocols will change

	Score	Level	Owners	Possible mitigation
				<ul style="list-style-type: none"> Update SECamb and LAS as changes to implementation plans take place
It will become more difficult for visitors and carers to travel to visit patients	6	Medium	Stroke Programme Board	<ul style="list-style-type: none"> Work with the voluntary transport services to identify changes to the services that would be beneficial Develop comms materials to aid signposting to appropriate services
Loss of support of key stakeholders, resulting in challenge or delays	6	Medium	Comms and engagement Programme Team	<ul style="list-style-type: none"> Ongoing targeted engagement with key stakeholders Continue to involve relevant stakeholders in the programme governance and development of implementation plans as appropriate

9.5 Communication and engagement plan

9.5.1 Aims and objectives

As a result of the wide-reaching public consultation in early 2018, awareness of the Stroke Review is fairly high, particularly among key audience groups such as stroke staff, informed and engaged patient and public groups and stakeholder groups such as HOSC/HASCs, councillors, MPs, unions, Health and Wellbeing Board etc. Whilst this means some audiences and groups have already established firmly held views about the plans which can be challenging, it also means that there is an 'open door' with engaged audiences which will help to achieve the communications and engagement aims.

The primary aims are to:

- ensure key audience groups e.g. the public, provider organisations staff etc, are informed and can engage with us about what the implementation of the final decision on the reconfiguration of urgent stroke services in Kent and Medway means for them,
- help to build confidence in, and support for the implementation plans and the new stroke service in Kent and Medway
- ensure that once the new service is live, patients, carers and the public understand how they should access stroke services and what impact any changes may have on them.

In order to achieve these aims the Stroke Review will:

- provide information in a timely manner, in a range of formats and via a range of channels, appropriate to the needs of different audiences
- make sure public information is consistent and clear; written and spoken in 'plain English' avoiding jargon and technical information

- communicate in a way that protects and enhances the reputation of the Kent and Medway stroke review
- regularly review, evaluate and adapt as needed, the approach to communicating and engaging to ensure the needs of all audiences are met

9.5.2 Timing

This plan covers the period from the formal decision by the Joint Committee of Clinical Commissioning Groups to implement a new configuration of urgent stroke care in Kent and Medway to the point the new configuration is operational. However, this is subject to review, particularly if there is a legal challenge. The anticipated timeline is set out in more detail in Section 9.5.4.3.

9.5.3 Audiences

The key audiences can be segmented into the following group:

- Stroke staff
- Patients, carers and the wider public across the NHS in Kent, Medway and border areas
- Stakeholders and partners, including patient representative organisations and wider staff across the NHS in Kent, Medway and border areas

A more detailed stakeholder map is shown in Appendix P.

Stroke staff are a key priority; their ongoing commitment and support for stroke services is vital to ensuring the delivery of safe and effective stroke care during the implementation phase. It is also important to encourage existing stroke staff to move into the new service once it is up and running. On that basis, a key principle of the approach is to make sure there are 'no surprises' for staff whose jobs may be affected by the review. It is important to ensure that staff:

- have an opportunity to engage and be involved in plans as they are developed, co-producing solutions where appropriate, and hear from the Stroke Review first about any decisions, implementation plans and timelines
- are aware of the HR process, understand how their roles may be impacted and understand what options are available to them
- know where to go for further detailed information about their own job and their employee rights

9.5.4 Communication channels

There are several existing communications channels available that will be used to share information and engage with audiences. Where appropriate and necessary new channels or communications tools will be developed.

9.5.4.1 Existing channels

Existing communications channels will be continued to be used, capitalising on the increased engagement achieved through these channels during the public consultation as a key way to share information and engage with audiences. These channels include:

Kent and Medway NHS Website	This is well established as the online hub for information on the stroke review. Visitors to the site will be able to access all the latest news about implementation as well as historical information about the review.
Kent and Medway NHS Newsletter	The STP newsletter has several hundred engaged subscribers and is an important vehicle for communicating and cascading information.
Social media accounts	The Stroke Review has a good following on Twitter and to a lesser extent on Facebook. These channels will continue to be used to keep stakeholders informed, and to facilitate discussion about implementation plans. In addition, the YouTube channel will be used where possible, to bring the implementation plans to life for people using Vox pops, interviews with key spokespeople, patients and carers.
Media	<p>The media approach will be proactive during the implementation and ‘go live’ period. The local media continues to be important in influencing public perception and reaction to all aspects of health and care changes and the Stroke Review will work with them to communicate key messages.</p> <p>As was the case during the consultation period, extensive reactive media work will be carried out. This will include continuing to manage responses to the media in a timely way, providing clear, accurate information and robustly rebutting inaccuracies.</p>
Partner and stakeholder organisations	<p>In addition to the Stroke Review channels, third-party websites, intranets, newsletters and bulletins, existing meetings (with staff and the public) and fora will all be used to share information about the implementation of the final decision on stroke services. There is a well-rehearsed cascade process with partner and stakeholder organisations, to support the dissemination of information through their networks to key audiences. These organisations include all local NHS organisations, GP practices, pharmacies, district, borough and parish councils, MPs, voluntary and community services organisations, community and faith groups, local health charities and interest groups, patient participation groups, public libraries etc.</p> <p>The Stroke Review will continue to regularly attend existing meetings of a wide range of groups and organisations and meet regularly with key stakeholders on a one-to-one basis to keep them informed and provide a regular opportunity to ask questions and discuss issues.</p>
Staff engagement and communications channels	<p>Each provider organisation has established staff engagement and communications channels that will continue to be used – via those organisations – to disseminate core and generic information about the stroke implementation plans and progress in delivery.</p> <p>In addition, the Stroke Review will work closely with HR colleagues to ensure staff are signposted to where they can have detailed conversations and get appropriate HR advice and support about their own role and what the stroke review means for them and their employment. This level of communications and engagement (including any necessary formal consultation with staff over job roles and changes to employment) will remain the responsibility of HR teams and provider organisations.</p>

9.5.4.2 Potential new/one-off channels

Depending on the demand for information and the level of opposition to the implementation plans, new channels of communication may be implemented, or some short term/one-off approaches used to ensure a wider dissemination of key messages and create opportunities to engage with local people and staff in more detail. These include:

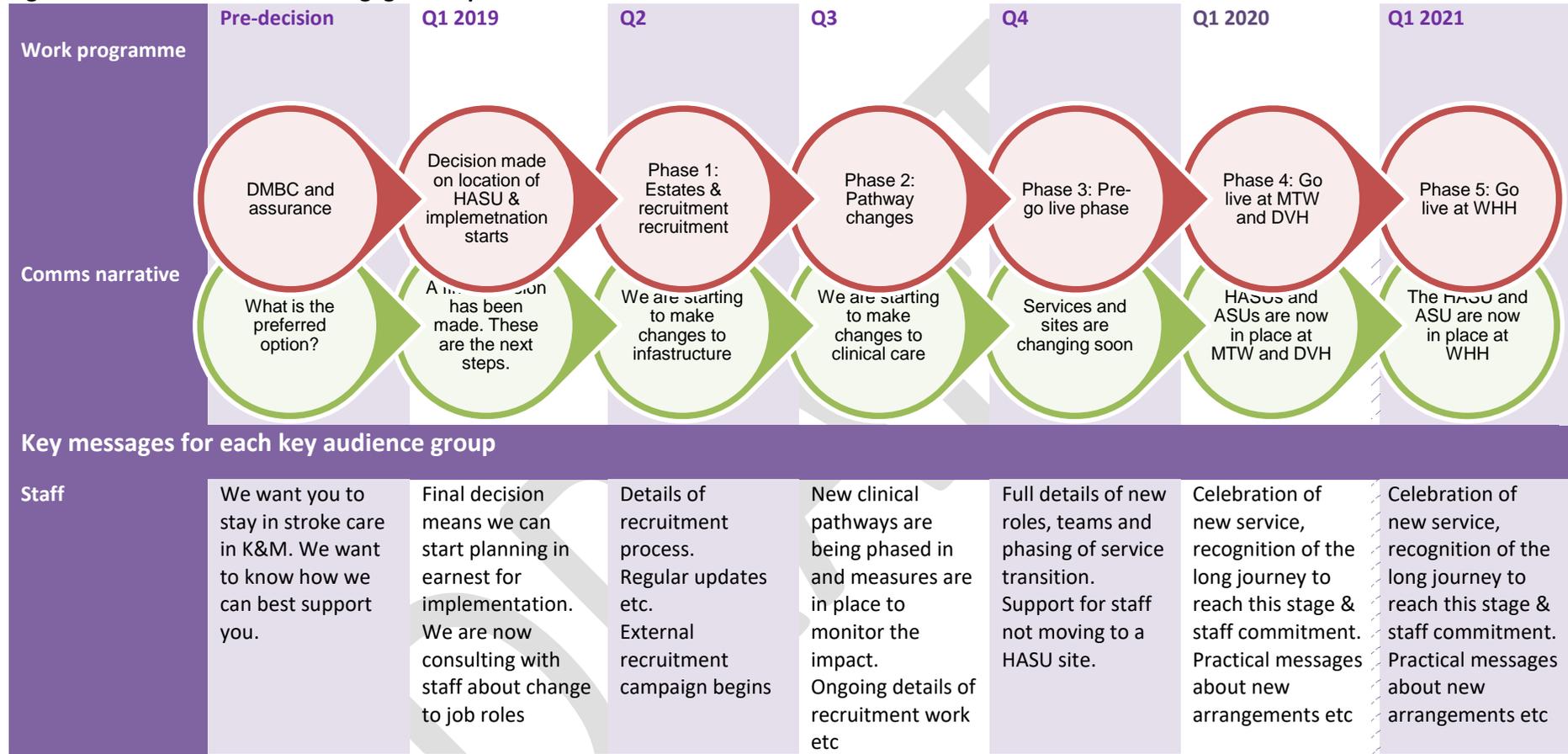
Printed materials	While printed materials such as booklets, flyers, posters etc are resource intensive, they can be a helpful way of raising awareness and provide an important channel for people who don't typically access information digitally.
Paid for advertising	Where resources permit, and the need for widespread awareness dictates, paid-for advertising in local media can be used, and via social media channels. This was successful during the consultation period and may be appropriate for awareness raising activities at the time new services become live and other services close.
Events and roadshows	<p>Public meetings can be a helpful way to engage with people affected by change and discuss their views and concerns in more detail. However, they are resource intensive, particularly in relation to the number of people reached, as compared to, say, paid-for advertising.</p> <p>A more cost-effective approach can be to undertake a programme of 'roadshows' where a small stand is set up in community spaces giving local people the opportunity to discuss issues and pick up information via leaflets and posters.</p>
Dedicated briefing or bulletin	Developing a regular electronic bulletin providing updates on the stroke implementation plans could offer a 'one-stop shop' for stakeholders during the implementation period.

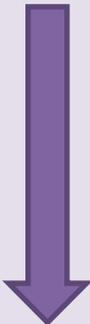
9.5.4.3 Plan for delivery

The delivery of the communications and engagement work is dependent on close working with both provider and CCG communications and engagements teams. For the implementation phase of the stroke review communications and engagement work will be particularly dependent on provider organisations to deliver HR information, support and advice, and for communications and engagement leads to ensure regular information is cascaded through established channels. Media management and monitoring will continue to be delivered by NEL CSU. Additional non-pay resource has been requested for Vox pop type content development, public meetings, a roadshow stand, leaflets, posters etc.

A detailed communications implementation plan is shown in Figure 77.

Figure 77: communications and engagement plan



<p>Patients/public</p>	<p>This is how we have considered feedback from consultation. We believe our plans will improve stroke care in K&M</p>	<p>A final decision has been made. We are now working on implementation plans. The development of these plans has been led by stroke specialists.</p>	<p>We are starting to improve our buildings and to develop the teams who will work in the new units. We are also doing a baseline audit of services to help measure improvements</p>	<p>We have started to make changes to how we care for stroke patients. We are already measuring the impact of these If you are a patient you don't need to do anything differently – just ring 999 if you suspect symptoms of a stroke' etc Update on estates and recruitment</p>	<p>Publicity/ awareness campaign starts on what will be different and when. What to do if you notice signs of stroke etc</p>	<p>Celebration/ launch of new service Ongoing publicity/ awareness campaign Details of benefit realisation monitoring Sharing success stories over time</p>	<p>Celebration/ launch of new service Ongoing publicity/ awareness campaign Details of benefit realisation monitoring – draw on any data from Maidstone and DVH Sharing success stories over time</p>
<p>Stakeholders</p>	<p>We want to continue to work with you to keep you informed and updated on our progress</p>	<p>Final decision is the culmination of a thorough and robust process – clinically led – and we are now a step closer to improving care for stroke patients.</p>		<p>We have started to make changes to how we care for stroke patients. We are already measuring the impact of these If you are a patient you don't need to do anything differently – just ring 999 if you suspect symptoms of a stroke' etc Update on estates and recruitment</p>	<p>Call to action to stakeholders to share campaign information with own networks to ensure effective transition to new services</p>	<p>Celebration/ launch of new service Opportunities to visit units Ongoing call to action to share campaign information with own networks Details of benefit realisation monitoring</p>	<p>Celebration/ launch of new service Opportunities to visit unit Ongoing call to action to share campaign information with own networks Details of benefit realisation monitoring</p>

9.5.4.4 Evaluation

Continuous evaluation of communications and engagement activity will be undertaken to gauge its impact and effectiveness. The approach will be adapted as necessary, for example to address any newly emerging concerns or challenges, or to target specific groups that are identified as needing additional information or not having been engaged sufficiently. Metrics and tools that will be used to evaluate the communications and engagement activity include:

- **Numbers of people contact by information cascade** to evaluate the reach of the messaging
- **Media monitoring** to evaluate the reach of the messaging, whether messages are fairly represented and to assess the tone of media coverage – i.e. is it positive, neutral or negative
- **Website visits and social media interactions** to evaluate the reach of messaging, how many people are accessing information and engaging via digital channels. Again, the tone will be assessed where possible, as well as volume.
- **Feedback from staff and provider HR teams** to identify the mood among stroke staff and acceptance of the change
- **Feedback from any public events or roadshows** to evaluate the reach of messaging (from numbers attending/visiting stand) and acceptance of and support for change among different communities
- **Volume and content of correspondence** to evaluate the acceptance of, and support for, change
- **Feedback from stakeholder meetings** to evaluate the acceptance of, and support for, change
- **Uptake of any printed materials produced** to evaluate the reach of messaging
- **Audience figures of any paid for advertising** to evaluate the reach of messaging.
- **Impact of paid for advertising** using questionnaires/surveys to identify how many people saw and responded to any campaign

10 Benefits of the proposed changes

10.1 Feedback from consultation

During consultation, there was a high level of agreement and understanding of the arguments put forward regarding the benefits of having HASU/ASUs in Kent and Medway. However, some members of the public were unsure whether there is a clear case for changing the way stroke services are delivered. This was partly because they felt they did not have enough information or knowledge to judge whether the reasons for change are justified. Further work has therefore been undertaken on the likely benefits of implementing HASU/ASU in Kent and Medway, and the way in which the realisation of these benefits will be monitored.

10.2 Overview

This chapter builds on the case for change by describing the benefits that are expected to be achieved as a result of implementing the preferred option.

The benefits include improvements to patient outcomes and patient experience, as well as improved experiences for staff through advanced patient care, improved ways of working and opportunities to enhance skills. The benefits have been developed by clinicians in line with the clinical standards that underpin the proposals for clinical change and will be further discussed with patient representatives. The chapter also sets out how the progress against the benefits will be monitored and the set of measures that the programme will focus on.

Successful implementation of the changes proposed by the stroke review will deliver improvements for both the people receiving stroke care in Kent and Medway and the staff delivering the services.

Further details of the proposals for benefits realisation are shown in Appendix DD.

7.2 The purpose of the benefits framework

The purpose of the benefits framework is to:

- Describe a set of clinical, quality and operational benefits that are expected to be achieved through the implementation of the Kent and Medway Stroke Review
- Demonstrate the impact of the changes to stroke services in Kent and Medway to:
 - Patients and the public
 - GP commissioners
 - Providers of stroke services and other key stakeholders
- Provide a focus for all stakeholders during and post implementation to monitor the value the reconfiguration is delivering through changes and achievements
- Describe specific and measurable key standards, which directly link to benefits, and which enable the realisation of the programme's benefits to be monitored
- Provide an early warning system for the programme to act if the benefits are not as expected and to address any issues arising

Clear benefits realisation is part of implementation, with a pragmatic benefits realisation framework and 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 to monitor benefits realisation

10.3 Engagement in the development of the benefits

The benefits framework has been developed by clinicians through the Stroke Clinical Reference Group and the Stroke Programme Board. It has also been tested with patient representatives.

A focus during the development of the framework has been to ensure, wherever possible, that the language used to describe the high-level benefits is accessible to the widest possible audience. Whilst the clinical quality standards are understood by clinicians, it is also important that the public are clear on what the changes to services are expected to achieve.

10.4 Development of the benefits

The main areas of benefit expected to be delivered by the reconfiguration of stroke services are:

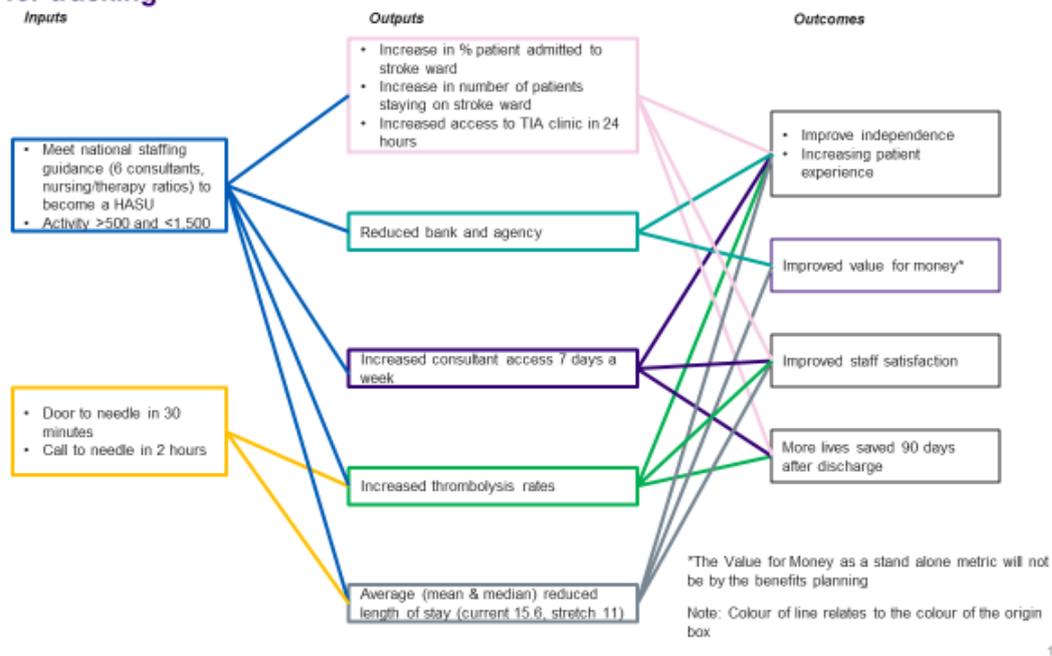
- Improved clinical outcomes for patients
- Improved experiences for patients and their carers
- Improved experiences for staff, due not only to improvements in patient care, but also improved team and multi-disciplinary working and increased opportunities to maintain and enhance skills
- Supporting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

It is important to translate the proposals for change into specific benefits so improvements from the Stroke Review can be measured.

The key clinical inputs have been derived from the case for change (see Section 2) and the clinical standards for stroke services, as set out in Section 3.3.2. Clinicians spent time reviewing all the potential benefits from the changes in detail and identified those where the expected impact was expected to be greatest. A benefits map has been developed which shows how the benefits flow directly from changes to stroke services for key benefits, as shown in Figure 78.

Figure 78: benefits map for key benefits

The benefits flow directly from changes to stroke services – proposed shortlist for tracking



10.5 Monitoring the benefits

A set of performance indicators for the benefits of service change have been developed. The performance indicators will help the programme to monitor whether the expected benefits of the changes are being delivered. The changes proposed to stroke services centre on patient and clinical outcomes and the programme will therefore seek to demonstrate it has had a positive impact in these areas.

The following principles have been applied in the development of the indicators:

1. **Meaningful and transparent** – The indicators should be able to be understood by all organisations involved and the public, to enable:
 - a. Kent and Medway providers to demonstrate that the anticipated benefits are being realised
 - b. Commissioners to monitor whether commissioned services are delivering against the planned outcomes
2. **Pragmatic in number** – The indicator set should be sufficiently long to provide coverage, but not so long that monitoring does not take place due to the burden
3. **Focus on patients** – The primary focus should be on patient outcomes and patient experience
4. **Minimise additional burden** – Performance indicators should be based on existing measures and data collection systems e.g. SUS, and should not create an additional data burden
5. **Embed in business as usual** – Measurement of the performance indicators should become part of the commissioning cycle and ‘business as usual’ arrangements.

Clinicians decided it was important to have a list of key indicators that is usable and manageable and provides focus. The most important indicator of performance will be achievement of SSNAP A rating for all HASU/ASUs 6 months after launch (the date on which they are running as a full HASU/ASU). There is a 3-month lag between data collection and reporting, so achievement of Grade A will be seen in the SSNAP ratings 9 months after launch.

Other key performance indicators are shown in Figure 79. Wherever possible, existing NHS measures and data collection systems have been used to inform the identification of performance indicators so that benefits can be monitored without creating additional data collection or reporting burdens.

Figure 79: key performance indicators

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Description	Expected impact			Attribution	Measurement		Interdependencies
	What	Source of standard	When		What	How often	
Thrombolysis from clock start	Increase to median of 30 minutes for eligible patients	2018 guidelines for the early management of patients with acute ischemic stroke	Within 6 months of implementation	Provider (HASU)	Median time for patients thrombolysed from time the patient first arrived on a stroke unit	Quarterly	Diagnostics, presentation at non-HASUs
Activity >500 and <1,500	All HASU/ASU units to see between 500 and 1,500 confirmed strokes	1) RCP National clinical guideline for stroke, Fifth edition (2016) 2) Stroke services: configuration decision support guide (2015)	Within 6 months of implementation at each site	Provider (HASU)	Confirmed stroke activity (patient – centred 72h cohort)	Quarterly	
Meet national staffing	All HASU/ASU units to meet the national staffing guidance (6 consultants, nursing/therapy ratios)	National clinical guideline for stroke 2016	Within 1 year of implementation	Provider (HASU)	Assessment of roster to assess consultant numbers, nursing and therapy ratios per beds	Quarterly	Recruitment and retention
Travel to hospital (95% in 1 hr)	95% of patients have an ambulance travel time of >=60 minutes	Proxy used in PCBC to measure call to needle in 2 hours as below	As soon as implemented	Ambulance service	Travel time from ambulance pick up to HASU front door	Quarterly	Ambulance pick up times, traffic
Call to needle in 2 hours	Increase to 95% for eligible patients	Clinical senate recommendation	Within 6 months of implementation	Provider (HASU)	% of patients thrombolysed within 2 hours from call to needle (national measure)	Quarterly	Diagnostics, presentation at non-HASUs
Ambulance response times	An average response time within 18 minutes, and a 90th centile response of 40 minutes	NHSE ambulance Performance standards 2017	As soon as implemented	Ambulance service	AQI care bundle for stroke	Quarterly	Ambulance capacity traffic
Increased thrombolysis rates	Increase to 18% for all stroke patients given thrombolysis (all stroke types)	18% achieved in London post stroke review Jan-July 2012 (National Audit)	Within 6 months of implementation	Provider (HASU)	% of all stroke patients given thrombolysis (all stroke types)	Quarterly	Diagnostics, presentation at non-HASUs
Average (mean & median) reduced length of stay (current 15.6, stretch 11)	Mean and median length of stay to reduce and meet stretch standard of 11 day ALOS within 2 years and then stabilise	11 days achieved in London post stroke review May-July 2011 (The legacy of NHS London Stroke; Tony Rudd, 2012)	Shown over time period 6, 12 and 18 months with stretch standard met within 24 months of implementation	Provider (HASU)	Length of stay on a stroke unit across the inpatient pathway	Quarterly	Discharge pathway and community rehab bed availability
Locum and agency staff rates for the stroke service	Decrease locum and agency rates for consultants, thrombolysis nurses and stroke coordinators	Data for last 3 years	Within 2 years of implementation	Provider (HASU)	The locum and agency rates for consultants, thrombolysis nurses and stroke coordinators	Quarterly	Recruitment and retention

	(standard being developed looking at data for last 3 years)						
Vacancy and turnover rates for the stroke service	% vacancy rate and number of voluntary leavers standard being developed looking at data for last 3 years)	Data for last 3 years	Within 2 years of implementation	Provider (HASU)	The vacancy for consultants, thrombolysis nurses and stroke coordinators and number of voluntary leavers for same roles	Quarterly	Recruitment and retention
Consultant access 7 days a week	% of patients seen by a consultant within 14 hours to increase to 80%	As per emergency care standards NHSE	Within 6 months of implementation	Provider (HASU)	% of patient first assessed by stroke specialist consultant physician 4 hours from time the patient first arrived on a stroke unit to increase to 80%	Quarterly	Recruitment and retention
Increase in % patient admitted to stroke ward	Increase to 100% eligible patients admitted directly to a stroke ward	SSNAP standard	Within 6 months of implementation	Provider (HASU)	% of patients whose first ward of admission is the Stroke unit within 4 hours arrival to A&E excluding those admitted to ITY/HDOU	Quarterly	Bed capacity in hospital
Increase in number of patients staying on stroke ward for 90% of stay	Increase to 100% eligible patients stay on stroke ward for 90% of stay	SSNAP standard (for A rating)	Within 6 months of implementation	Provider (HASU)	If applicable, at least 90% of patient's total inpatient stay is spent on a stroke unit	Quarterly	Bed capacity in hospital
% of likely TIA patients seen in clinic within 24 hours post triage	% of likely TIA patients seen in clinic within 24 hours post triage to increase to 95%	National clinical guidance	Within 6 months of implementation	Provider (HASU)	% of likely TIA patients seen in clinic within 24 hours post	Quarterly	Electronic records system, TIA service staffing
MDT weekend availability	Assessment of weekend roster to assess number of shifts worked by therapist (split by OT, PT, SALT and OT)		6 day working for all three therapies within 1 year and 7 days working within 2 years	Provider (HASU)	Number of weekend shifts worked by therapist (split by OT, PT, SALT and OT)	Quarterly	Recruitment and retention
% non-stroke patients on a stroke ward	Decrease of % of non-stroke patients on a stroke ward to 10%		Within 1 year of implementation	Provider (HASU)	% of non-stroke patients on a stroke ward	Quarterly	Bed capacity in hospital
Improve independence	The intensity of social care input a year post stroke		Within 1 year of implementation	CCGs	Number of units and cost of social care input 1 year post stroke	Annual	

Lives saved 90 days after discharge	A 1.1% absolute reduction in the number of deaths within 6 months of admission to stroke unit	1.1% for both metrics proposed as this was the reduction seen in London at 90 days https://www.bmj.com/content/349/bmj.g4757	Within 1 year of implementation	CCGs	Number of deaths within 6 months of admission of stroke unit in the last year	Annual	
Improve independence	A reduction in the modified ranking scale at discharge A reduction in the frailty score at 6 months and annually		Within 1 year of implementation Within 1 year of implementation	Trust CCGs	Modified ranking scale at discharge Frailty score a 6 months and annually	Annual Annual	
Reducing inequalities	A reduction in the variation of stroke mortality rates across districts so it's no longer statistically significant	Discussions with Public Health	To see a decrease in variation in year 1 and within 5 years to see no statistical significance in variation (95% confidence intervals do not overlap)	CCGs	Stroke mortality rate per district	Annual	Inequalities in prevention
	A narrowing of the gap in stroke mortality between the most deprived and least deprived areas		A reduction to be seen within 5 years	CCGs	Stroke mortality rates and deprivation rate per district	Annual	Changes to deprivation rates Inequalities in prevention
Increasing patient satisfaction	An increase in the % patients who would recommend the service		Within 1 year of implementation	Provider (HASU)	% patients who would recommend the service	Monthly	
Increasing staff satisfaction	An increase in the % staff who would recommend the service		Within 1 year of implementation	Provider (HASU)	% staff who would recommend the service	Monthly	

10.6 Monitoring the realisation of benefits

Benefits realisation needs careful management and close measurement, forming an integral part of the implementation process and then adopted into business as usual. The proposals below will be further developed as part of the implementation planning process following a decision about service change being approved by the JCCCG.

10.6.1 When will benefits be realised?

Section 9 includes implementation plans describing how the recommendation would be delivered, if approved. Different elements of the proposals have differing associated timescales. If the JCCCG decide to proceed with the proposed changes, benefits should start to be seen following each major change. However, it is not expected that benefits will be realised until at least six months from the delivery of each major change and the 'whole system' benefits can only be maximised after full completion of implementation.

It is important to start the work on benefits measurement post-decision in order to ascertain the baseline position of the performance indicators by provider. Only once the baseline is understood can the trend of delivery can be tracked.

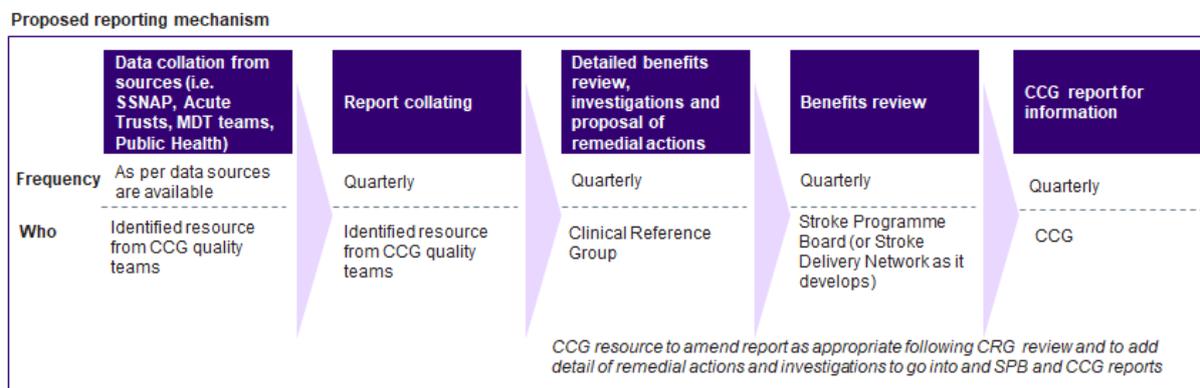
It is recognised that there can sometimes be a 'dip' in performance during implementation and that some changes are not always viewed positively by individual patients or staff. Dips in safety and clinical quality will be mitigated by introducing a double running element into the model when care is shifting. This allows plenty of time for any dip to be rectified as it should only be for a very short time if the new service is designed correctly and delivering the appropriate quality. Real time data capture equipment should instantly highlight any issues and allow remedial action to be put in place. Dips in operational measures (non-clinical issues) will be considered when reviewing any performance indicator measurements by the Stroke Review Implementation Board.

10.6.2 Reporting mechanisms

Monitoring will, in general, be the responsibility of each provider and, in most cases, providers will not usually need to be compared with each other. Providers will be held to account by their CCG (through their contracts) on their performance against their own baseline rather than against other providers. It is expected that there will be greater improvements at some providers than others as each has a different starting point.

For the key performance indicators set out in Section 10.5, progress will be monitored across Kent and Medway. The proposed reporting mechanism and governance is shown in Figure 80.

Figure 80: reporting mechanism



Leads from each organisation providing data will be identified. These leads will provide data to an identified resource from the CCG quality teams. It is proposed that this will be done for Kent and Medway to ensure consistency. These individuals would also be responsible for collecting the data available from online resources and collating all into a quarterly report.

The Clinical Reference Group will review the report in quarterly 'benefits reviews'. These reviews would focus on formally assuring that the performance indicators remain valid and that they are providing stakeholders with the view on benefits realisation they require. The discussion on progress would be against the full set of performance indicators. They would issue investigations on issues and provide recommended remedial actions to the providers.

A report including these proposals will go to the Stroke Review Implementation Board and the CCGs on a quarterly basis. The quarterly report will follow a standard structure, as illustrated shown in Figure 81.

Figure 81: benefits reporting structure

Proposed report structure:

- Introduction
- National stroke updates (if necessary)
- Summary performance dashboard
- Deep dive into each metric:
 - Activity
(Activity >500 and <1,500)
 - Quality and performance
(Ambulance response times, travel to hospital, increased thrombolysis rates, thrombolysis in 30 mins from clock start, increase in % patient admitted to stroke ward, call to needle in 2 hours, increase in number of patients staying on stroke ward for 90% of stay, average reduced length of stay, fewer people discharged to residential/nursing care, number of delayed transfers of care, % of high risk TIA patients seen within 24 hours, % non-stroke on a stroke ward)
 - Patient outcomes
(Lives saved in hospital, lives saved 6 months after discharge, reduced disability, reduced dependency)
 - Staffing
(Consultant access 7 days a week, meet national staffing guidance, reduced vacancy and turnover, reduced locum/agency staff, MDT weekend availability)
 - Staff and patient satisfaction
(Increasing patient satisfaction, Increasing staff satisfaction)

Example report format (proxy data)

Thrombolysis performance

Thrombolysis rates
N of all stroke patients given thrombolysis (all stroke types) in the last quarter

Thrombolysis rates have increased over the quarter for all sites.

Site	Apr	May	June
DVN	16	15	17
MGH	14	15	16
WHH	14	16	16

Thrombolysis in 30 mins from clock start
N of stroke patients thrombolysed within 30 minutes from time the patient first arrived on a stroke unit in the last quarter

Site	Apr	May	June
DVN	91	90	92
MGH	98	97	100
WHH	95	94	95

10.7 Next steps

Further work will be done to set up the benefits management system following decision-making.

This will include:

- Identifying data collection leads in all relevant organisation
- Identifying CCG quality team resource to lead on data collation and report development
- Developing detailed project plan for data collection
- Developing data specifications for data not currently collected
- Discussing the benefit indicators with CCGs to agree how they become embedded into contracts at the appropriate time

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11 Conclusion and recommendations

11.1 Summary of conclusions

The decision-making business case (DMBC) has outlined the case for the recommendation that is being presented to the JCCCG for the reconfiguration of acute stroke services across Kent and Medway.

Over the last four years, the programme has worked extensively with clinicians, the public, patients and other stakeholders on proposals to:

- Review acute stroke services in Kent and Medway and agree that change is necessary and must start now
- Develop a shared vision for acute stroke services including the implementation of the HASU/ASU clinical model of care
- Evaluate the different options for service configuration to determine that three HASU/ASUs are needed in Kent and Medway.
- Consult the public and other stakeholders on the proposals and respond to the findings of that consultation
- Develop a recommendation for the location of the HASUs/ASUs to give the best balance of clinical quality, access, workforce considerations, implementability and affordability
- Determine the implications of the preferred option in activity flows, equalities, travel and access, finance, capital, estates and workforce
- Create a benefits framework for the proposals
- Plan the next steps for implementation.

The feedback from the public consultation showed a clear mandate for change and broad support for the establishments of HASU/ASUs. There was also some challenge and criticism. Further work has been done to respond to this challenge on the analysis, clinical pathways, options evaluation (including finance), travel, equalities, workforce and implementation planning. There has been ongoing assurance and scrutiny to verify that proposals are sound and well communicated to and considered by all stakeholders throughout the programme.

The recommendation is for three HASU/ASUs in Kent and Medway at Darent Valley Hospital, Maidstone General Hospital and William Harvey Hospital. Acute stroke services will no longer be provided at other hospitals in Kent and Medway. This change will be underpinned by several prevention initiatives and a business case for stroke rehabilitation services to ensure consistency in provision across Kent and Medway. Evidence shows that travelling to the right location for stroke care has a greater impact on outcomes than distance travelled. Workforce changes will be required to support delivery of the improved quality and a range of new and enhanced roles will need to be developed. The proposals will mean that some people must travel further to access acute stroke services, but this will be more than offset by the improvement in clinical quality from the introduction of HASU/ASUs. The benefits include improvements to patient outcomes and patient experience, as well as improved experiences for staff through advanced patient care, improved ways of working and opportunities to enhance skills. Implementation plans have been developed for a phased approach to implement the new services as quickly as possible whilst ensuring that quality and patient safety are not compromised. An assurance process is being developed to ensure that safe, high quality care continues to be provided during the transition.

The DMBC and other papers have been reviewed by the Stroke Programme Board and relevant content has been reviewed by the Stroke Clinical Reference Group, Finance Group, Operational

Planning Group and other committees and groups established by the JCCCG to provide it with advice and recommendations. In addition, each provider Trust Board has signed off the capital requirements as part of individual provider business cases ([DN to be confirmed]. The proposals have been reviewed and assured by the South East Coast Clinical Senate, NHS England and NHS Improvement. The JCCCG's decisions will be enacted through CCG governing bodies meeting together as a JCCCG [DN to be confirmed].

11.2 Resolutions to be agreed

[DN to be confirmed]

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Appendices

[DN To be added]

- A. Glossary
- B. Stroke Review case for change (published July 2015)
- C. Kent and Medway Public Health Observatory evidence review
- D. Update to analysis between PCBC and DMBC
- E. Current stroke services in Kent and Medway
- F. Detail on the financial modelling for the preferred option
- G. List of quality standards
- H. East Kent thrombectomy pilot business case
- I. South East Clinical Senate report on options for change
- J. Stroke consultation analysis
- K. Provider business cases
- L. Long list to medium list pack
- M. Modelling for shortlisting: Workforce, Bed and capacity modelling, travel, finance
- N. Medium list to shortlist pack
- O. Stakeholder event feedback report (evaluation criteria)
- P. Stroke consultation activity report
- Q. Shortlist to preferred option pack
- R. Details of SECAMB modelling of trauma and pPCI patient travel time
- S. Updated integrated impact assessment, October 2018
- T. Letter from NHS investment committee
- U. Engage engagement with Black and Minority Ethnic groups report, August 2018
- V. Composite evaluation methodology
- W. Deliverability panel framework, deliverability assessment and deliverability panel presentations
- X. South East Clinical Senate report on case for change
- Y. South East Clinical Senate review of preferred option
- Z. Stakeholder engagement log (pre-consultation)
- AA. Stakeholder log of engagement since consultation
- BB. Stakeholder engagement (pre-engagement):
 - i. Letters of support
 - ii. Healthwatch review of patient and public engagement
- CC. Integrated impact assessment (pre-PCBC):
 - i. Integrated impact assessment report
 - ii. Integrated impact assessment supporting annex
 - iii. Integrated impact assessment mitigations
- DD. Detail of benefits realisation

End notes

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- ²³ National Clinical Guideline for Stroke, Royal College of Physicians, 2016
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