Cabinet – Supplementary agenda No.1

A meeting of the Cabinet will be held on:

Date:	10 April 2018
Time:	3.00pm
Venue:	Civic Suite - Level 2, Gun Wharf, Dock Road, Chatham ME4 4TR

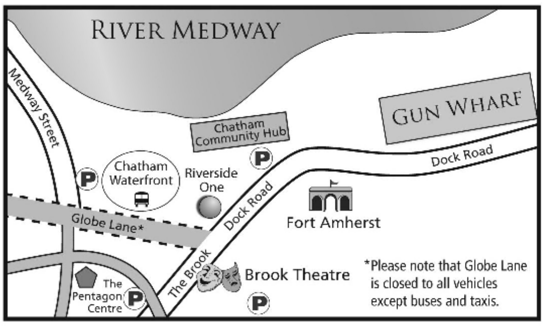
Items

5. Response to the Consultation 'Improving Urgent Stroke Services in Kent and Medway' **(Pages 3 - 132)**

Please find attached Appendices 1-4.

For further information please contact Wayne Hemingway/Jade Milnes, Democratic Services Officers on Telephone: 01634 332509/332008 or Email: democratic.services@medway.gov.uk

Date: 29 March 2018



This agenda and reports are available on our website **www.medway.gov.uk**

A summary of this information can be made available in other formats from **01634 333333**

If you have any questions about this meeting and you want to speak to someone in your own language please ring **01634 335577**

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Transforming health and social care in Kent and Medway

Improving urgent stroke services

in Kent and Medway

Our consultation document

A consultation by the NHS Clinical Commissioning Groups of: Ashford, Bexley, Canterbury and Coastal, Dartford Gravesham and Swanley, High Weald Lewes Havens, Medway, South Kent Coast, Swale, Thanet, and West Kent.

2 February to 13 April 2018

Reducing your risk of stroke

This consultation is about the services that help people who do have a stroke. But there are things we can all do to reduce the risk of having a stroke. Eating a healthy diet, exercising regularly, and avoiding smoking and too much alcohol will help prevent strokes.

- **Diet**

  An unhealthy diet can increase your chances of having a stroke because it may lead to increased blood pressure and cholesterol levels.

- **Exercise**

  Combining a healthy diet with regular exercise is the best way to maintain a healthy weight. Regular exercise can also help lower your cholesterol and keep your blood pressure healthy.

- **Smoking**

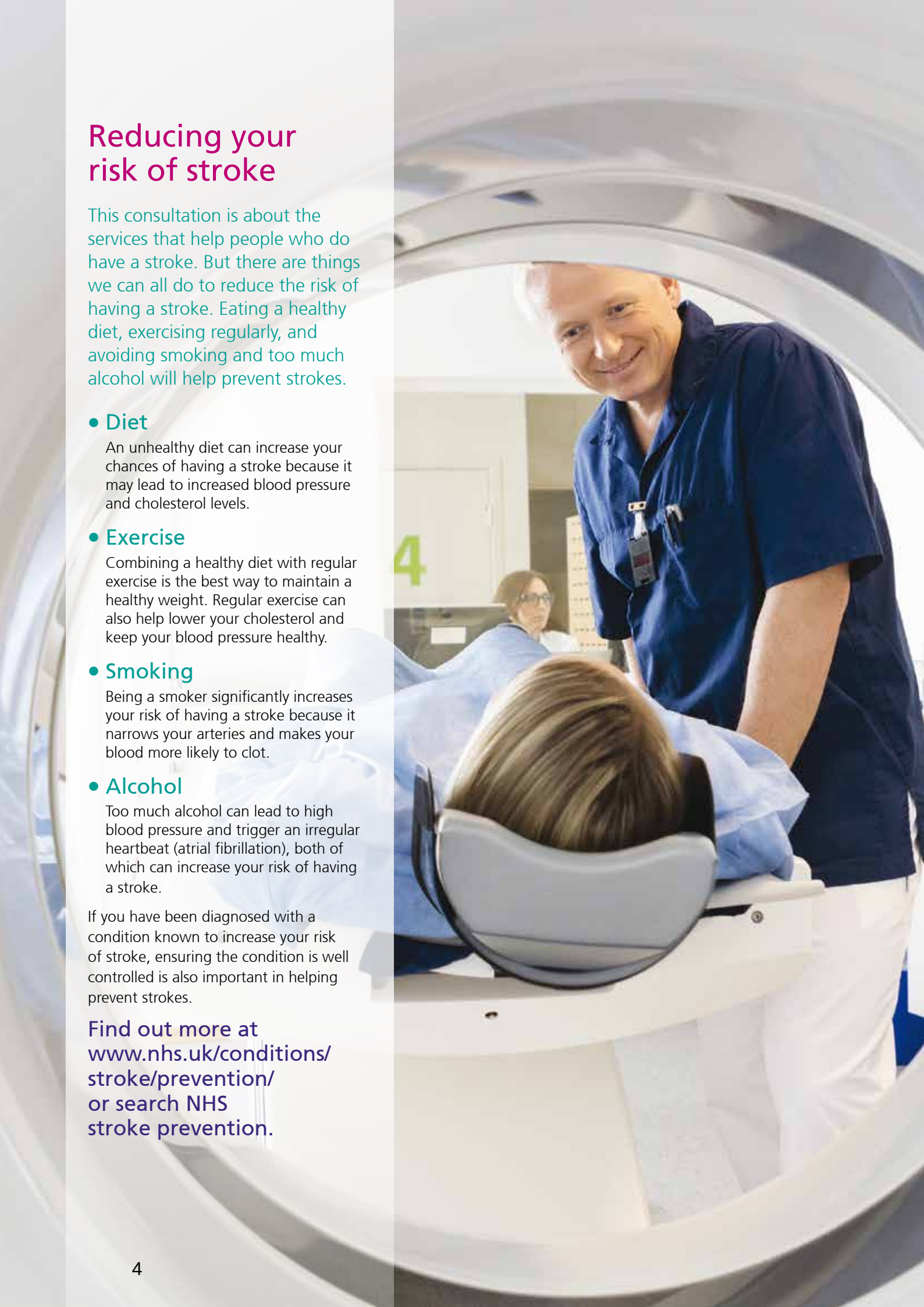
  Being a smoker significantly increases your risk of having a stroke because it narrows your arteries and makes your blood more likely to clot.

- **Alcohol**

  Too much alcohol can lead to high blood pressure and trigger an irregular heartbeat (atrial fibrillation), both of which can increase your risk of having a stroke.

If you have been diagnosed with a condition known to increase your risk of stroke, ensuring the condition is well controlled is also important in helping prevent strokes.

Find out more at www.nhs.uk/conditions/stroke/prevention/ or search NHS stroke prevention.



Contents

1 Foreword

We know that all the staff in our stroke services are working extremely hard to provide the best possible care that they can. But we also know that things would be better, for both patients and staff, if we developed our stroke services further.

Our goal is to make sure stroke services across the whole of Kent and Medway meet the latest national standards and best practice recommendations. We do not always achieve this now. These new ways of working have been introduced in other parts of the country and are bringing significant benefits. We do not want Kent and Medway to be left behind. We want stroke patients in every part of Kent and Medway, and those in neighbouring communities who may use Kent and Medway services, to get consistently excellent care.

We started reviewing our stroke services in late 2014. It has been a long and detailed process involving a wide range of clinicians, patients and the wider public. There is a strong view that stroke care could and should be improved. In many cases people have urged us to make changes as quickly as we can.

The changes we are proposing are significant. They would affect every hospital in our area, residents in every part of Kent and Medway, and some beyond our boundaries. They would take time to build and would need to be fit for purpose for many years to come. So it is essential that we get them right.

This consultation is another opportunity to make your voice heard and help us design the best stroke services. We encourage everyone to respond, whether you have been involved in the earlier work or not; whether you work in the local NHS or are a resident; whether you have firsthand experience of stroke or not. All views are important to us.

This document sets out the reasons why we believe we need to improve specialist stroke services in Kent and Medway and bring them together onto three sites. We have looked at a wide range of issues from travel times through to staffing issues and how long it would take to establish the new services at different hospitals across the area.

We recognise that people have concerns when hospital services change, but we strongly believe that change is needed. These proposals would represent a major investment in stroke services and a commitment to making consistently high quality care available for all stroke patients, regardless of where you live or when a stroke happens. There is more background information on the consultation web pages and we encourage you to have a look at this.

After the consultation closes and all your comments have been considered alongside a range of other evidence and information, we will move forward and make a decision on the future shape of urgent stroke services in Kent and Medway. It would take some time to make any changes and we are committed to continuing to engage and involve a wide range of people on an on-going basis.

Dr Mike Gill
Chair of the Joint Committee of
Clinical Commissioning Groups

Dr Elizabeth Gill
Clinical Chair
NHS High Weald Lewes Havens CCG

Dr Tony Martin
Clinical Chair
NHS Thanet CCG

Dr Navin Kumta
Clinical Chair
NHS Ashford CCG

Dr Peter Green
Clinical Chair
NHS Medway CCG

Dr Bob Bowes
Clinical Chair
NHS West Kent CCG

Dr Sid Deshmukh
Clinical Chair
NHS Bexley CCG

Dr Jonathan Bryant
Clinical Chair
NHS South Kent Coast CCG

Dr Simon Dunn
Clinical Chair
NHS Canterbury and Coastal CCG

Dr Fiona Armstrong
Clinical Chair
NHS Swale CCG

Dr Sarah MacDermott
Deputy Clinical Chair
NHS Dartford Gravesham and Swanley CCG

Glenn Douglas
Chief Executive
Kent and Medway Sustainability
and Transformation Partnership

2 Introduction

About this consultation

Stroke services can be separated into three areas: prevention; urgent care during a stroke; and rehabilitation. This consultation document is focused on changes to the urgent stroke services provided in hospitals across Kent and Medway.

The consultation is being run jointly by the 8 clinical commissioning groups in Kent and Medway (Ashford, Canterbury and Coastal, Dartford Gravesham and Swanley, Medway, South Kent Coast, Swale, Thanet, and West Kent), along with NHS Bexley Clinical Commissioning Group in London, and NHS High Weald Lewes Havens Clinical Commissioning Group in East Sussex.

This consultation document includes information on:

- What services are currently like and why we believe they need to change
- Our ambition for the future and best practice guidelines for modern stroke services
- The proposals we are consulting on and what they might mean for you
- How to give us your views and what the next steps will be.

Before completing our questionnaire or sending your comments you may want to look at the detailed supporting information on our website www.kentandmedway.nhs.uk/stroke including:

- The pre-consultation business case (PCBC)
- Engagement activity report
- Travel time modelling
- Options evaluation process
- Integrated Impact Assessment.

Improving stroke services is part of a wider programme across Kent and Medway involving all the local NHS organisations, Kent County Council and Medway Council. We are looking at what needs to be done differently to bring about better health and wellbeing, better standards of care, and better use of staff, funds and other resources.

The changes to hospital-based stroke services are being developed alongside and in alignment with other work on improving hospital services, developing more local care outside of hospitals, and improving mental health and social care. We believe it is imperative that we move forward with a decision on improvements to stroke services, but we will continue to align stroke improvements to our wider sustainability and transformation partnership programme.

You can find out more about our sustainability and transformation partnership and the other projects at www.kentandmedway.nhs.uk.

If you would like to find out more about stroke, the symptoms and what to do if you or someone you know has a stroke visit www.nhs.uk/actfast.

Summary

This document outlines proposals to improve hospital-based urgent stroke services for people in Kent and Medway, and surrounding areas of south east London and East Sussex.

Our proposal is to establish hyper acute stroke units operating 24 hours a day, 7 days a week, to care for all stroke patients seen in Kent and Medway.

Each unit would also have alongside it:

- an acute stroke unit where people may go after the initial 72 hours for further care until they are ready to be discharged
- a transient ischaemic attack clinic (TIAs are also known as "mini strokes" and can be an indication that a stroke may follow).

We are consulting on the proposal to establish hyper acute stroke units; whether 3 is the right number; and 5 potential options for their location.

The new services would ensure all residents get consistently high quality hospital-based stroke care regardless of where they live or what time of day or night a stroke occurs. However, urgent stroke services would not be available at other hospitals in Kent and Medway.

The proposals are focused on improving care and outcomes for people who have a stroke – meaning fewer deaths and less disability. They are not aimed at saving money. To make these changes we would be investing up to £40 million in hospitals and recruiting more staff.

About stroke and best practice treatment

Stroke is a serious, life-threatening medical condition that happens when the blood supply to the brain is cut off, either by a bleed or clot in a blood vessel. There are around 3,000 patients a year who have a stroke for whom a Kent and Medway hospital is their nearest. How well people recover is affected by the speed and quality of treatment.

National best practice is to have dedicated hyper acute stroke units that are staffed by teams of stroke specialists around the clock and have consultants on the unit seven days a week, with access to all the equipment they need for diagnosing and treating stroke patients. Patients should be taken to these units directly to receive specialist stroke care as soon as possible after having a stroke. Units should see a minimum of 500 patients a year to make sure staff maintain and develop their specialist skills. Similar changes have already been implemented in other parts of England and have proven to save lives and reduce disability.

How well people recover is affected by the speed and quality of treatment

Local challenges and the improvements needed

We know that hospital staff in Kent and Medway provide the best service they can for people who have a stroke. However, despite their best efforts, the way stroke services are currently organised, and a shortage of specialist staff, means the majority of our hospital stroke services do not consistently meet national standards for clinical quality. A significant reason for this is because specialist resources are stretched too thinly across the current hospital sites.

We have only 1/3 of the stroke consultants needed to deliver a best practice service in all hospitals

24/7 access is not consistently available for consultants, brain scans and clot busting drugs

One in three stroke patients are **not getting brain scans** in the recommended time after arriving at hospital

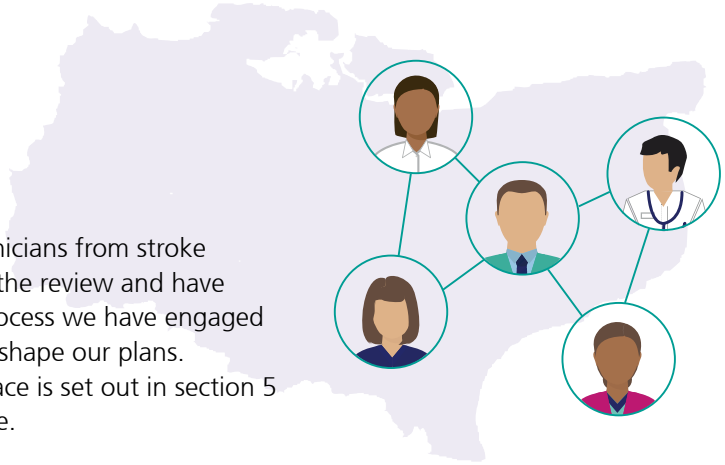
Only one unit sees enough stroke patients for staff to maintain and develop their expertise (recommended minimum of 500 stroke patients per year)

Half of appropriate patients **are not getting clot busting drugs** in the recommended time after arriving at hospital

The primary aim of our stroke review is to ensure that anybody who has a stroke, day or night, anywhere across Kent and Medway, and in our border areas in south east London and East Sussex, has the best chances of survival and recovery.

We want all our urgent stroke services to meet the national quality standards and offer patients the best care. Looking ahead, we want stroke services in Kent and Medway to be forward thinking and at the forefront of evidence-based care, with the best staff able to offer the latest developments in stroke treatment.

To achieve our vision, we must get the basics right and organise stroke services across Kent and Medway differently to how they are today.



Summary of review to date

This has been a detailed review which began in late 2014. Clinicians from stroke services, general practice and the ambulance service have led the review and have developed the proposals in this document. Throughout the process we have engaged with patients, the public, staff and other stakeholders to help shape our plans. Information on specific engagement activity that has taken place is set out in section 5 of this document and in supporting documents on our website.

The options for consultation

We are consulting on the proposal to establish hyper acute stroke units; whether 3 is the right number; and 5 potential options for their location. There has been a detailed process to consider options for the future shape of hospital-based urgent stroke services before proposing 3 sites and possible locations.

Over the course of the review we looked at:

- a long list that considered different numbers of hyper acute stroke units
- a medium list of possible 3-site options
- the shortlist of 3-site options now being consulted on.

Our shortlist has 5 potential options for where 3 hyper acute stroke units could be located in the future:

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

The order is not a ranking and we are not identifying a preferred option until we have fully and carefully considered all the evidence and data available to us, including the views and feedback gathered via this public consultation. There is information in section 6 about why some hospitals are not included in any of the options.

To develop the options our calculations of travel times and how many stroke patients each unit would see have also included people living in areas outside Kent and Medway where one of our proposed hyper acute stroke units may become their closest specialist stroke service, depending on where they live.

This would include:

- Bexley residents – a hyper acute stroke unit at Darent Valley Hospital may become their nearest, depending on where they live.
- High Weald Lewes Havens residents – a hyper acute stroke unit at Tunbridge Wells Hospital may become their nearest, depending on where they live.

Other residents in neighbouring communities may access Kent and Medway hospitals but are more likely to be taken by ambulance to hyper acute stroke units in Eastbourne District General Hospital, Royal Sussex County Hospital in Brighton, East Surrey Hospital in Redhill and the Princess Royal University Hospital in Orpington, and we have taken account of this in our modelling as we have designed our proposals.

We must get the basics right and organise stroke services differently to how they are today

The benefits of the proposed changes

The main benefits would be:

- all stroke patients using Kent and Medway services receiving consistently high quality care regardless of where they live or when their stroke occurs (i.e. reducing the variable quality of care currently provided)
- more patients getting brain scans and, if needed, clot busting drugs within the recommended time
- a reduction in deaths from stroke
- fewer people living with long-term disability following a stroke
- fewer people losing their independence and being admitted to nursing/care homes following a stroke
- shorter stays in hospital
- clinics for transient ischaemic attacks (TIA) or "mini strokes" would be consistently available 7 days a week
- improved experiences for patients and their family, friends and carers from being treated in a specialist unit with services available 24 hours a day, 7 days a week
- improved experiences for staff from improvements in patient care, improved team and multi-disciplinary working, and increased opportunities to maintain and build their specialist skills.

In section 6 of this document we also outline potential disadvantages of the proposed changes and concerns which have been raised by patients, the public, staff and other stakeholders during the earlier stages of our review. These include issues around whether 3 units is the right number; travel times; the impact on hospitals that would no longer have stroke services; and the recruitment and retention of stroke staff. We hope the information provided on these issues will help you to form your own views in order to respond to the consultation.

How to comment

This consultation runs from 2 February 2018 to 13 April 2018. There are specific questions at the end of this document which we would like your views on, as well as any other comments you have about the proposals. Comments can be sent back by freepost or online and by phone. We will also have a number of public meetings where you can discuss these proposals with members of the review group. Full details of how you can give your views are set out in section 7 of this document and meetings will be listed on our website www.kentandmedway.nhs.uk/stroke.

3 About stroke and best practice treatment

What is a stroke?

Stroke is a serious, life-threatening medical condition that happens when the blood supply to the brain is cut off by either a blood clot or a bleed in one of the blood vessels, causing damage to the brain tissue.

The effects of a stroke depend on which part of the brain is injured and how severely it is affected. We know that the care given in the first 72 hours after a stroke has the greatest impact on reducing long-term damage and disability.

The type of treatment needed depends on the type of stroke, and whether it is caused by a bleed or a clot, which can only be determined by a brain scan and expert diagnosis. But everyone who has a stroke benefits from receiving care in a hospital with specialist stroke services including immediate intensive rehabilitation support in the hospital and further support in the community if needed.

A transient ischaemic attack (TIA) or "mini stroke" is caused by a temporary disruption in the blood supply to part of the brain. This results in a lack of oxygen to the brain and can cause sudden symptoms similar to a stroke, such as speech and visual disturbance, and numbness or weakness in the face, arms and legs. However, a TIA doesn't last as long as a stroke. The effects often only last for a few minutes or hours and fully disappear within 24 hours.

What is the impact of stroke?

Stroke is a major health problem in the UK. It is the third biggest cause of death in the UK and the largest single cause of severe disability. There are around 3,000 stroke patients a year for whom a Kent and Medway hospital is their nearest.

Stroke can affect people of any age or background, although some people are more at risk of a stroke, including older people and people with Indian, Bangladeshi and Pakistani heritage. Smoking, obesity, diabetes and high blood pressure are also major factors that increase the risk of having a stroke.

However, stroke is a preventable and treatable disease. Fewer people have been dying of stroke since the late 1960s. This is in part due to a better understanding of the causes of stroke, and how to prevent them. It is also because of the development of specialist stroke units and the use of clot-busting drugs, called thrombolysis. Making sure we have specialist services consistently available in Kent and Medway is a key aim of the proposals we are consulting on.

National best practice for stroke services

National best practice guidelines and standards, based on the latest clinical evidence and research, tell us what treatments and ways of working give patients the best chance of survival and a good recovery from a stroke.

This evidence tells us that patients get the best outcomes when they are admitted quickly to a specialist stroke unit and cared for there for the first 72 hours following a stroke. These units are called hyper acute stroke units or HASUs.

National standards and best practice guidance describe a hyper acute stroke unit as:

- Run by a multi-disciplinary team of specialist stroke staff (i.e. a team with a mix of professionals such as consultant doctors, radiologists, occupational therapists and physiotherapists, specialist stroke nurses, speech therapists, dietitians, orthoptists)
- Treating at least 500 confirmed stroke patients each year. This is to ensure the staff see enough patients to maintain their competency levels and build their expertise
- Open 24 hours a day, 7 days a week with access at all times to brain scanning equipment and clot-busting drugs (thrombolysis) and the specialist cover to review scans and provide thrombolysis
- Having consultant ward rounds at least once a day 7 days a week
- Admitting people directly onto the unit avoiding waits in A&E
- Offering patients and carers high quality information and support.

After the first 72 hours, or once they are stable, patients should then be cared for on an acute stroke unit until they can be discharged with a comprehensive plan for ongoing rehabilitation.

Stroke patients should receive at least 90% of their inpatient care in a specialist stroke service (hyper acute stroke unit and acute stroke unit) rather than on general hospital wards.

An urgent care stroke service should also regularly and routinely evaluate and measure what it does, publish data about how it is performing and constantly look for improvements.

Learning from other parts of the country

We know from other parts of the country that setting up hyper acute stroke units does improve the quality and experience of care, and improve patient outcomes. In London there have been significant reductions in death and disability caused by stroke since the introduction of hyper acute units, as well as shorter hospital stays. Approximately 100 lives a year have been saved since changes to the way stroke services are organised in London were introduced. Manchester has implemented similar changes with positive results, particularly in reducing the number of days patients need to stay in hospital recovering from a stroke. And across the country the NHS is either in the process of implementing or considering similar changes to consolidate stroke care into hyper acute stroke units. We are continuing to monitor and learn from others who are further ahead with this work.

4 Local challenges and the improvements needed

We know that we can do more to save more lives, limit the damage caused by a stroke and help people recover more quickly. To do this we would need to change how stroke services are organised across hospital sites. Doing this would help us to meet the needs of local people and deliver evidenced-based high quality care to national standards.

How stroke services operate now in Kent and Medway

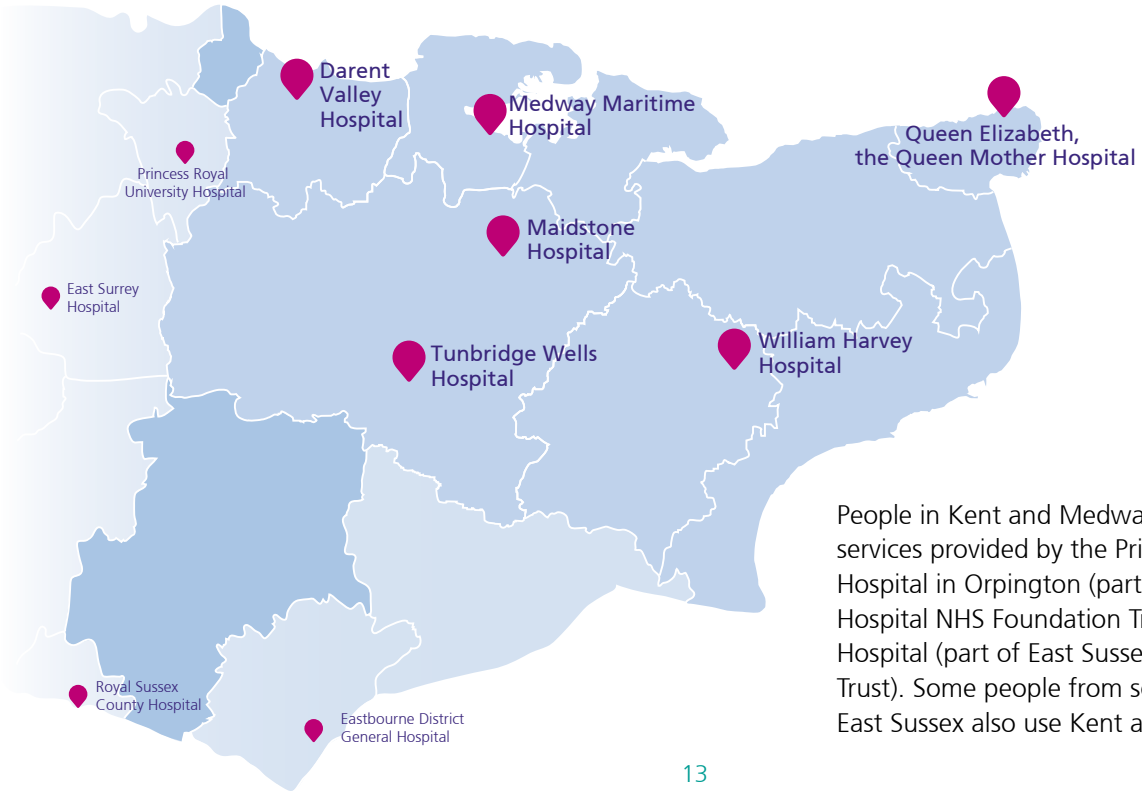
In 2016/17 around 3,000 patients were treated for stroke in Kent and Medway hospitals. This includes approximately 250 patients from outside our area, but for whom our hospitals offer the closest stroke services.

Currently, hospital stroke services are provided across 6 of the 7 acute hospital sites in Kent and Medway, but we do not have any 24 hours a day, 7 days a week, hyper acute stroke units. General hospital-based stroke services are currently provided at:

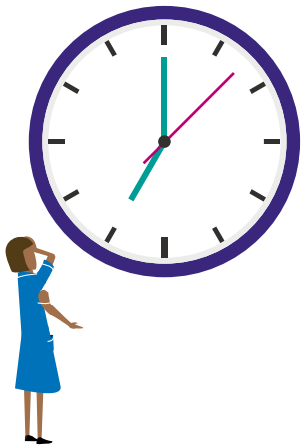
- Darent Valley Hospital, Dartford
- Maidstone Hospital, Maidstone
- Medway Maritime Hospital, Gillingham
- Queen Elizabeth, the Queen Mother Hospital, Margate
- Tunbridge Wells Hospital, Pembury
- William Harvey Hospital, Ashford

Until April 2017 stroke services were also provided at Kent and Canterbury Hospital. This stroke service has been stopped temporarily due to withdrawal of training doctors by Health Education England which meant services could not be provided safely.

Current locations of hospital-based urgent stroke services in this area



People in Kent and Medway also use stroke services provided by the Princess Royal University Hospital in Orpington (part of Kings College Hospital NHS Foundation Trust) and Eastbourne Hospital (part of East Sussex Healthcare NHS Trust). Some people from south London and East Sussex also use Kent and Medway hospitals.



We cannot consistently provide specialist cover 7 days a week

The current challenges with stroke services – our case for change

We know that hospital staff in Kent and Medway provide the best service they can for people who have a stroke. However, despite their best efforts, the way stroke services are organised, along with a shortage of specialist staff, means the majority of our local hospital stroke services do not consistently meet national standards for clinical quality. A significant reason for this is because specialist resources are stretched too thinly across the current hospital sites.

Key areas where Kent and Medway stroke services are failing against national standards:

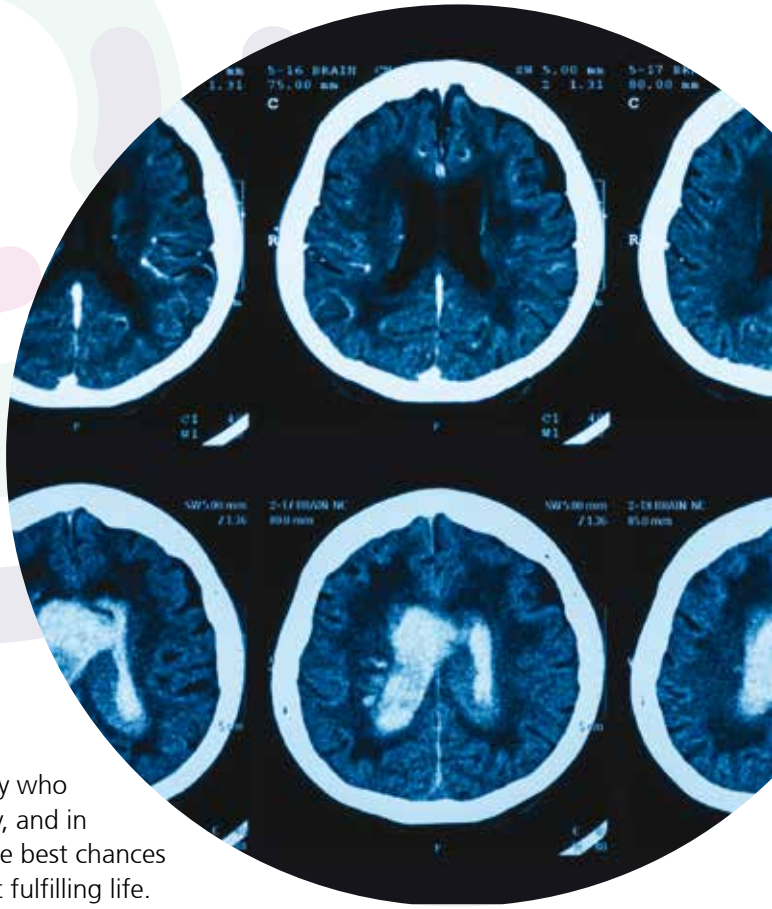
- We are not able to run 24 hours a day, 7 days a week, hyper acute stroke units which have scanning equipment, clot-busting drugs and stroke consultants available on the units every day. There are acute stroke services, but we cannot consistently provide specialist cover 7 days a week.
- We have less than a third of the stroke consultants we need to run 24/7 services on all our existing hospital sites. Staffing levels for other clinical roles (such as stroke nurses) are also below the recommended level and we would need to fill 51 additional full time non-consultant roles for all sites.
- Only 1 hospital (Medway) currently sees the recommended minimum number (500 per year) of stroke patients for staff to maintain their skills and build expertise.
- Over a third of stroke patients using Kent and Medway hospitals are not getting a brain imaging scan within the recommended one hour of admission to hospital. These scans are essential to determine whether the stroke has been caused by a bleed or a blockage and to indicate the right treatment.
- Following a scan, only a half of Kent and Medway's stroke patients who need clot busting drugs (thrombolysis) get them within the recommended time.

What does this mean for you?

When looking at Kent and Medway as a whole, the challenges facing hospital stroke services mean if you, or a loved one, have a stroke, you may not always have access to the most specialist stroke staff around the clock, particularly at nights and weekends.

This could lead to:

- a greater risk of death
- a greater risk of long-term disability and therefore poorer long-term quality of life
- increased likelihood of losing independence and admission to a residential or nursing home.



Our vision for stroke services across Kent and Medway

The primary aim of our stroke review is to ensure that anybody who has a stroke, day or night, anywhere across Kent and Medway, and in our border areas in south east London and East Sussex, has the best chances of survival and recovery with a return to living an independent fulfilling life.

Looking ahead, we want stroke services in Kent and Medway to be forward thinking and at the forefront of evidence based care. We want to be able to offer local people the latest developments in stroke treatment. This includes potentially being able to offer mechanical thrombectomy (a complex procedure to remove blood clots in the brain). This is new to the NHS and currently the few Kent and Medway residents who are suitable for treatment are transferred to highly specialised units in London. It is our ambition to provide it locally in the future from one of the proposed new hyper acute stroke units.

To achieve our vision, we must get the basics right and organise stroke services across Kent and Medway differently to how they are today. Currently, none of our stroke units in Kent and Medway meet the best practice guidelines and standards for hyper acute stroke units. This is not good enough. Patients are not getting the care and treatment they need. By improving patient care by introducing hyper acute stroke units we can save lives and reduce long-term disability.

We want all our urgent stroke services to meet the national quality standards and offer patients the best care.

To do this we need to reorganise services to create hyper acute stroke units that:

- run a full service 7 days a week, 24 hours a day
- scan patients as soon as possible and within 1 hour of arrival and give clot busting drugs, if needed, within 2 hours of calling the ambulance
- have 7 day a week cover from stroke consultants, specialist stroke nurses and stroke therapists
- have consultant ward rounds at least once a day 7 days a week
- admit patients directly
- see more than 500 confirmed stroke patients a year.

In addition, we want to make sure that all stroke patients:

- have a comprehensive assessment of their needs carried out by a specialist stroke consultant, stroke nurse and therapist within 24 hours
- are cared for on a hyper acute stroke unit before moving to an acute stroke unit to continue treatment and rehabilitation
- stay in a specialist stroke unit for at least 90% of their inpatient stay in hospital (initially in a hyper acute stroke unit and then in an acute stroke unit); rather than being cared for on a general ward
- receive better quality care, a more positive experience of care and better outcomes after a stroke (i.e. fewer deaths and less disability from stroke).

We also want to offer access to TIA clinics 7 days a week for higher risk patients.

To deliver the care people need now and in the future, we must make sure that stroke services meet national quality standards, and are sustainable for the long-term based on the staff and resources we have.

Whilst not part of this specific consultation, we also need to do all we can to help people reduce their risk of having a stroke in the first place. In addition to the plans in this consultation we have a dedicated programme of work focussed on improving stroke prevention in Kent and Medway. You can find out more about this on our website at www.kentandmedway.nhs.uk/stroke.

Investing in urgent stroke services

The options set out here would all require additional up-front (or capital) investment from NHS England, of between £30-40 million to implement. The investment needed for implementing each option is set out on pages 29-33.

The changes are not driven by the need to save money, but we do want to be sure we are getting the best value for the money spent on stroke services. From the time the changes were made, the better outcomes for patients would also mean a reduction in the overall cost of stroke services. The reduction would be mainly due to better recovery for patients who wouldn't then need as much long-term care.

To achieve our vision, we must get the basics right and organise stroke services across Kent and Medway differently to how they are today

5 What's happened so far with our stroke review

Clinically led review and options development

The development and evaluation of our proposals has been clinically led throughout the review process, with recommendations coming from leading doctors and other health and care professionals in Kent and Medway, and further tested with a panel of senior clinicians from across the south east of England. You can find out who the members of these clinical groups and boards are on our website www.kentandmedway.nhs.uk/stroke.

- Our Stroke Clinical Reference Group was established in January 2015. It has an independent clinical chair and its clinical members are from hospital trusts in Kent and Medway and the ambulance service. It also has patient representatives.
- The Kent and Medway Clinical and Professional Board members are senior clinical leaders from across Kent and Medway, members include NHS Trust medical directors, clinical commissioning group clinical chairs (who are also local GPs), directors of public health and nursing representatives.
- The South East Coast Clinical Senate brings together a range of health and social care professionals, with patients, to take an overview of health and healthcare for local populations. It provides a source of independent, strategic advice and guidance to healthcare commissioners and other stakeholders to help them to make the best decisions about healthcare for the populations they represent.
- The National Clinical Director for Stroke, Professor Tony Rudd has provided clinical oversight, challenge, expert clinical opinion and learning from other stroke reviews.

More information on how we have made sure the stroke review programme has been fair, robust and good quality, is set out in the pre-consultation business case which is available on our website. Two reports from the South East Coast Clinical Senate, on our case for change and our options, are also available on the website www.kentandmedway.nhs.uk/stroke.

Since 2014

Nov/Dec 2015

March 2016

Sep/Oct 2016

2017

2018

Stakeholder engagement

Since late 2014, local health commissioners have been talking to the public and clinicians across Kent and Medway and neighbouring areas of Sussex, Surrey and south-east London about acute stroke services with a view to reorganising services to improve clinical outcomes for patients.

Stroke survivors, their families and carers, and members of the public have played a key part in shaping potential future models of care. Varied, robust and in-depth engagement has taken place with stroke specialists, clinical staff, voluntary organisations, stroke survivors, families, carers and the public to gather people's views and insight. This has included surveys, focus groups, listening events, clinical engagement events, roadshows, face-to-face meetings, and information provided through newsletters, printed magazines, media, and social media.

In November and December 2015 we held three 'People's Panels' which looked in detail at the case for change. They questioned and challenged the emerging proposals for improving future stroke care and voted on different aspects of stroke services – establishing what they, as patients and carers, value most.

In March 2016 we ran a challenge session with national leads and patient and public representatives to test the work to date and the emerging options. In September and October 2016, there was a further series of events involving people who have had a stroke, their carers, and members of the public.

In 2017, listening events were held in every clinical commissioning group area in Kent and Medway, and during the summer we engaged with staff, stakeholders and the public around the case for change and the evaluation criteria to use for shortlisting potential site options.

A detailed list of stakeholder engagement activity to date is available on our website at www.kentandmedway.nhs.uk/stroke.

We will be holding more events as part of this consultation and we have a range of other ways for you to give your views, see page 34 for details.

Getting to the shortlist of potential site options for consultation

We have followed a detailed process to look at potential options for the future of hospital-based urgent stroke services. The process has been led by stroke specialists from across Kent and Medway, including consultants, doctors, nurses and other healthcare professionals. We have worked with patient and public groups, and their representatives throughout the development of the options.

In summary we have used a multi-step process of filtering out potential options by applying different types of agreed criteria. This allowed us to move from a long list that considered all possible options with different numbers of hyper acute stroke units, to a medium list of possible 3-site options, and then down to the shortlist of 3-site options which form part of this consultation.

A summary of the evaluation criteria used is at the back of this document, and a detailed document with the full evaluation process is available on the consultation web pages at www.kentandmedway.nhs.uk/stroke.

6 Our proposals for stroke services

The proposed changes for Kent and Medway

Our proposal is to establish 3 hyper acute stroke units operating 24 hours a day, 7 days a week, to care for all stroke patients across Kent and Medway. We would also locate acute stroke units alongside each of these hyper acute units, where people may go after the initial 72 hours for further care until they are ready to be discharged, as well as transient ischaemic attack (TIA) clinics.

This means we would stop providing urgent stroke services from hospitals that are not identified as locations for the hyper acute stroke units. We are exploring if some TIA clinics could continue to run at some local hospitals. This would allow access to specialist assessment closer to home; with staff at hyper acute stroke units always contactable for support or admission if needed.

This proposal is based on the work carried out over the past 3 years (since late 2014) looking at the best practice guidelines and standards and our population and the incidence of stroke in Kent and Medway (now and predicted in the future).

We are consulting on the proposal to establish hyper acute stroke units; whether 3 is the right number; and 5 potential options for their location.

Proposed options for locations of hyper acute stroke units:

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

The order is not a ranking and we are not identifying a preferred option until we have fully and carefully considered all the evidence and data available to us, including the views and feedback gathered via this public consultation.

Getting your views on our proposals

We have proposed these options after careful and detailed consideration of a wide range of evidence, information and views. We are now formally consulting to find out what you think about our proposals for making changes to hospital-based urgent stroke services.

An independent research company has helped us develop the consultation questions. And an independent research company will collate all the responses we receive from local people, staff and other stakeholders. You can see the questions and find out about the different ways you can respond to this consultation at the end of this document.

The consultation process is not a referendum. We are not asking you to vote for your preferred option. Rather, we want to know what you think about the impact the options would have on urgent stroke care, whether you think they are likely to improve the quality of care and improve access to services for you and your family. We want to know if you think we have missed any important information or evidence in our development of these proposals and options that could impact on the final decision about how to organise these services across Kent and Medway in the future.

Over the next few pages we explain more about what the proposed changes might mean for you, and what the benefits and potential disadvantages of the different options are. Some of the benefits and potential disadvantages are the same for all the options and some are different between the options. Some of the options might affect you more than others. We would welcome your comments on all the options or other options you think we should consider. You can see a detailed evaluation document on our website www.kentandmedway.nhs.uk/stroke which shows the other possible combinations of 3 sites that were considered but were less favourable.

To help you form your views, we have included some questions and concerns that have already been raised by patients, local people, local politicians, stroke specialists and health and social care staff as we developed the proposals

What are the benefits of the proposed changes?

The evidence tells us that changing how stroke services are organised across Kent and Medway would bring important benefits for people who have a stroke. Patients who are taken to, and treated in, a hyper acute stroke unit immediately after their stroke have a better chance of surviving and having less long-term disability; compared to patients taken to a hospital without a specialist unit working 24 hours a day, seven days a week.

If we make the proposed changes to stroke services, there would be benefits for both stroke patients and the staff working hard to deliver the best possible care.

The main benefits of the proposals would be:

- all stroke patients across Kent and Medway receiving consistently high quality care regardless of where they live or when their stroke occurs (i.e. reducing the variable quality of care currently provided)
- more patients getting brain scans and, if needed, clot busting drugs within the recommended time
- a reduction in deaths from stroke
- fewer people living with long-term disability following a stroke
- fewer people losing their independence and being admitted to nursing/care homes following a stroke
- shorter stays in hospital
- clinics for transient ischaemic attacks (TIA) or "mini strokes" would be consistently available 7 days a week
- improved experiences for patients and their family, friends and carers from being treated in a specialist unit with services available 24 hours a day, 7 days a week
- improved experiences for staff from improvements in patient care, improved team and multi-disciplinary working, and increased opportunities to maintain and build their specialist skills.

An illustrative patient story...

Bill who experiences a thrombotic stroke (blood clot)

Bill, a 63 year old man, is at home watching TV on a Friday night when around 9pm he realises that his face has become lop-sided and he cannot lift his right arm. He recognises the signs of a stroke from the FAST adverts (Facial drooping, Arm weakness, Speech difficulties, Time) and calls 999 immediately.

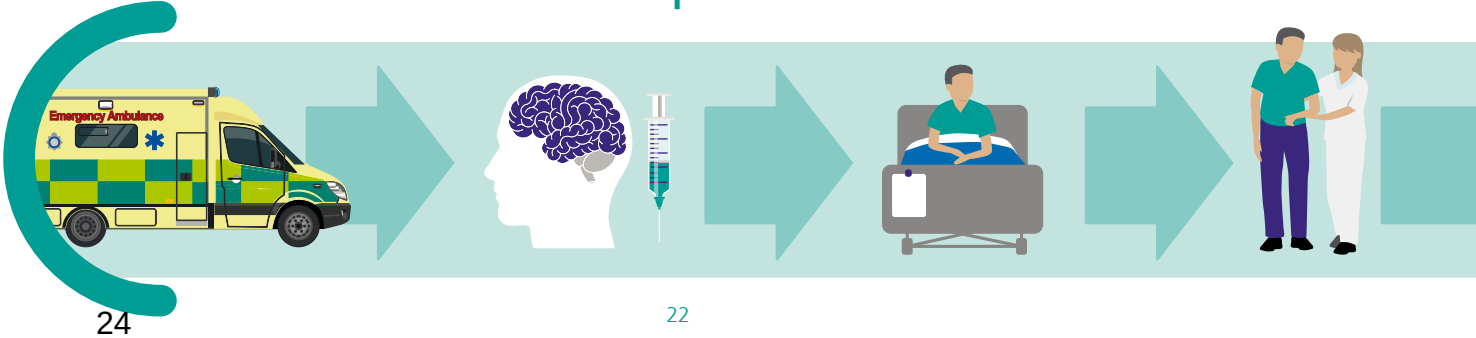
Care in an under-performing stroke service:

Paramedics arrive and take Bill to the nearest A&E. It is a busy night in A&E and although he is assessed and cared for, there is a delay in getting a CT brain scan. He has the scan over an hour after reaching A&E which when reported confirms that he has a blood clot in an artery in the brain. By this time it is too late for clot busting treatment. Bill is moved onto the local stroke ward. There are no therapists or stroke consultants available to see him over the weekend on the stroke ward. His swallowing becomes more difficult and he develops a chest infection.

He spends three weeks in hospital due to the infection. Despite rehabilitation Bill continues to have difficulty swallowing forcing him to radically change his diet. He also never regains good control of his arm which makes everyday tasks much harder and eventually prompts a move into a care home.

Bill's care in an under-performing stroke service

Bill's care in a best practice stroke service

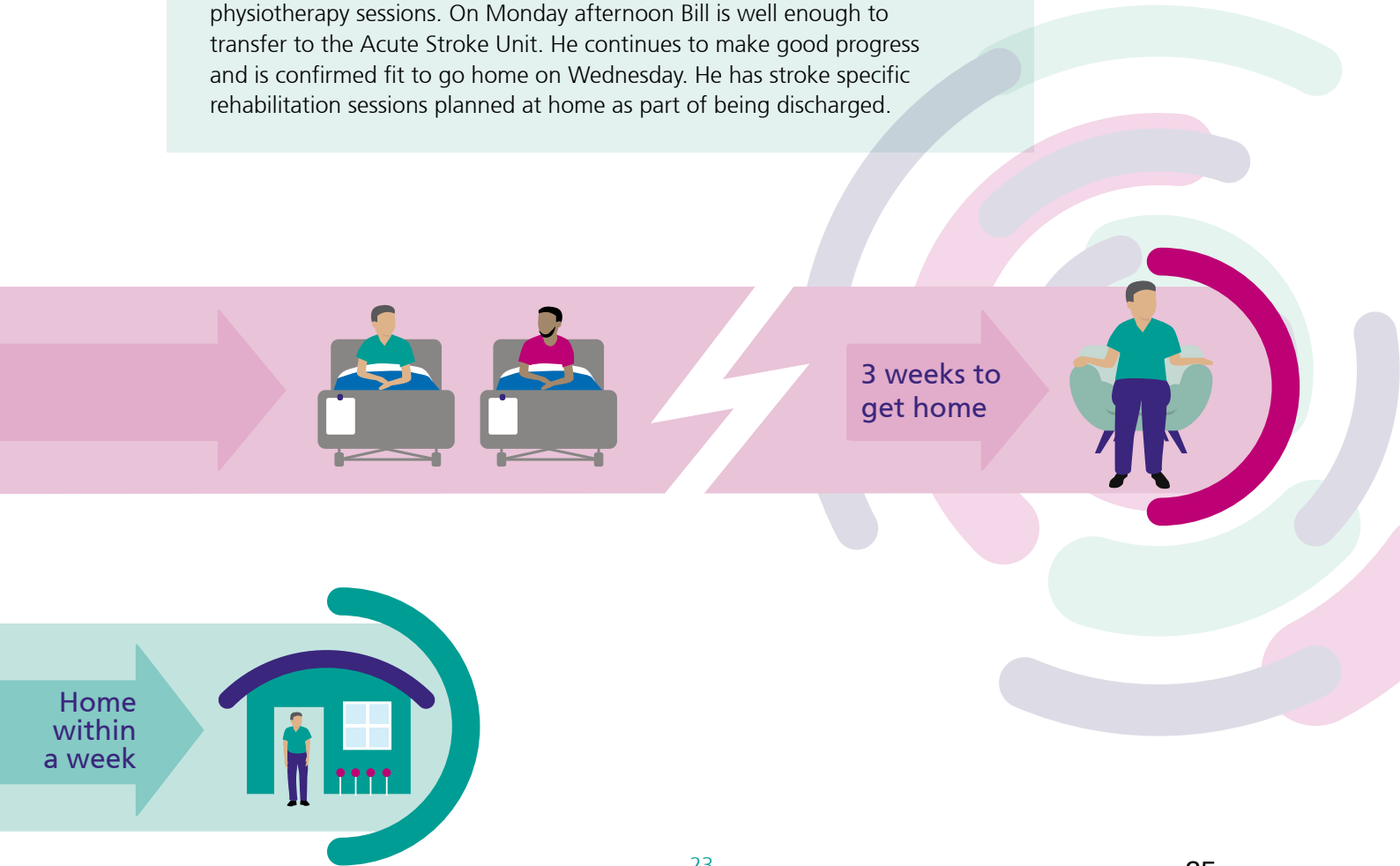


Care in a best practice stroke service:

The paramedics assess Bill and explain they are taking him straight to a specialist stroke unit. It's further away than the local hospital but he'll get specialist care faster. The stroke unit is alerted by the paramedics and a team gets ready for his arrival.

When Bill arrives he is met by the stroke team. He is assessed quickly and taken straight in for a brain scan, which confirms a blood clot. After explaining the problem to Bill, and the risks involved in the treatment, the stroke consultant gives him an injection to dissolve the blood clot. This all takes place within 2 hours of him calling 999.

He is then moved onto the hyper acute stroke unit. He rapidly starts feeling better and regains some function of his right arm, though his speech is still slurred. He is admitted for observations and further assessments by a multidisciplinary team, including speech and language therapists who recommend a thickened diet initially. A stroke consultant sees him on the ward on Saturday, explains what happened, the likely cause of the stroke, what the future holds for him, and starts secondary preventative medicines after a repeat scan that evening. His rehabilitation starts on Sunday morning with occupational, speech and language and physiotherapy sessions. On Monday afternoon Bill is well enough to transfer to the Acute Stroke Unit. He continues to make good progress and is confirmed fit to go home on Wednesday. He has stroke specific rehabilitation sessions planned at home as part of being discharged.



Potential disadvantages and concerns

During our review of stroke services, we have considered the potential disadvantages of making changes and we have actively listened to the questions and concerns raised through our engagement with patients, staff and other stakeholders.

We firmly believe the evidence shows that creating hyper acute stroke units in Kent and Medway would benefit patients, specialist stroke staff and the wider NHS and social care system; and we believe the benefits outweigh the disadvantages.

An integrated impact assessment has been carried out on the proposals as part of the pre-consultation business case. The report covers impacts on equality, health, travel and access, and sustainability. It is available at www.kentandmedway.nhs.uk/stroke.

Whether 3 units is the right number

We looked carefully at how many hyper acute stroke units we believe we need in Kent and Medway before proposing 3 as the optimal number. In summary, by consolidating specialist staff, our equipment and other resources into 3 hyper acute stroke units we can provide care in line with the standards that all patients should be able to expect, and staff want to provide whilst still making these services accessible in terms of travel times.

We do not have the staff or resources to create hyper acute stroke units at all hospitals. We believe that having more than 3 hyper acute stroke units would spread our staff and patients too thinly to make the service safe, sustainable and to allow the delivery of high quality care.

Stroke specialists, and other stakeholders, including patients and the public, have broadly agreed that the option of 2 hyper acute stroke units should be excluded. This was because 3 units would make the system more resilient – for example to help manage peaks in demand, or in the event that 1 unit was not usable due to damage e.g. fire – as well as offering good access to patients.

Therefore, our stroke specialists are proposing that there should be 3 hyper acute stroke units in Kent and Medway.

The location of acute stroke units, for care after the initial 72-hours following a stroke

Some concerns have been raised about having the acute stroke units on the same sites as the hyper acute units; with views expressed that locating them at other hospitals would allow for more local care after an initial 72 hours on a hyper acute stroke unit. It is possible to have separate hyper acute stroke units and acute stroke units on different hospital sites. However, a similar workforce is needed to cover each type of unit and therefore separating them would involve additional workforce pressures. Locating both types of unit in the same place also significantly reduces the need to transfer patients. Clinicians therefore agreed that hyper acute stroke units and acute stroke units should be together on the same sites in Kent and Medway.

When someone has a stroke, an ambulance should always be called

Travel times

We know how important it is to you that services are easy to access for you and your family. Depending on where you live, the ambulance journey to reach a hyper acute stroke unit may be longer than being taken to your nearest A&E, but what is most important is the speed and quality of specialist care you receive once you reach the hyper acute unit.

A shorter journey to a hospital without a hyper acute stroke unit can be worse for stroke patients than a longer journey to a hyper acute stroke unit. The evidence, from elsewhere in the country where similar changes have already been made, shows that patients who are treated in a hyper acute stroke unit have better outcomes because they get a faster diagnosis and specialist treatment, even if the initial ambulance journey is longer. It is also important to remember that ambulance paramedics are skilled clinicians who begin assessment as soon as they arrive and provide care throughout the journey. The ambulance service's call handlers are also an essential part of identifying potential strokes and ensuring patients are taken to the most appropriate hospital and receive a quick response when they arrive.

In the view of our stroke specialists, the benefits to all stroke patients of being treated at a hyper acute stroke unit outweigh the potential disadvantages of some patients facing longer travel times.

National standards say that patients should get clot-busting drugs, if they need them, as early as possible but ideally within 2 hours of calling for an ambulance. Therefore, we considered that an hour was the maximum acceptable journey time by ambulance, to allow enough time once a patient gets to a hyper acute stroke unit to have a scan and be given clot busting drugs if needed. Between 10 and 20 per cent of stroke patients may need clot busting therapy.

All 5 of the consultation options mean that 98 per cent of people could reach a hyper acute stroke unit by ambulance within an hour; and only a few minutes over 1 hour for the remaining 2 per cent. For all the options, over 90 per cent of people can reach a hyper acute stroke unit within 45 minutes by both ambulance and car.

Around 75 per cent of people can reach a hyper acute stroke unit within 30 minutes by both ambulance and car. In developing our shortlist of potential options, we rated the options with the shortest journey times for the most people more positively. The tables on pages 29-33 show the percentage of people who can reach each hyper acute stroke unit within 30 minutes and 45 minutes by both ambulance and car for each of the 5 shortlisted options.

When someone has a stroke, an ambulance should always be called. There is no circumstance where stroke victims should be driven to a hospital by car or taken to hospital on public transport. However, if a family member, friend or someone you care for has a stroke, you may need to travel further to visit them. We know that for people who rely on public transport this may be a particular area of concern. We believe the benefits of reducing deaths and long-term disability caused by strokes outweighs the short-term inconvenience for people visiting stroke patients in hospital.

Why some hospitals are not included in any of the options

At different stages of the evaluation process we excluded some of the hospitals in Kent and Medway because they did not meet the required criteria. The Queen Elizabeth the Queen Mother and the Kent & Canterbury hospitals have been excluded from all the shortlisted options.

Both hospitals are run by the East Kent Hospitals University NHS Foundation Trust; who also run the William Harvey Hospital.

We have worked closely with the Trust to look at each site's potential to be a hyper acute stroke unit:

- **Kent & Canterbury Hospital** – does not currently provide a stroke service or the range of other emergency and urgent care services that are needed to support a hyper acute stroke unit. This meant it did not pass the 2nd stage of our evaluation process.
- **Queen Elizabeth the Queen Mother Hospital** – does have the emergency and urgent care services needed to support a hyper acute stroke unit, but does not have a range of other services that are desirable to have alongside a hyper acute stroke unit. This meant that while it was included in our medium list; it was evaluated less favourably than the William Harvey which has both the needed and desirable services.

We also asked the Trust whether it could develop 2 hyper acute stroke units. They concluded that it would be very difficult to attract enough specialist stroke staff to run 2 units; so options including both the Queen Elizabeth the Queen Mother and William Harvey sites were evaluated more poorly and did not make the shortlist that is part of this consultation.

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 decisions we need to make 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 we would anticipate any hyper acute stroke service would also move with them, subject to consultation.

Recruitment and retention of stroke staff

We know from staff feedback that specialist stroke staff generally support the development of hyper acute stroke units to improve the quality of care for patients. At the moment we face significant vacancies in the stroke services at all 6 current sites. We believe setting up 3 hyper acute stroke units would improve recruitment and retention in the medium to long term, however, there may be short term disadvantages.

The changes would mean that some existing staff would be asked to change where and how they work. For some staff this would mean longer travel times to work, different shift patterns, working with different people and in a different environment. For some staff the impact of these changes on work and home life may not be acceptable and we may be at risk of losing some of our talented and dedicated stroke staff. Trusts would work through their HR processes with individual staff to support them in any changes and to provide individual solutions wherever possible. If changes were unsuitable for individuals, we expect that most could be offered alternative roles allowing them to stay on the same site.

During the development of the potential options stroke survivors, local people and staff consistently expressed concerns about the number of staff needed to establish hyper acute stroke units in Kent and Medway. There is a national shortage of stroke consultants and specialist stroke nurses and therapists. All options would mean recruiting additional consultants and we evaluated options which require the fewest extra consultants more highly.

We would deliver a detailed staff development and recruitment plan as part of setting up hyper acute stroke units. We know that other hospitals around the country with hyper acute stroke units find it easier to recruit stroke consultants and other specialist stroke staff because they offer better opportunities for professional development, and allow staff to care for patients in line with national best practice.

Potential loss of other services at hospitals without a hyper acute stroke unit

Part of our evaluation process looked at what 'co-dependent' services are needed for a hyper acute stroke unit. Co-dependent services are other hospital departments that are essential to the safe and effective treatment of, in this case, stroke patients. Some of the co-dependent services that need to be on the same hospital site as a hyper acute stroke unit include emergency care and acute medicine, critical care units, x-ray, CT and MRI scanning, occupational therapy and physiotherapy.

There are also some specialist services that it is beneficial to have on the same site as a hyper acute stroke unit, for example a trauma unit, vascular surgery (surgery carried out on blood vessels) and interventional radiology (to support developing mechanical thrombectomy). When we evaluated the potential options, we rated hospitals which have these beneficial services more highly than those without.

During the development of the options, some staff and local people have expressed concern that if a hospital does not have a hyper acute stroke unit it may be at risk of losing other specialist services, or not being considered for the development of these services in the future. Although hyper acute stroke units are dependent on other services such as emergency medicine and A&E, we are not proposing any changes to these services at sites which do not develop a hyper acute stroke unit. These services are also not dependent on a hyper acute stroke unit being at the hospital.

We believe the benefits outweigh the disadvantages

The impact on hospitals outside Kent and Medway

Some options would mean more patients would go to a hyper acute stroke unit outside of Kent and Medway. This would put additional pressure on those hospitals, in terms of needing to recruit additional staff, add more beds and other resources. During the evaluation process we ruled out any potential option that would need hyper acute stroke units outside our area to add 20 beds or more. Further discussion with the Princess Royal University Hospital, Eastbourne District General Hospital and any other affected hospitals and commissioners outside of Kent and Medway will continue through this consultation process.

Conversely, options including a hyper acute stroke unit at Darent Valley Hospital would make it the closest unit for some Kent and Medway residents who would currently be treated at the Princess Royal University Hospital (PRUH) in Orpington. This would reduce the number of hyper acute stroke beds needed in the future at the Princess Royal Hospital. There has already been substantial discussions with the Princess Royal University Hospital who have given their support to the proposals. Further discussion with the Princess Royal University Hospital, Eastbourne District General Hospital and any other affected hospitals and commissioners outside of Kent and Medway will continue through this consultation process.

Summary of location options

The following pages outline each of the 5 options for locating hyper acute stroke units at 3 sites in Kent and Medway. There is more detailed information on each option in the pre-consultation business case on our website www.kentandmedway.nhs.uk/stroke.

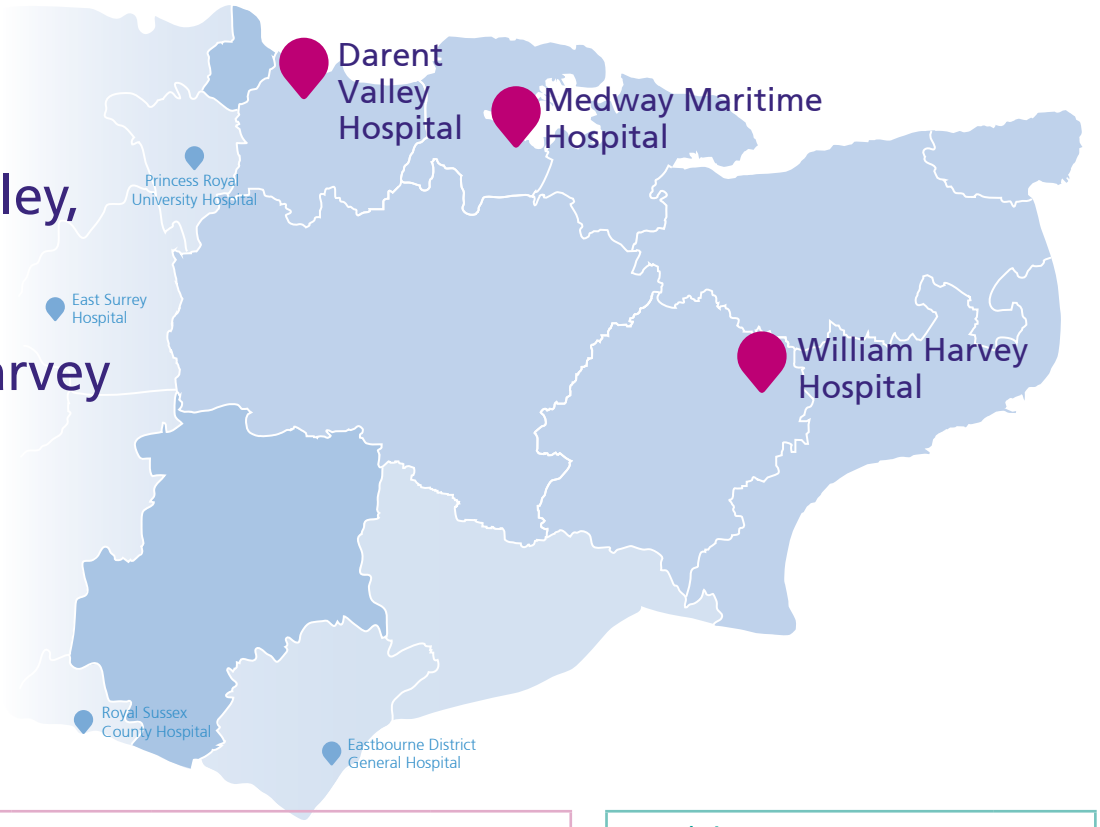
The options are not ranked in order of preference. We want to hear your views on all five options.

Notes on all options:

- **Travel times** – all options allow 98% of the population to reach a hyper acute stroke unit within 60 minutes, therefore we have shown the percentage of population within 45 and 30 minutes of a hyper acute stroke unit to allow clearer differentiation between the options.
- **Capital costs** – this shows the total investment in building/refurbishment and new equipment that would be needed across all sites in the option, including where relevant, for hospitals outside of Kent and Medway.
- **Net Present Value** – this is a calculation to show the overall financial benefit over the next 10 years for each option. It compares the total investment (including upfront capital investment, one-off transition costs, workforce and other service costs) against total potential benefits (including savings as a result of reducing long-term complications and disabilities through the new model, and the net change to service costs). A higher value shows a greater benefit.
- **Hospitals outside Kent and Medway** – where options show bed numbers and strokes treated these only relate to Kent and Medway residents. It is not the total size of those stroke services.

Option A:

Darent Valley, Medway and William Harvey hospitals



Quality of care

	Darent Valley	Medway Maritime	William Harvey	Overall assessment
Beneficial services on site	/	✓	✓	✓
Potential to offer mechanical thrombectomy	/	✓	✓	✓
Potential to be a major emergency centre	✓	✓	✓✓	✓✓

✓✓ very positive ✓ positive / neutral X negative XX very negative

Travel times

% of population within 30 mins of hyper acute stroke unit **by ambulance**	73.4%
% of population within 45 mins of hyper acute stroke unit **by ambulance**	91.0%
% of population within 30 mins of hyper acute stroke unit **by car at peak time**	71.9%
% of population within 45 mins of hyper acute stroke unit **by car at peak time**	91.0%

Investment and Workforce

Capital investment needed	£30.82m
Net Present Value (10 years)	£17.7m
Additional consultants needed in Kent and Medway	8
Additional consultants needed outside Kent and Medway	0

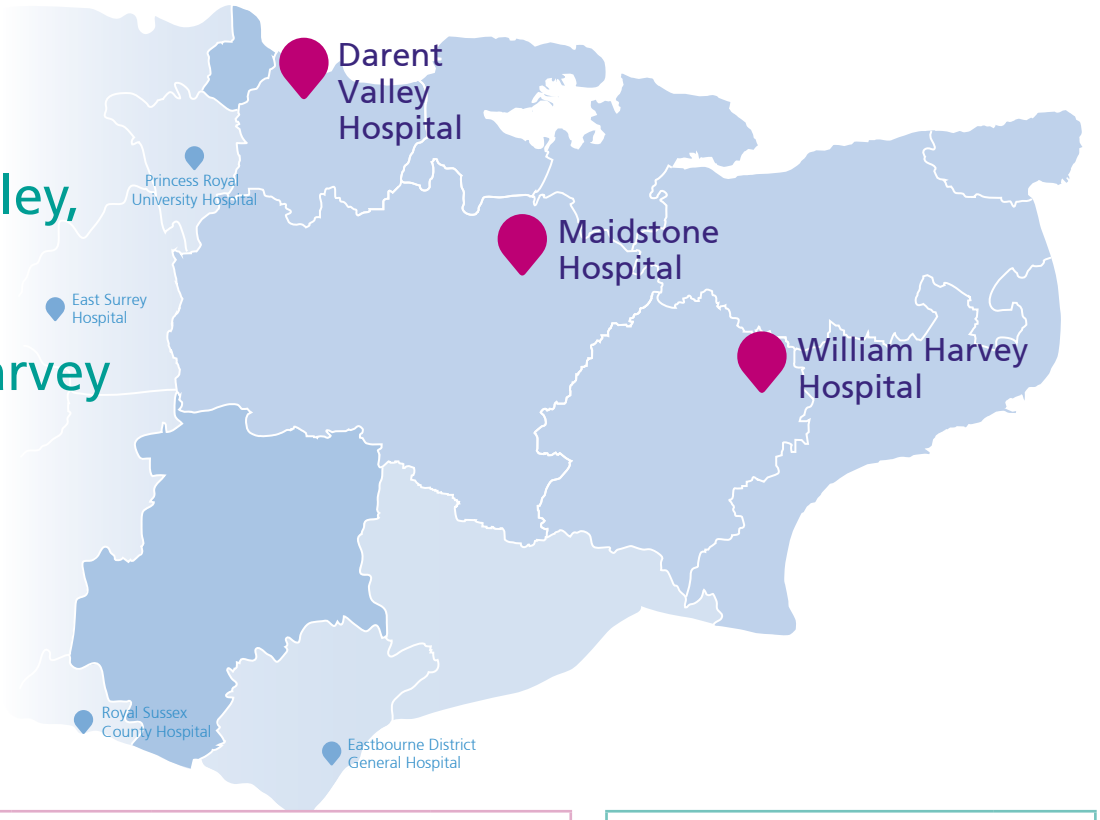
Implementing the options

	Darent Valley	Medway Maritime	William Harvey	PRUH	Eastbourne	Other
Total stroke beds needed	32	30	53	8	3	1
Extra stroke beds needed	9	4	29	-2	3	1
Additional strokes treated per year	332	144	776	-24	70	28
Building work/ refurbishment needed	Refurbish existing wards	Refurbish existing wards	Build new stroke unit	Other: 1 additional stroke bed at Brighton		

PRUH: Princess Royal University Hospital in Orpington.

Option B:

Darent Valley, Maidstone and William Harvey hospitals



Quality of care

	Darent Valley	Maidstone	William Harvey	Overall assessment
Beneficial services on site	/	/	✓	✓
Potential to offer mechanical thrombectomy	/	/	✓	✓
Potential to be a major emergency centre	✓	X	✓✓	✓

✓✓ very positive ✓ positive / neutral X negative XX very negative

Travel times

% of population within 30 mins of hyper acute stroke unit **by ambulance**	74.2%
% of population within 45 mins of hyper acute stroke unit **by ambulance**	91.3%
% of population within 30 mins of hyper acute stroke unit **by car at peak time**	73.3%
% of population within 45 mins of hyper acute stroke unit **by car at peak time**	91.6%

Investment and Workforce

Capital investment needed	£36.29m
Net Present Value (10 years)	£12.1m
Additional consultants needed in Kent and Medway	8
Additional consultants needed outside Kent and Medway	0

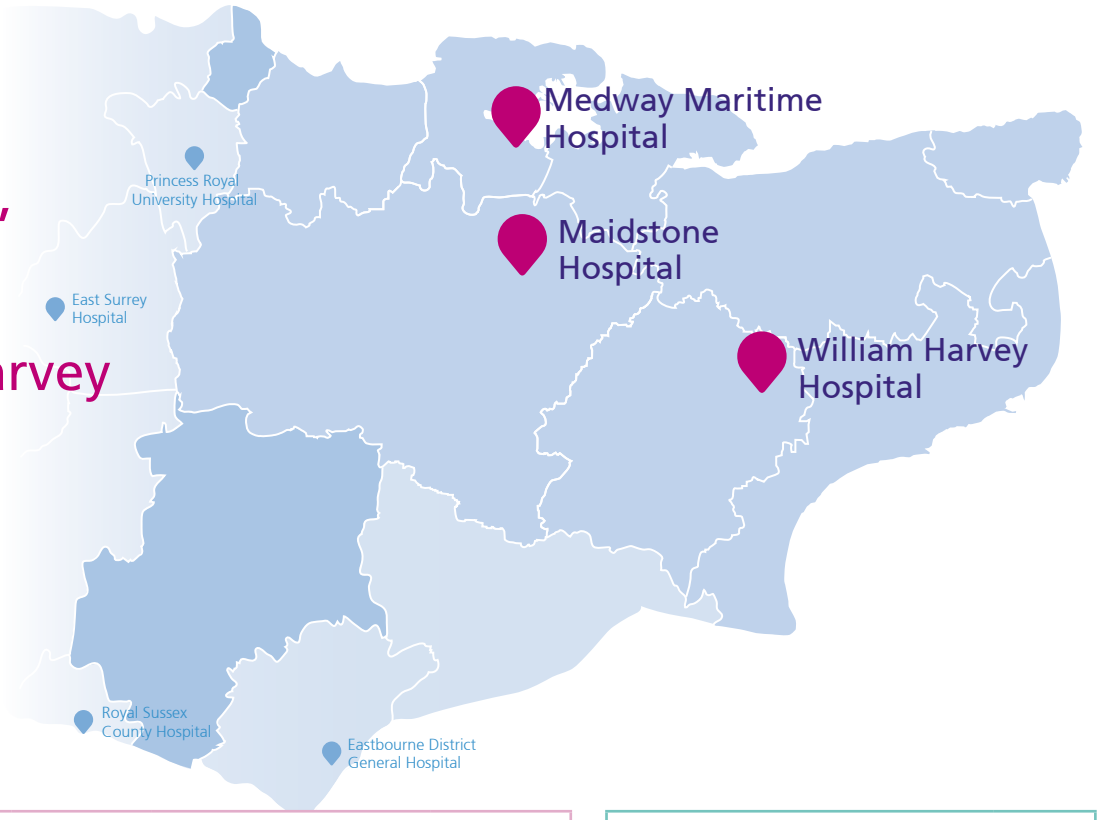
Implementing the options

	Darent Valley	Maidstone	William Harvey	PRUH	Eastbourne	Other
Total stroke beds needed	33	36	51	3	3	1
Extra stroke beds needed	10	24	27	-7	3	1
Additional strokes treated per year	369	517	733	-165	12	72
Building work/ refurbishment needed	Refurbish existing wards	Build new stroke unit	Build new stroke unit	Other: 1 additional stroke bed at Brighton		

PRUH: Princess Royal University Hospital in Orpington.

Option C:

Maidstone, Medway and William Harvey hospitals



Quality of care	Maidstone	Medway Maritime	William Harvey	Overall assessment
Beneficial services on site	/	✓	✓	✓
Potential to offer mechanical thrombectomy	/	✓	✓	✓
Potential to be a major emergency centre	X	✓	✓✓	✓

✓✓ very positive ✓ positive / neutral X negative XX very negative

Travel times	
% of population within 30 mins of hyper acute stroke unit **by ambulance**	76.2%
% of population within 45 mins of hyper acute stroke unit **by ambulance**	91.3%
% of population within 30 mins of hyper acute stroke unit **by car at peak time**	73.6%
% of population within 45 mins of hyper acute stroke unit **by car at peak time**	91.6%

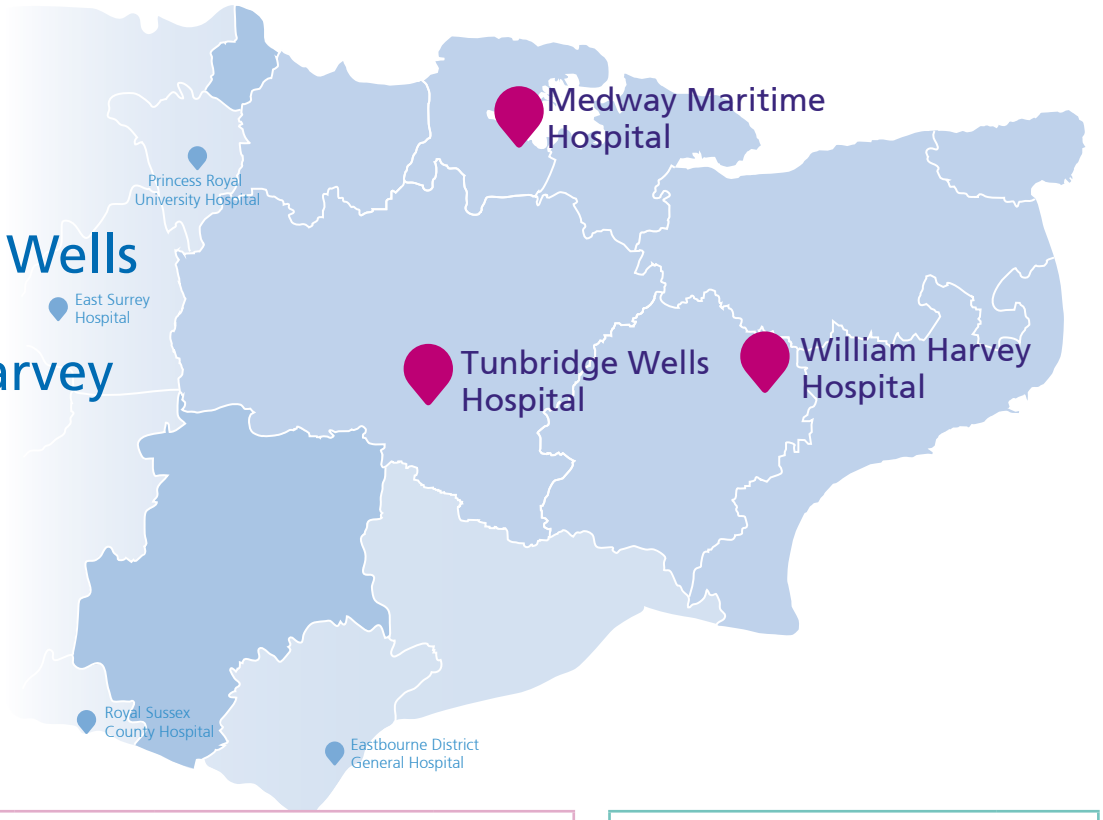
Investment and Workforce	
Capital investment needed	£37.86m
Net Present Value (10 years)	£14.4m
Additional consultants needed in Kent and Medway	8
Additional consultants needed outside Kent and Medway	2 (PRUH)

Implementing the options	Maidstone	Medway Maritime	William Harvey	PRUH	Eastbourne	Other
Total stroke beds needed	21	27	50	25	3	1
Extra stroke beds needed	9	1	26	15	3	1
Additional strokes treated per year	139	87	723	358	60	45
Building work/ refurbishment needed	Build new stroke unit	Refurbish existing wards	Build new stroke unit	Other: 1 additional stroke bed at Brighton		

PRUH: Princess Royal University Hospital in Orpington.

Option D:

Medway, Tunbridge Wells and William Harvey hospitals



Quality of care

	Medway Maritime	Tunbridge Wells	William Harvey	Overall assessment
Beneficial services on site	✓	✓	✓	✓✓
Potential to offer mechanical thrombectomy	✓	✓	✓	✓✓
Potential to be a major emergency centre	✓	✓	✓✓	✓✓

✓✓ very positive ✓ positive / neutral X negative XX very negative

Travel times

% of population within 30 mins of hyper acute stroke unit **by ambulance**	82.2%
% of population within 45 mins of hyper acute stroke unit **by ambulance**	92.0%
% of population within 30 mins of hyper acute stroke unit **by car at peak time**	79.8%
% of population within 45 mins of hyper acute stroke unit **by car at peak time**	92.2%

Investment and Workforce

Capital investment needed	£35.95m
Net Present Value (10 years)	£16.1m
Additional consultants needed in Kent and Medway	8
Additional consultants needed outside Kent and Medway	2 (PRUH)

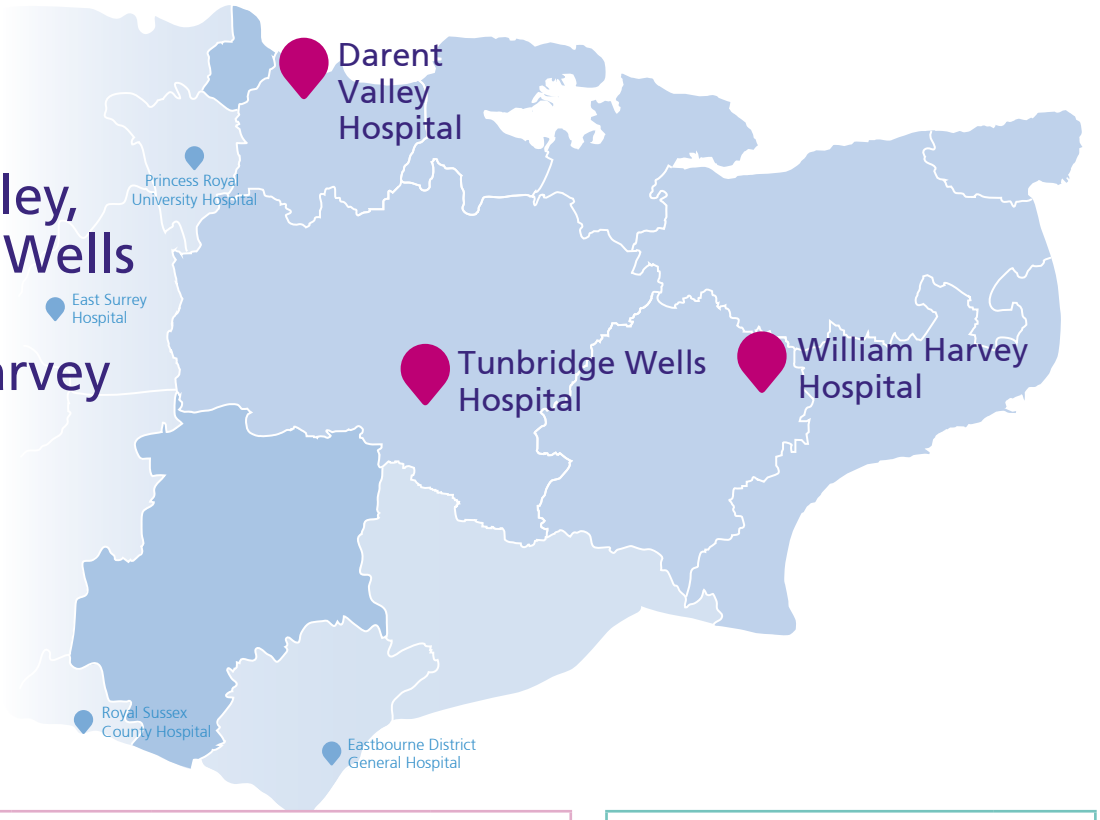
Implementing the options

	Medway Maritime	Tunbridge Wells	William Harvey	PRUH	Other
Total stroke beds needed	35	19	50	22	1
Extra stroke beds needed	9	5	26	12	1
Additional strokes treated per year	264	57	722	310	21
Building work/ refurbishment needed	Refurbish existing wards	Build new stroke unit	Build new stroke unit	Other: 1 additional stroke bed at Brighton	

PRUH: Princess Royal University Hospital in Orpington.

Option E:

Darent Valley, Tunbridge Wells and William Harvey hospitals



Quality of care

	Darent Valley	Tunbridge Wells	William Harvey	Overall assessment
Beneficial services on site	/	✓	✓	✓
Potential to offer mechanical thrombectomy	/	✓	✓	✓
Potential to be a major emergency centre	✓	✓	✓✓	✓✓

✓✓ very positive ✓ positive / neutral X negative XX very negative

Travel times

% of population within 30 mins of hyper acute stroke unit **by ambulance**	76.9%
% of population within 45 mins of hyper acute stroke unit **by ambulance**	91.9%
% of population within 30 mins of hyper acute stroke unit **by car at peak time**	76.4%
% of population within 45 mins of hyper acute stroke unit **by car at peak time**	92.1%

Investment and Workforce

Capital investment needed	£30.63m
Net Present Value (10 years)	£16.3m
Additional consultants needed in Kent and Medway	8
Additional consultants needed outside Kent and Medway	0

Implementing the options

	Darent Valley	Tunbridge Wells	William Harvey	PRUH	Other
Total stroke beds needed	52	21	54	0	0
Extra stroke beds needed	29	7	30	-10	0
Additional strokes treated per year	802	89	828	-219	0
Building work/ refurbishment needed	Refurbish existing wards	Build new stroke unit	Build new stroke unit		

PRUH: Princess Royal University Hospital in Orpington.

7 Giving your views

We want to know what you think about these proposals and the potential options for delivering them before we make any decisions about the future of stroke services and how we organise them across Kent and Medway. Our consultation runs from **2 February 2018** and you can share your views with us until midnight on **13 April 2018**.

There are a variety of ways to get involved and tell us what you think

Read more about the proposed changes

Visit the stroke consultation webpages at www.kentandmedway.nhs.uk/stroke where you will find all the detailed technical documents which support this consultation as well as a link to the online survey asking for your views on our proposed changes. If you do not have access to the internet and want additional information please contact us using the contact details below.

Come and talk to us

We are organising a series of public discussion meetings, as well as roadshow events to provide a drop-in environment where you can learn more, speak to the programme's clinical leaders and let us know what you think. To find out more about events near you please visit our website or contact us using the details below.

Invite us to speak with your group

We will be getting out and about talking to local communities and want to attend as many interested community groups e.g. stroke support groups, patient reference groups, disability alliances, as possible. Please get in touch so that this can be arranged, using the contact details below.

Send us your feedback

- Online survey – you can complete the online survey at www.kentandmedway.nhs.uk/stroke
- Postal survey – tear off the survey at the back of this booklet, complete by hand and post free to: FREEPOST KENT AND MEDWAY NHS
- Email – There is space on the survey for any additional views, but you can also email us at km.stroke@nhs.net
- Phone – call us on 0300 7906796.

If you or someone you know needs this document in another language or format, then please contact us at km.stroke@nhs.net.

8 Next steps

When the consultation closes on **13 April 2018**, all the feedback will be analysed by an independent research organisation. A report will be produced to be considered fully by the clinical commissioning groups.

We will publish this report on our website and make sure that people know when it is available.

The report will cover:

- major themes from the consultation
- a summary of the responses about the proposals
- an overview of the process
- an explanation of how the final decisions will be taken (including dates of meetings in public) and a timeline for implementation if agreed
- how clinical commissioning groups intend to address any comments and concerns that people raise.

The Joint Committee of the clinical commissioning groups will meet in public to report back on the consultation, consider all the evidence in full and make a decision about the future shape of acute stroke services in Kent and Medway. It is expected that this public meeting will take place in the autumn. Details will be made available on our website at www.kentandmedway.nhs.uk/stroke. To be kept informed about progress please visit the website to sign up to our newsletter.

Appendix A: **Options evaluation process**

How have we developed the options?

We have followed a detailed process to look at options for the future of stroke services. The process has been led by stroke specialists from Kent and Medway, including doctors, nurses, therapists and other healthcare professionals. We have worked with patient and public groups, and their representatives throughout the development of the proposals.

In summary we have used a three-stage process. At different stages of the process we have filtered out potential options by applying either fixed point, hurdle or evaluation criteria.

Fixed point criteria

If we considered every possible option for making changes to services, the list would be so long it would not be manageable. We used fixed point criteria to help us develop a realistic long list of options.

The fixed point criteria we considered was whether we would need to build a new hyper acute stroke unit on a green field site, or on an existing hospital site that does not currently have other urgent care services.

The stroke specialists decided that this was not a viable option because:

- It would take too long: we need to make improvements as quickly as possible
- We would be unlikely to get sufficient funding
- The essential 'co-dependent' services needed to run a hyper acute stroke unit would not be in place on either a new site, or an existing hospital site that does not have other urgent care services.

After applying the fixed point criteria our list of possible options for sites where 3 hyper acute stroke units could be located in Kent and Medway was all combinations of the 6 sites currently providing general stroke services and urgent care services, plus Kent & Canterbury Hospital where services have been temporarily withdrawn.

We have worked with patient and public groups, and their representatives throughout the development of the proposals

Hurdle criteria

The next stage of the options appraisal process was to apply the hurdle criteria to the potential options. They are called hurdle criteria because each long list option had to pass every hurdle successfully to be considered for the shortlist. If the option being considered 'fell' at any hurdle, it was excluded.

The hurdle criteria were developed by stroke specialists and NHS leaders, in consultation with patients and the public. The table below shows the hurdle criteria we applied to the long list of options.

Is the option clinically sustainable?	• How many hyper acute stroke units are sustainable? • Will the workforce be available to deliver the option? • Do we have the necessary co-dependent services available to deliver the required standards of care? • Will there be enough patients to ensure stroke staff maintain their skills and competency?
Is the option implementable?	• Can we put the option in to practice by 2020/21 in a way that ensures services are stable and sustainable? • Will it negatively impact on any other services across the system to the extent that they can't function effectively?
Is the option a strategic fit?	• Is the option in line with existing commitments or decisions made as part of previous consultations? • Would the option challenge or unpick past decisions about how services are organised, or about which services should be available on which sites across Kent and Medway?
Is the option accessible?	• Can 95% of patients reach a hyper acute stroke unit within 60 minutes at peak travel time?
Is the option financially viable?	• Does the option cost the same or less than the current forecast costs of doing nothing to change services?

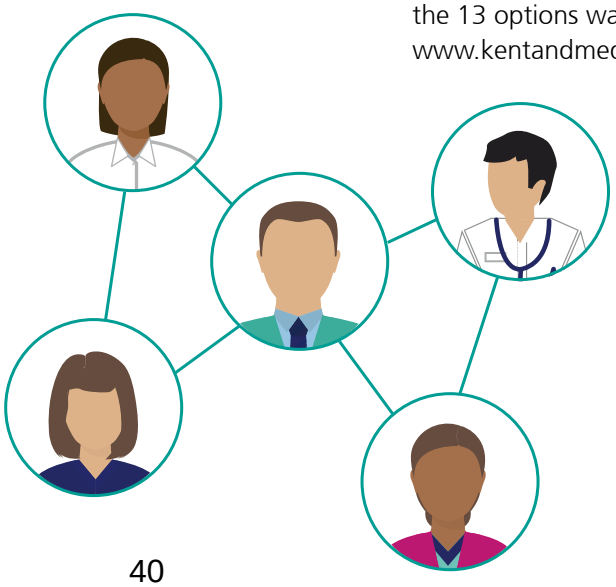
Evaluation criteria

At the end of the hurdle criteria process, we had 13 different 3-site options to consider in more detail. We used evaluation criteria to weigh up the pros and cons of each of the options. Unlike hurdle criteria, evaluation criteria do not typically have yes or no answers.

The evaluation criteria were developed by stroke specialists in partnership with patients and their representatives, the public and other stakeholders. Draft evaluation criteria were developed and then tested in July and August 2017 in a range of ways. We held meetings, carried out surveys and ran focus groups to get views on the order of importance of the evaluation criteria. The final list of evaluation criteria we used is shown below in the order of the importance identified by stakeholders:

Quality of care for all	• Does the option provide improved delivery against clinical and NHS constitutional standards, and access to skilled staff and specialist equipment?
Access to care for all	• Does the option keep to a minimum the increase in the total time it takes people to get to hospital by ambulance and car (at peak times)?
Workforce	• Is the option likely to be sustainable from a workforce perspective, facilitating 7 day working and taking into account recruitment challenges and changes in what the workforce does? • Would it be more difficult to recruit and retain staff with this option?
Ability to deliver	• How easy will it be to deliver change within 5 years? • How able/willing to deliver are the Trusts in question for each option?
Affordability and value for money	• Which options will give the best financial benefit over the next 10 years? (assessed using net present value)

We applied each of the evaluation criteria to the remaining 13 options. Options were either positive, negative or neutral against each of the criteria. The results for each option were reviewed and used to develop the final list of five options to be put forward for consultation. There is a detailed document showing how each of the 13 options was rated against the evaluation criteria on our website at www.kentandmedway.nhs.uk/stroke.



Our questions to you

Now that you have read the proposals outlined in this document, we'd like to hear what you think about them. If you would prefer, you can complete the survey online at www.kentandmedway.nhs.uk/stroke.

To reply by post, tear out and complete the survey below then send it free of charge to FREEPOST KENT AND MEDWAY NHS. You can include additional pages if you need more room for comments. Please clearly mark the relevant question number against any comments on additional pages.

1. How strongly do you agree or disagree with the following five statements:

(please tick the box)

Statement	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
1: There are convincing reasons to establish hyper acute stroke units in Kent & Medway. *(See sections 3 & 4 of document)*						
2: There are convincing reasons to have 3 hyper acute stroke units in Kent and Medway. *(See page 24 of document)*						
3: Creating 3 hyper acute stroke units would improve the quality of urgent stroke care for patients in Kent and Medway. *(See section 6 of document)*						
4: Creating 3 hyper acute stroke units would improve access to diagnosis and specialist treatment in the 72 hours following a stroke for patients in Kent and Medway. *(See section 6 of document)*						
5: There are convincing reasons to locate acute stroke units and TIA ('mini stroke') clinics on the same sites as hyper acute stroke units. *(See pages 24/25 of document)*						

2. Thinking about your response to the five statements for the previous question, do you have any comments to make on the potential advantages or disadvantages of the proposed changes to urgent stroke services in Kent and Medway?

No comments ☐

3. We have used 5 criteria to help us weigh up the pros and cons of potential locations for hyper acute stroke units. We will continue to consider the criteria in our decision-making and would like your views on which are most important.

Please rank the criteria in your order of importance, with 1 being the most important and 5 the least important.

Criteria	Order of importance
The option would improve access to urgent stroke services for patients	
The option would be straightforward to implement	
The option would represent good value for money	
The option would improve the quality of urgent stroke services for patients	
The option would help recruit and retain staff for urgent stroke services	

4. Are there any other criteria you think we should consider in our decision-making?

No comments ☐

5. Thinking about the criteria above, please rank the 5 shortlisted site options in order of preference, with 1 being your preferred option.

Option	Order of importance
A. Darent Valley, Medway Maritime, William Harvey	
B. Darent Valley, Maidstone, William Harvey	
C. Maidstone, Medway Maritime, William Harvey	
D. Tunbridge Wells, Medway Maritime, William Harvey	
E. Darent Valley, Tunbridge Wells, William Harvey	

Please tell us a bit more about why you have given this ranking.

No comments ☐

6. Should we consider any other ways for how we organise specialist urgent stroke services in Kent and Medway, and/or where those services are located?

No comments ☐

7. When thinking about these proposals for stroke services in Kent and Medway, is there anything else you would like us to take into consideration, or any other comments that you would like to make?

No comments ☐

8. Please indicate how happy you are with the way you have been consulted with about these proposals.

(please tick the box)

Very happy	
Happy	
Neither happy nor unhappy	
Unhappy	
Very unhappy	
Don't know	

9. If you would like to comment on the way the consultation has been run, please add your comment here.

No comments ☐

10. Where did you hear about this consultation?

.....

.....

Please tell us a few things about you.

11. What is your postcode (e.g. ME20 6WT)?

.....

(We will only use this information to help us analyse our consultation responses – we will not contact you or pass this on to third parties)

12. Are you responding on behalf of an organisation?

☐ Yes ☐ No

If yes, please state the name of the organisation:

.....

If no, and you are responding as an individual, please complete the rest of the questionnaire to help our equalities monitoring.

13. Which of the following best describes you?

- ☐ A patient or member of the public
- ☐ Healthcare professional
- ☐ Social care professional
- ☐ Public health professional
- ☐ Board member/governor/non-executive director
- ☐ Another type of NHS or Council colleague (e.g. management, administration, clinical support)
- ☐ Third sector/voluntary/charity worker
- ☐ Other (please state)

.....

Equalities monitoring

We recognise and actively promote the benefits of diversity and we are committed to treating everyone with dignity and respect regardless of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex (gender) or sexual orientation. To ensure that our services are designed for the population we serve, we would like you to complete the short monitoring section below. The information provided will only be used for the purpose it has been collected for and will not be passed on to any third parties. This information is optional to complete.

14. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Transgender
- ☐ Prefer not to say

15. If female, are you currently pregnant or have you given birth within the last 12 months?

- ☐ Yes
- ☐ No
- ☐ Prefer not to say

16. What is your age?

- ☐ Under 16
- ☐ 16-24
- ☐ 25-34
- ☐ 35-59
- ☐ 60-74
- ☐ 75+
- ☐ Prefer not to say

17. What is your ethnic group?

White

- ☐ English/Welsh/Scottish/ Northern Irish/British
- ☐ Irish
- ☐ Gypsy or Irish Traveller
- ☐ Any other White background, please describe:

.....

Mixed/Multiple ethnic groups

- ☐ White and Black Caribbean
- ☐ White and Black African
- ☐ White and Asian
- ☐ Any other Mixed/Multiple ethnic background, please describe:

.....

Asian/Asian British

- ☐ Indian
- ☐ Pakistani
- ☐ Bangladeshi
- ☐ Chinese
- ☐ Any other Asian background, please describe:

.....

Black African/Caribbean/ Black British

- ☐ African
- ☐ Caribbean
- ☐ Any other Black/African/ Caribbean background, please describe:

.....

Other ethnic group

- ☐ Arab
- ☐ Any other ethnic group, please describe:

.....

- ☐ Prefer not to say

18. Are your day-to-day activities limited because of a health condition or illness which has lasted, or is expected to last, at least 12 months?

(Please select all that apply)

- ☐ Vision (such as due to blindness or partial sight)
- ☐ Hearing (such as due to deafness or partial hearing)
- ☐ Mobility (such as difficulty walking short distances, climbing stairs)
- ☐ Dexterity (such as lifting and carrying objects, using a keyboard)
- ☐ Ability to concentrate, learn or understand (learning disability/difficulty)
- ☐ Memory
- ☐ Mental ill health
- ☐ Stamina or breathing difficulty or fatigue
- ☐ Social or behavioural issues (for example, due to neuro diverse conditions such as Autism, Attention Deficit Disorder or Aspergers' Syndrome)
- ☐ No
- ☐ Prefer not to say
- ☐ Any other condition or illness, please describe

.....

.....

.....

19. What is your sexual orientation?

- ☐ Bisexual
- ☐ Gay
- ☐ Heterosexual/straight
- ☐ Lesbian
- ☐ Prefer not to say
- ☐ Other (please state)

.....

20. Are you:

- ☐ Single
- ☐ Living in a couple
- ☐ Married/civil partnership
- ☐ Married (but not living with husband/wife/civil partner)
- ☐ Separated (but still married or in a civil partnership)
- ☐ Divorced/dissolved civil partnership
- ☐ Widowed/surviving partner/civil partner
- ☐ Prefer not to say
- ☐ Other relationship (please state)

.....

21. What is your religion and belief?

- ☐ No religion
- ☐ Buddhist
- ☐ Baha'i
- ☐ Christian (including Church of England, Catholic, Protestant and all other Christian denominations)
- ☐ Hindu
- ☐ Jain
- ☐ Jewish
- ☐ Muslim
- ☐ Sikh
- ☐ Other (please specify)

.....

- ☐ Prefer not to say

22. Caring responsibilities

Do you currently look after a relative, neighbour or friend who is ill, disabled, frail or in need of emotional support?

☐ Yes ☐ No

Thank you for taking the time to review our proposals and respond to this survey.

Please post your completed survey to **FREEPOST KENT AND MEDWAY NHS** to arrive by the **13 April 2018.**

Improving urgent stroke services in Kent and Medway

Public consultation 2 February 2018 – 13 April 2018

www.kentandmedway.nhs.uk/stroke • email: km.stroke@nhs.net

@KMhealthandcare @KentMedwayHealthandCare

If you or someone you know needs this document in an alternative format or language, please contact us on 0300 7906796 or km.stroke@nhs.net

Si vous voulez ce document en format rechange, vous pouvez nous contactez a 0300 7906796/ km.stroke@nhs.net

Ja vēlaties šo dokumentu citā formātā vai valodā , lūdzu, sazinieties ar mums pa telefonu 0300 7906796/ km.stroke@nhs.net

Ak by ste chceli tento dokument v inom formate alebo inom jazyku, prosim kontaktujte nas na 0300 7906796/ km.stroke@nhs.net

Jeśli chcieliby Państwo ten dokument w innym formacie lub języku, prosimy o kontakt 0300 7906796/ km.stroke@nhs.net

Jei norėtumėte šį dokumentą gauti alternatyviu formatu, ar kalbą, susisiekite su mumis numeriu 0300 7906796/ km.stroke@nhs.net

Daca doriti ca acest document sa fie in alt format sau alta limba, va rog sa ne contactati la 0300 7906796 or km.stroke@nhs.net

यदि तपाईलाई यो दश्तावेज वैकल्पिक ढाँचामा वा अन्य भाषामा चाहिएमा हामीलाई km.stroke@nhs.net सम्पर्क गर्नुहोस।

00789 Designed by Kent Community Health NHS Foundation Trust.

Transforming health and social care in Kent and Medway

Stroke Review Pre Consultation Business Case

Appendix Di

Integrated Impact Assessment

MOTT MACDONALD

Kent and Medway Sustainability and Transformation Plan

Integrated Impact Assessment: Pre-consultation report - Stroke services

1 December 2017

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Kent and Medway Sustainability and Transformation Plan

Integrated Impact Assessment: Pre-consultation report - Stroke services

1 December 2017

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	20/10/2017	A Blake M Montgomery J Peet S Reeves	J Hitchcock J Beard	*Not approved*	Unapproved draft for client comment
B	25/10/2017	R Davies	J Hitchcock	K Scott	Draft responding to client comments
C	17/11/2017	M Montgomery	J Hitchcock	F Parrott	Draft responding to additional client comments
D	24/11/2017	J Hitchcock S Reeves C Reynolds	M Montgomery	F Parrott	Final
E	1/12/17	J Hitchcock	F Parrott	F Parrott	Updated report following comments from stroke task and finish group
F	02/01/2017	J Hitchcock	B Niven	B Niven	Updated report to include additional options

Document reference: 1 | 1 | 1

Information class: Standard

Contents

Executive summary

An outline of service changes proposed by the Kent and Medway Sustainability and Transformation Plan

The Kent and Medway STP has four key priorities. These are:

1. Prevention of ill-health
2. Local care
3. Hospital care
4. Mental health

The STP also focuses on: productivity improvements (drawing on lessons from the Carter Review[1]); enablers (encompassing three strategic priorities of workforce, digital and estates); and system leadership (transforming commissioning, and communications and engagement).

Wave one

Wave one of the STP sets out the priority services for transformation. These service areas are:

- Stroke services across Kent and Medway
- Vascular services across Kent and Medway
- Emergency care in East Kent (including acute medicine, accident and emergency (A&E), and critical care)
- Elective orthopaedic services in East Kent

This report focuses on stroke services.

Summary of proposed changes

Currently stroke patients are treated in one of the seven hospitals outlined above; though there are no Hyperacute Stroke Units (HASUs).[2] The proposed change is to deliver stroke care for Kent and Medway in three combined HASU's and ASUs (acute stroke units) at three sites[3].

The shortlisted proposals are described below in executive summary table 1.

[1] Department of Health (2015): 'Productivity in NHS hospitals'.

[2] There is a temporary halt to emergency care provision, including stroke, at Kent & Canterbury Hospital.

[3] HASUs bring experts and equipment under one roof to provide the very best immediate assessment and treatment for a stroke, reducing death rates and long-term disability. People can expect to stay in a HASU for three days. An ASU is an acute stroke unit. After three days in a HASU, many people are well enough to continue their recovery at home. Those who are not well enough to go home from hospital get the best recovery in an ASU. ASUs have many of the same specialist staff as a HASU, but because people have been stabilised, their care and treatment does not need to be so intensive.

Executive summary table 1: Shortlisted proposals

Scenario	Proposal	Re-named
Proposal three	A HASU at: 1. Darent Valley Hospital 2. Medway Maritime Hospital 3. William Harvey Hospital	**A**
Proposal five	A HASU at: 1. Darent Valley Hospital 2. Maidstone Hospital, 3. William Harvey Hospital	**B**
Proposal eight	A HASU at: 1. Maidstone Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital	**C**
Proposal ten	A HASU at: 1. Tunbridge Wells Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital	**D**
Proposal eleven	A HASU at: 1. Darent Valley Hospital 2. Tunbridge Wells Hospital, 3. William Harvey Hospital	**E**

Source: Kent and Medway SEC Clinical Senate Submission

Introduction to the integrated impact assessment

The aim of an integrated impact assessment (IIA) is to explore the potential positive and negative consequences of Kent and Medway Sustainability and Transformation Plan (STP) proposals to transform healthcare in Kent and Medway. The purpose of impact assessments is not to determine the decision, rather it is to assist decision-makers by giving them better information on how best they can promote and protect the well-being of the local communities that they serve.

The scope of the Kent and Medway STP service review and study area for the IIA is the eight clinical commissioning groups (CCGs)[4] across Kent and Medway. A health impact assessment (HIA), a travel and access impact assessment, an equality impact assessment (EqIA) (in which the impacts of the proposals on protected characteristic groups[5] and deprived communities are assessed) and a sustainability impact assessment have been conducted as part of this IIA.

Impact assessment of proposed changes

The following sections summarise the likely positive and negative impacts identified through this IIA, under the four impact topic headings.

Health impacts

Positive impacts

- The proposed changes will improve patient outcomes and remove the variation currently experienced.

[4] The eight CCGs are Ashford CCG, Canterbury and Coastal CCG, Dartford, Gravesham and Swanley CCG, Medway CCG, South Kent Coast CCG, Swale CCG, Thanet CCG and West Kent CCG.

[5] These are set out as age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation in the Equality Act 2010.

- The consolidation of workforce resources will enable the three comprehensive stroke units to sustainably achieve recommended workforce standards. This will create a more sustainable workforce for providing stroke care across Kent and Medway.
- Rehabilitation services for stroke patients will be improved, supporting patients to regain their independence and overall quality of life.

Negative impacts

- For patients experiencing a stroke whilst already in hospital at one of the four sites no longer providing stroke services, a transfer will be required to a HASU. This could potentially have a negative impact on patient outcomes although appropriate protocols will be in place to mitigate against this.
- With activity for stroke services being consolidated onto fewer hospital sites, there is a risk that capacity could become constrained within these units.
- If links between clinical inter-dependent services across the wider STP programme are not appropriately maintained, this has the potential to negatively impact on the safety of care.
- The reconfiguration of stroke services is considered to bring logistical challenges for some staff, which could result in increased staff turnover and the loss of current expertise.
- Patient choice will reduce for these specialist stroke services.

Travel and access impacts

Positive impacts

No positive travel and access impacts were identified.

Negative impacts

- The proposed changes will mean that some patients will have to travel further to access a stroke service.
- The proposed changes will result in longer ambulance journeys for some patients required to be conveyed to a HASU, which will negatively impact the capacity of the ambulance service.
- Across all shortlisted options there is a reduction in accessibility to stroke services within 30 minutes by blue light ambulance (BLA).
- Proposal E has the highest proportion of patients experiencing an increase in travel time by BLA. The proposed changes will mean that some patients will have to travel further to access a stroke service.

Equality impacts

Positive impacts

- Patients identified as having a disproportionate need for stroke services are likely to use these services more and, therefore, experience the benefits of improved health outcomes to a greater extent. These groups are:
  - Age (older people aged 65 and over)
  - Disabled people
  - Pregnancy and maternity
  - Race and ethnicity
  - People from deprived communities

Negative impacts

- Some patients and visitors will experience increased travel costs, which are likely to disproportionately impact upon those on lower incomes.
- The high financial cost of certain transport methods could act as a barrier to utilising alternative transport modes to cars.
- Increased journey times or the need to make different and/or unfamiliar journeys to access care, is likely to affect some equality groups more than the general population.
- The following proposals have disproportionately longer journey times for the listed equality groups.
  - Proposal B:
    - Those from deprived backgrounds will have less access than the population overall to stroke services within 30 minutes by BLA and be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal B.
    - Those with a limiting long term illness (LLTI) will have less access than the population overall to stroke services within 30 minutes by BLA and be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal B.
  - Proposal C:
    - Those from deprived backgrounds will have less access than the population overall to stroke services within 30 minutes by BLA and be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal C.
  - Proposal D:
    - Patients from a BAME background will be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal D.
    - Those from deprived backgrounds will have less access than the population overall to stroke services within 30 minutes by BLA and be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal D.
    - Those with an LLTI will have less access than the population overall to stroke services within 30 minutes by BLA under Proposal D
  - Proposal E:

Those from deprived backgrounds and those with an LLTI will have less access than the population overall to stroke services within 30 minutes by BLA and be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal E.Sustainability impacts

Positive impacts

No positive sustainability impacts were identified.

Negative impacts

This Greenhouse Gas (GHG) emissions under each of the shortlisted proposals for stroke services for Kent and Medway are outlined below.

The assessment shows that all proposals are expected to increase emissions. Proposal D would result in the lowest change in GHG emissions. However, Proposals A, C and D are similar in terms of GHG emissions. Proposal B has the highest emissions, which are nearly twice that of the other Proposals.

- Proposal A – small negative impact (239 tonnes of carbon dioxide equivalent (tCO_2e))
- Proposal B – small negative impact (467 tCO_2e)

- Proposal C – small negative impact (248 tCO_2e)
- Proposal D – small negative impact (235 tCO_2e)
- Proposal E - small negative impact (529 tCO_2e)

Enhancements and mitigations

The following table provides a summary of the key enhancement and mitigation measures that have been identified through this IIA.

Executive summary table 2: Enhancements and mitigations summary table

Impact assessment area	Summary of mitigations and enhancements
Health	• **Health outcomes**: – Develop and distribute information on the care model for rehabilitation. – Emphasise prevention and health promotion activities to counter risk factors for stroke. – Closely monitor activity and outcome information to ensure standards and outcomes of care are maintained. • **Capacity issues**: – Ensure the assessment of capacity and resources has sensitivities applied including: ○ The capacity of HASU/acute stroke unit (ASU) services at neighbouring hospitals (should this be closer to patients than their nearest HASU in Kent and Medway) ○ The impact on capacity if patients choose to self-present at hospitals with a HASU and require other acute services. • **Continue to review the co-dependencies matrix** to ensure that essential links are maintained. • **Develop a workforce plan and undertake engagement** to understand further the consequences of the potential impacts and recruitment • **Communications with the public should highlight the drivers for change,** with a particular focus of engagement with seldom heard groups in the community
Travel and access	• **Engage with the ambulance service** to assess the impact of change on their capacity and ascertain the additional resources that may be needed to minimise any impact on the wider ambulance service. • **Review the current travel plans** for hospitals selected in the preferred option • **Encourage collaboration between local authorities and hospitals** to better understand any transport strategies which can help to mitigate any travel impacts. • **Engage with any local community organisations offering voluntary transport** to hospitals to understand the impacts of increased travel times on funding and capacity of the service.
Equality	• Maximise **public transport accessibility** of specialist centres through engagement with local transport providers. • **Ensure the effective communication** of the future model of care to the local population, so they understand how to access and use services and the potential increased journey times • **Provide access to** BSL/English interpreters using remote access such as Skype, FaceTime or Video Relay Service (VRS) where available.
Sustainability	• No additional measures to enhance or mitigate sustainability impacts have been identified.

Source: Mott MacDonald

1 Scope and approach

1.1 Kent and Medway Sustainability and Transformation Plan

The CCGs, NHS providers and upper tier local authorities in Kent and Medway have developed a STP to transform the way in which health and social care services are delivered across the Kent and Medway geographical footprint[6]. Four key priorities for the transformation of care have been identified:

1. Prevention of ill-health
2. Local care
3. Hospital care
4. Mental health

The STP also focuses on: productivity improvements (drawing on lessons from the Carter Review[7]); enablers (encompassing three strategic priorities of workforce, digital and estates); and system leadership (transforming commissioning, and communications and engagement). The programme is split into two waves, with the first wave now underway and the second wave to be designed and implemented in 2018.

1.2 Wave one

Wave one of the STP sets out the priority services for transformation. These service areas are:

- Stroke services across Kent and Medway
- Vascular services across Kent and Medway
- Emergency care in East Kent (including acute medicine, accident and emergency (A&E), and critical care)
- Elective orthopaedic services in East Kent

1.3 The integrated impact assessment

It is important that those involved in making decisions about future health service configuration understand the full range of potential impacts that proposals could have on the local population. It is particularly important to understand the potential impacts on groups and communities who will be the most sensitive to service changes. This is the purpose of the IIA process.

[6] This footprint is comprised of eight CCGs covering the following areas: Ashford, Canterbury and Coastal, Dartford, Gravesham and Swanley, Medway, Thanet, Swale, South Kent Coast, West Kent.

[7] Department of Health (2015): 'Productivity in NHS hospitals'. The Carter Review looked at productivity and efficiency in English non-specialist acute hospitals, concluding that there is a significant amount of unwarranted variation across the main resource areas. It is estimated that this unwarranted variation is worth £5billion in terms of efficiency opportunities. The report makes 15 recommendations designed to tackle this variation and help trusts to improve their performance.

IIAs are a key component of policy-making and help guide and appraise investment.[8] They have long been identified as a mechanism by which potential effects on health outcomes and health inequalities can be identified and redressed prior to implementation. According to the World Health Organisation (WHO), impact assessments (including IIAs) provide "*a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population*".[9]

The aim is to explore the positive and negative consequences of different proposals and produce a set of evidence-based, practical recommendations, which can then be used by decision-makers to maximise the positive impacts and minimise any negative impacts.[10] It is important to note that the purpose of impact assessments is not to determine the decision about which option would be selected; rather they act to assist decision-makers by giving them better information on how best they can promote and protect the well-being of the local communities that they serve.

It is regarded as best practice to assess impacts for the whole population and highlight the sections of the population which will be differently or disproportionately affected by the impacts. These might be geographical communities or certain socio-economic or 'equality' groups. Assessment of impacts, along with recommendations for opportunities and mitigations, are drawn in part from evidence provided by representative and informed stakeholders. In this way, the impact assessment process provides a certain level of independent scrutiny and democratic legitimacy.

1.4 Scope and objectives of the IIA

In May 2017, the Kent and Medway STP Programme Board commissioned Mott MacDonald to undertake an IIA of wave one of the Kent and Medway STP. The objectives of this IIA are to:

- Understand the overall demography and the protected characteristic groups (as defined by the Equality Act 2010)[11] of the different CCG populations affected.
- Undertake a **HIA:**
  - Identify the impact on patient outcomes, safety, effectiveness of care and patient experience.
- Undertake an **EqIA,** critical in supporting the CCGs in meeting their obligations under the Equality Act 2010[12]:
  - Understand the impacts on protected characteristic groups[13] across the CCG populations through a programme of stakeholder engagement.
  - Identify which (if any) of the protected characteristic groups are more likely to be affected by the proposals due to their propensity to require different types of health services and what these impacts will be.
  - Where impacts are disproportionate for certain groups, consider opportunities for mitigating negative impacts and enhancing positive impacts.

[8] HM Government (2011) 'Impact Assessment Overview'

[9] World Heath Organisation (2017): 'Health Impact Assessment. Available at: http://www.who.int/topics/health_impact_assessment/en/

[10] Herriott, N, and Williams, C (2010) 'Health Impact Assessment of Government Policy' .

[11] The nine protected characteristic groups are: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex and sexual orientation.

[12] Equality Act 2010 (Commencement No.3) Order 2010.

[13] As defined in Chapter 4.

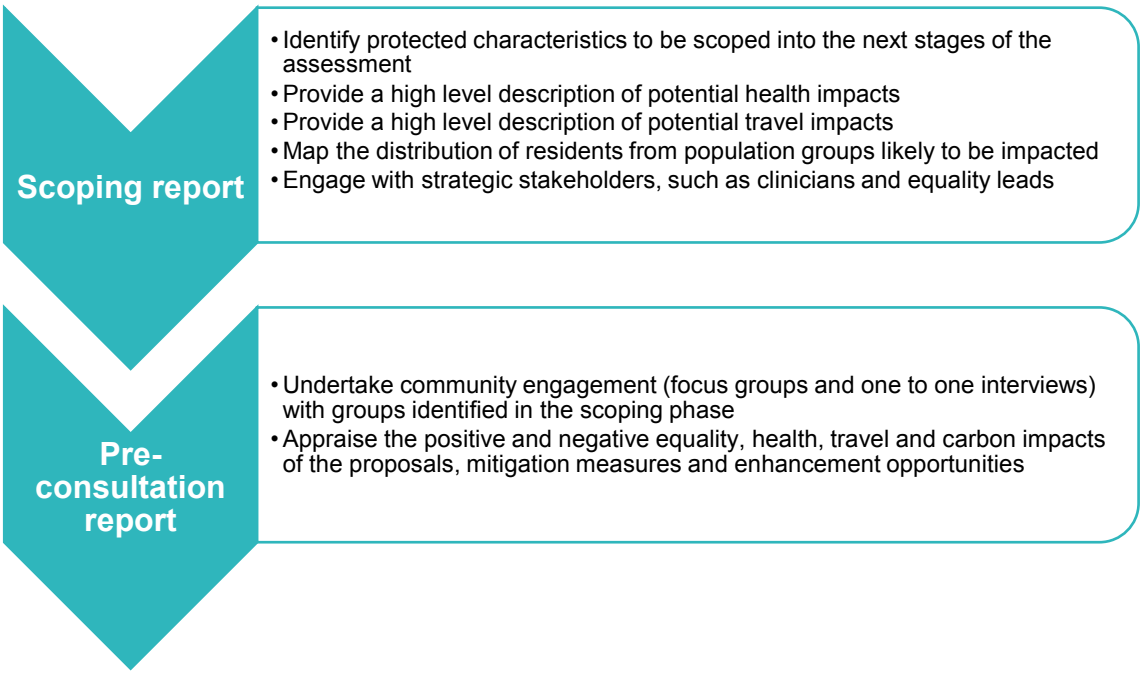
- Undertake a **travel and access impact assessment:**
  - Consider increases and decreases in journey times and changes in journey patterns for the overall impacts.
  - Consider travel and access impacts for protected characteristic groups.
- Undertake a **sustainability impact assessment:**
  - Identify any sustainability impacts by reporting on the carbon footprint change.

1.5 The IIA approach

Phases of the IIA

The IIA is designed to be an iterative process that can be revisited taking on board evidence over the course of the CCGs' proposal-development and consultation process. Work has been structured around two stages, as shown in Figure 1.

Figure 1: Stage of the IIA



1.6 Purpose of the scoping report

The first output of the IIA was a combined scoping report covering all of the services areas included in the wave one review; it does not represent a full impact assessment. It is a high-level report outlining the first stage of the IIA only. Based on analysis of available secondary data pertaining to the population and health conditions and needs in Kent and Medway, it presented preliminary observations on which groups are considered to have disproportionate need[14] for the hospital services under review. The report mapped the density and distribution of these groups across Kent and Medway in order to illustrate where there are high numbers of those groups.

[14] The term 'disproportionate need' is used to identify a need for a service or treatment that is above the need of the general population.

1.7 Purpose of the pre-consultation reports

The pre-consultation IIA reports appraise the Kent and Medway STP in terms of both the positive and negative health, equality, travel and access, and sustainability impacts which require consideration and/or action during the decision-making process. There will be three separate standalone reports covering: stroke services, vascular services and East Kent emergency and elective orthopaedics services. **This report is focussed on stroke services only**.

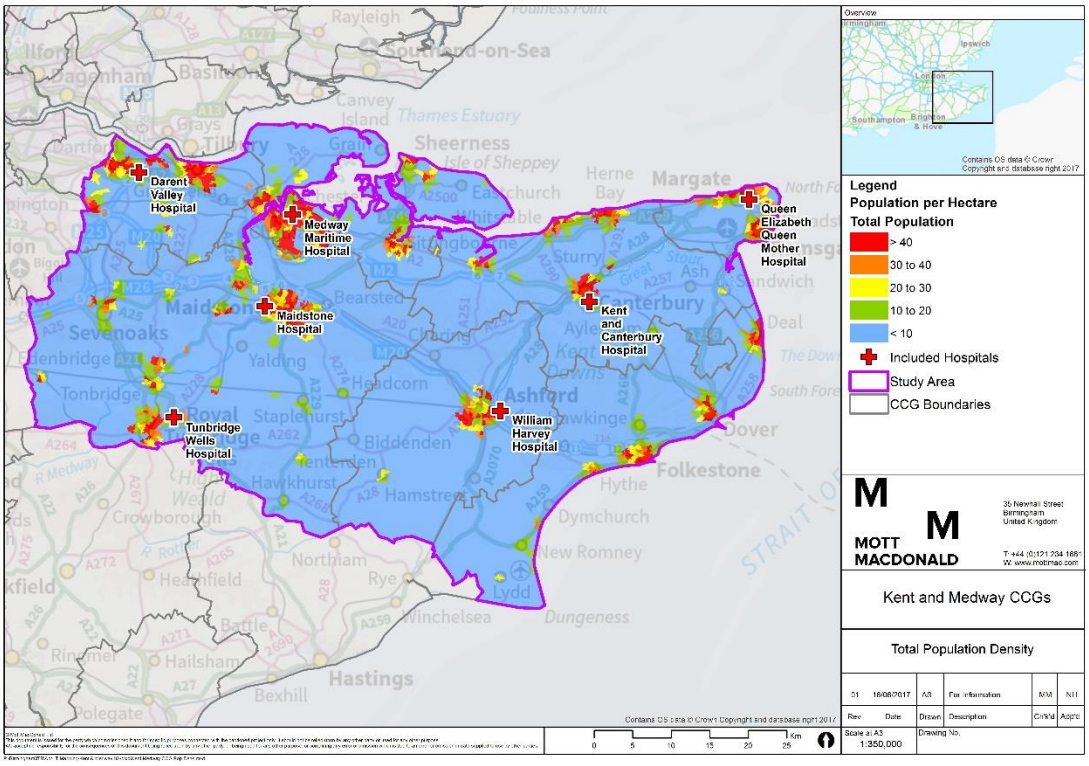
This document is supported by an annex containing:

- Equality travel and access impacts for all proposals
- BLA travel and access impacts for all proposals
- GHG assessment results for all proposals

The study area

The primary study area for this IIA consists of the eight CCGs[15] across Kent and Medway, which is shown in Figure 2, along with the acute hospitals in the area and the population density.

Figure 2: Study area and population density



Source: Lower layer super output area (LSOA) population estimates 2015, Office for National Statistics (ONS)

[15] The eight CCGs are Ashford CCG, Canterbury and Coastal CCG, Dartford, Gravesham and Swanley CCG, Medway CCG, South Kent Coast CCG , Swale CCG, Thanet CCG and West Kent CCG.

1.8 Methodological assumptions and limitations

This IIA is based on the following principles, assumptions and limitations:

- It is not the purpose of the IIA to justify, defend or challenge the rationale or principles behind proposed reforms put forward by the Kent and Medway CCGs.
- The purpose of the IIA is to inform rather than decide. The objective is not to make the decision, but to assist decision makers by providing better information.
- With respect to the engagement that has been undertaken to support this IIA:
  - Ten interviews were undertaken with clinicians.
  - Eight interviews were undertaken with equality leads and service providers
  - Three interviews were undertaken with community groups: community groups were invited via email to participate in this report through one-to-one interviews. They were sent two reminder emails to take part in an interview.
  - Five focus groups were undertaken across Kent and Medway with groups considered to have a disproportionate need for stroke services.

Table 1: Focus groups

Location	Composition	CCG area
Tunbridge Wells	People aged 65 and older	NHS West Kent CCG
Isle of Sheppey	People aged 65 and older	NHS Swale CCG
Margate	People from the most deprived quintiles in the local area	NHS Thanet CCG
Gillingham	People from a BAME background	NHS Medway CCG
Greenhithe	People from a BAME background	NHS Dartford Gravesham and Swanley CCG

Source: Mott MacDonald 2017

- The travel modelling parameters are set to provide an indication of typical journeys. They will not exactly match each individual patient experience.
- The journey time analysis within the travel and access chapter and the equality chapter do not take into consideration neighbouring sites outside of the study area.
- To estimate journey distances for the GHG assessment, the medium journey time has been used alongside the average speed of local A roads. To estimate GHG emissions from distances, the mode of transport has been assumed to be in line with the national breakdown of distance travelled by each mode, excluding air, motorcycle and peddle cycle.
- Patient analysis has been undertaken for patients within the CCG study area only in chapter 4 (travel and access) and section 5.2.2 (travel and access equality impacts). The remaining health, equality and sustainability impacts will be realised regardless of a patient's address.

1.9 Structure of the report

The remainder of the report is structured as follows:

- Chapter **two**: detail on the Kent and Medway STP
- Chapter **three**: assessment of health impacts
- Chapter **four**: assessment of travel and access impacts
- Chapter **five**: assessment of equality impacts
- Chapter **six**: assessment of sustainability impacts

- Chapter **seven**: conclusions including opportunities for enhancement and mitigation measures

2 Kent and Medway Sustainability and Transformation Plan

2.1 Strategic context and the case for change

The overarching 'case for change' developed by the Kent and Medway STP[16] sets out the drivers for change in delivering health and social care. These are:

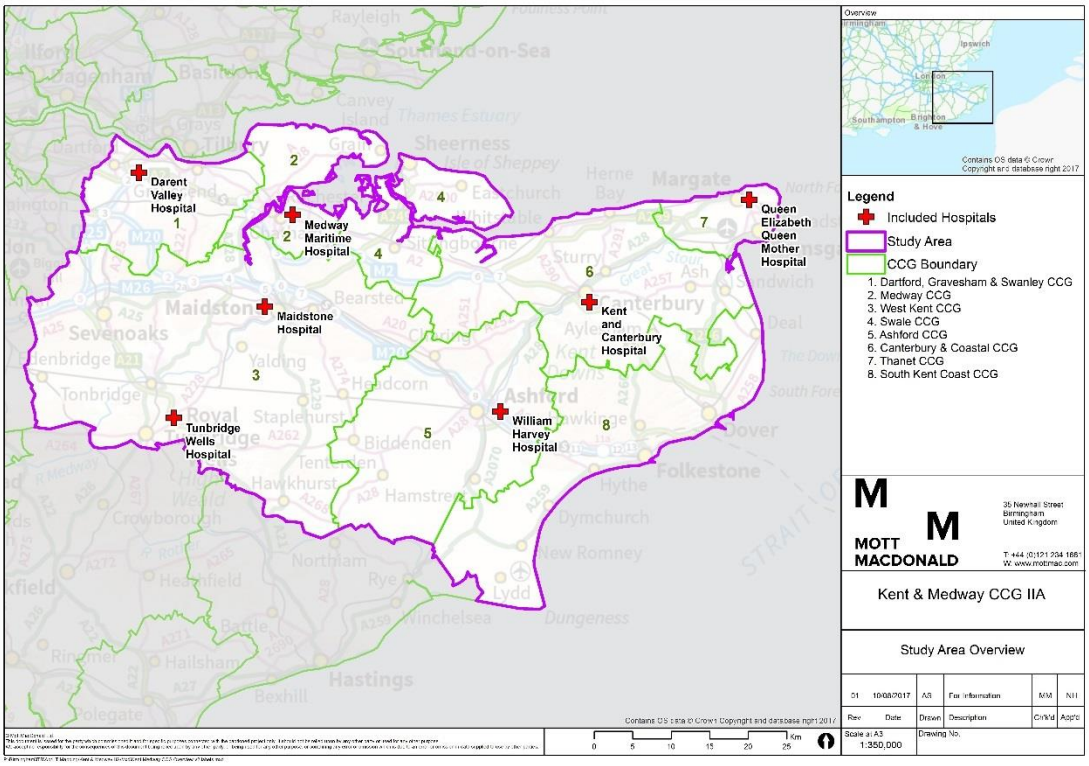
- **Increase in the local population:** From 2011 to 2031, planned housing developments are expected to result in an additional 414,000 residents in Kent and Medway.[17] This growth is forecast to be distributed unevenly across Kent and Medway, with most housing growth in Medway, Dartford and Maidstone.
- **Aging population with more complex health needs:** Growth in the number of people aged 65 and over in Kent and Medway is over four times greater than growth in those under 65[18]. The older population will have greater and more complex health needs than those who are under 65.
- **Health inequalities across Kent and Medway:** Poor health outcomes are more prevalent among some groups, living in certain areas. For example, women living in the most deprived areas of Thanet live, on average, 22 years less than those in the least deprived areas[19]. The prevalence of mental health problems in Kent and Medway is generally in line with the rest of England, but mental health problems disproportionately affect people living in the most deprived areas in Kent and Medway.
- **Local people living in poor health with preventable long-term conditions:** Over 528,000 local people live with one or more significant long-term health conditions,[20] many of which are preventable. National data suggests that for those living with one long-term condition, spending is three times higher than for a healthy individual (rising to 10 times higher for those with two long-term conditions).[21] This is higher for Kent and Medway, where the total spend per resident with a long-term condition is six times higher than for a healthy resident[22].
- **Kent and Medway are facing financial challenges:** Commissioners and providers in Kent and Medway had a forecast deficit of £110m in deficit in 2016/17, and if nothing changes, are expected to be £486m in deficit by 2020/21.[23]

As a result of these challenges, Kent and Medway CCGs put forward proposals to change the way in which some services are delivered. The first set of these services, those identified in 'wave one' are stroke, vascular, emergency care and elective orthopaedics.

The map below sets out the seven hospitals in Kent and Medway.

[16] Comprised of Kent and Medway CCGs, Kent and Medway NHS Trusts, Kent and Medway local authorities
[17] Kent and Medway NHS (2016): 'Transforming health and social care in Kent and Medway: Sustainability and Transformation Plan'
[18] Kent and Medway NHS (2016): 'Transforming health and social care in Kent and Medway: Sustainability and Transformation Plan'
[19] Kent and Medway NHS (2016): 'Transforming health and social care in Kent and Medway: Sustainability and Transformation Plan'
[20] Kent and Medway NHS (2016): 'Transforming health and social care in Kent and Medway: Sustainability and Transformation Plan'
[21] House of Commons Health Committee (2015): 'Managing the care of people with long-term conditions'.
[22] Kent and Medway NHS (2016): 'Transforming health and social care in Kent and Medway: Sustainability and Transformation Plan'
[23] Ibid

Figure 3: Hospitals in Kent and Medway



Source: Mott MacDonald 2017

The current provision for stroke services and the proposed changes is set out overleaf.

Table 2: Current provision and proposed changes for stroke services

Service area	What are the issues?	Current provision	Proposed service model
Stroke	• Only half of all patients are admitted within the four-hour waiting target. This performance is below the national average. • Hospitals do not provide seven-day consultant ward rounds. • Patient volumes are too small to deliver clinical sustainability.	• Stroke patients are treated in one of the seven hospitals outlined above; though there are no HASU.[24] • Seven-day medical ward rounds only operate in Tunbridge Wells Hospital (TWH), not always consultant led (on a 1:3 rota). • Consultant assessment is available in all units over the weekends via telemedicine rotas. • Seven-day therapy only available in Medway NHS Foundation Trust (MFT). • No unit meets the recommended workforce complement across any profession.	• **Consolidate stroke services onto three sites**, each with a HASU. This will mean that: • Seven-day specialist consultant-led care will be available. • More direct access from ambulance transfers to stroke assessment units (this means that people who have had a stroke will have quicker access to specialist stroke care and stroke teams, without having to first be seen by a generalist doctor in A&E). Improved patient outcomes due to co-location with critical co-dependent specialist clinical services. • Improved access to physio and other therapies following the stroke • Early supported discharge for a majority of patients. • TIAs that require ambulance conveyancing would be treated in the HASU/ASUs

[24] There is a temporary halt to emergency care provision, including stroke, at Kent & Canterbury Hospital.

An initial long list of options was developed, these were reduced down to a medium list of proposed service models using a hurdle criteria for subsequent evaluation.

Table 3: Medium list proposed service models

Scenario	Proposal
Current	**Four trusts providing stroke services across seven sites** (Darent Valley Hospital, Kent and Canterbury Hospital, Maidstone Hospital, Medway Maritime Hospital, Queen Elizabeth the Queen Mother Hospital, Tunbridge Wells Hospital and William Harvey Hospital). [25]
Proposal one	A HASU at: 1. Darent Valley Hospital 2. William Harvey Hospital 3. Queen Elizabeth the Queen Mother Hospital
Proposal two	A HASU at: 1. Maidstone Hospital, 2. Medway Maritime Hospital 3. Queen Elizabeth the Queen Mother Hospital
Proposal three	A HASU at: 1. Darent Valley Hospital 2. Medway Maritime Hospital 3. William Harvey Hospital
Proposal four	A HASU at: 1. Darent Valley Hospital 2. Medway Maritime Hospital 3. Queen Elizabeth the Queen Mother Hospital
Proposal five	A HASU at: 1. Darent Valley Hospital 2. Maidstone Hospital, 3. William Harvey Hospital
Proposal six	A HASU at: 1. Darent Valley Hospital 2. Maidstone Hospital, 3. Queen Elizabeth the Queen Mother Hospital
Proposal seven	A HASU at: 1. Darent Valley Hospital 2. Tunbridge Wells Hospital, 3. Queen Elizabeth the Queen Mother Hospital
Proposal eight	A HASU at: 1. Maidstone Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital
Proposal nine	A HASU at: 1. Tunbridge Wells Hospital, 2. Medway Maritime Hospital 3. Queen Elizabeth the Queen Mother Hospital
Proposal ten	A HASU at: 1. Tunbridge Wells Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital
Proposal eleven	A HASU at: 1. Darent Valley Hospital 2. Tunbridge Wells Hospital, 3. William Harvey Hospital

Source: Kent and Medway SEC Clinical Senate Submission

[25] There is a temporary halt to emergency care provision, including stroke, at Kent & Canterbury Hospital.

A shortlisting exercise conducted by the CCGs was undertaken to reduce the number of models to carry forward. Five proposals are to be included in the pre-consultation business case (PCBC) and these would be re-named A, B, , D and E.

Table 4: Shortlisted proposals

Scenario	Proposal	Re-named
Proposal three	A HASU at: 1. Darent Valley Hospital 2. Medway Maritime Hospital 3. William Harvey Hospital	**A**
Proposal five	A HASU at: 1. Darent Valley Hospital 2. Maidstone Hospital, 3. William Harvey Hospital	**B**
Proposal eight	A HASU at: 1. Maidstone Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital	**C**
Proposal ten	A HASU at: 1. Tunbridge Wells Hospital, 2. Medway Maritime Hospital 3. William Harvey Hospital	**D**
Proposal eleven	A HASU at: 1. Darent Valley Hospital 2. Tunbridge Wells Hospital, 3. William Harvey Hospital	**E**

Source: Kent and Medway SEC Clinical Senate Submission

3 Health impacts

This chapter identifies health impacts which may be experienced when the proposals are implemented. This chapter presents impacts within three sub sections; health outcomes, service impacts and workforce impacts

Unless otherwise stated the impacts below will be realised regardless of the option chosen.

3.1 Health outcomes

3.1.1 Individual health outcomes for patients

The proposed changes will have a positive impact on patient outcomes and remove the variation currently experienced across Kent and Medway.

The creation of HASUs in Kent and Medway should lead to improved clinical outcomes for patients in comparison to the current model. This can be evidenced in the varied and inconsistent performance of current units against the Sentinel Stroke National Audit Programme (SSNAP).[26]

The clinical evidence[27] highlights that the best outcomes for patients are delivered within specialist units that have adopted measures such as rapid access to advanced tests, such as CT and MRI scanning, treatments such as thrombolysis and thrombectomy, and the 24-hour presence of specialist stroke doctors and nurses along with other complementary specialist teams. These outcomes are seen when the initial care of all patients with acute stroke (other than rare exceptions such as end-of-life care) are assessed in a HASU with access to all the services that may help survival and recovery. Access to hyper-acute stroke care should be available 24 hours a day, seven days a week and should be for all people with acute stroke, not just those who might be suitable for intravenous thrombolysis.[28] As an example, a 2014 study evaluating the centralisation of acute stroke services reported decreases in unadjusted mortality at 30 days of between 1.6% and 2.8% for the two areas studied, as well as an absolute decline in risk adjusted length of hospital stay of between -2.0 days and -1.4 days.[29]

Through the streamlining of services, such as consistently delivering direct access from ambulances to the stroke assessment unit, it is likely that the proportion of patients receiving thrombolysis within the agreed standards of 120 minutes ‘call to needle’ and 30 minutes ‘door to needle’ will increase. This is of considerable importance for improving patient outcomes. Therapeutic yield is known to be maximal in this timeframe, declining rapidly over the next five hours, which highlights the importance of early presentation and treatment.[30] Clinical stakeholders engaged with as part of this IIA also highlighted the improvement in patient outcomes as a key driver and benefit for this proposed change, citing evidence that patients treated in a HASU, which meets all necessary quality standards, are less likely to die or be disabled at the 30 days, three and six-month timepoints after their stroke. There are therefore

[26] Kent and Medway STP (2 March 2017) Clinical Models Summary: Submission to the South East Coast Clinical Senate

[27] The King’s Fund (2014) The reconfiguration of clinical services

[28] Royal College of Physicians (2016) National clinical guideline for stroke. Fifth edition.

[29] Morris S et al (2014) Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. *BMJ* 2014;349:g4757

[30] Saver, J. L., Smith, E. E., Fonarow, G. C., Reeves, M. J., Zhao, X., Olson, D. M., & Schwamm, L. H. (2010). The “golden hour” and acute brain ischemia. Stroke, 41(7), 1431-1439.

also likely to be medium term benefits for the wider healthcare economy because of lower health and social care costs resulting from a reduction in disabilities and longer-term rehabilitation costs. It is also considered that services would also improve as those with expertise and skills specialised in stroke will be located together, and will see a critical mass of patients. One clinician further highlighted the clinical benefits in potentially establishing mechanical thrombectomy, although it is recognised that this is not directly part of these proposals. Findings from community engagement also corroborated available evidence on the perceived benefits of centralising stroke services. Participants viewed that improved outcomes for patients could be achieved through the concentration of specific services and senior clinical input.

3.1.2 Individual choice for patients

Patient choice will reduce for these specialist stroke services however, the potential to improve outcomes is a balancing factor.

Nationally, it is recognised that the way in which health services are configured should support choice as a principle and this is an important part of the NHS constitution. Choice of hospital service is however only pertinent to those admissions which are planned and booked, yet nearly all stroke patients are likely to be conveyed by ambulance to their nearest HASU. Therefore, whilst the proposed changes will reduce choice of hospital providing this care from seven sites to three, the potential for improved health outcomes at the HASU must be balanced against this.

3.1.3 Rehabilitation services

Rehabilitation services for stroke patients will be improved, having a positive impact on patients in regaining their independence and overall quality of life.

Under the proposed changes, rehabilitation services will be improved and early supported discharge will be available to a minimum of 50% of patients.[31] Stroke rehabilitation is very important to help patients regain their independence and overall quality of life, most often involving a combination of motor-skill exercise and mobility therapy, technology assisted physical activities, and cognitive and emotional activities.[32] The evidence base for the impact of reconfiguration and centralisation on rehabilitation specifically, as part of the stroke care pathway, is still evolving.[33] [34]

There is consensus that stroke rehabilitation overall is effective in producing improved patient outcomes, and it is recommended that patients should first receive rehabilitation in a dedicated inpatient unit, with maximised resources, and after that from a specialist community team.[35] A clinical stakeholder highlighted the benefits of rehabilitation being provided alongside HASU and ASU services, as this allows for the rapid transfer of patients between services (should their condition deteriorate for example), as well as providing continuation of care for patients. This model of care also builds on evidence that patient satisfaction and outcomes are better in a stroke rehabilitation ward, or when possible at home, than for rehabilitation in hospital.[36] [37]

[31] Kent and Medway STP (2 March 2017) Clinical models summary: Submission to the South East Coast Clinical Senate, Slide 48

[32] Mayo Clinic 2017 Stroke rehabilitation: What to expect as you recover

[33] NIHR 2015 Centralising stroke services improves chances of patients getting the right care

[34] Although the rehabilitation stroke care pathway is still evolving we conclude that there will be a positive impact as a result of the reconfiguration.

[35] NICE Stroke Rehabilitation: Long term rehabilitation after stroke

[36] Ramsay AI, Morris S, Hoffman A, et al. (2015) Effects of centralizing acute stroke services on stroke care provision in two large metropolitan areas in England. Stroke 46: 2244–2251

[37] Fearon P, Langhorne P (2012) Early Supported Discharge Services for reducing duration of hospital care for acute stroke patients. Cochrane Database of Systematic Reviews Issue 9

This reflects national guidance which states that "*the closer a rehabilitation service is to the person's home the more that family/carers can be engaged and the more targeted the rehabilitation can be*".[38]

3.1.4 Transfers to a HASU

For patients experiencing a stroke whilst already in hospital at one of the four sites no longer providing stroke services, a transfer will be required to a HASU. This could potentially have a negative impact on patient outcomes although appropriate protocols will be in place to mitigate against this.

The reduction in the number of sites providing HASU service may mean that some patients who are already in hospital receiving other services may be required to be transferred to a HASU. This could potentially have a negative impact on patient outcomes. For example, the Royal College highlights that one in 20 strokes occur in people already in hospital. Clinicians in high-risk clinical areas should therefore have awareness of the need to identify and treat acute neurological presentations urgently, including direct admission to a HASU for emergency stroke treatment.[39]

3.2 Service impacts

3.2.1 Capacity of services

With activity for stroke services being consolidated onto fewer hospitals, there is a 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.

Consolidating HASU and ASU services onto fewer hospital sites will inevitably result in an increased volume of activity at these hospitals, as well as resulting in increased demand for inter-dependent or clinical support services such as diagnostic scans. Unless appropriately scoped and resourced, the capacity of these services could have a potentially negative affect on the responsiveness and quality of patient care within both stroke services but also within other acute services provided on site. Activity modelling has been undertaken by the STP Programme which should look to mitigate against this potential impact.

Depending on the exact configuration of services, there may also be some patients who are picked up by the ambulance service on the border of Kent and Medway, and may be conveyed to the geographically closest HASU which is within a neighbouring area. These numbers are likely to be small but to maintain safe and responsive services, it is essential that these neighbouring HASUs can accommodate this additional activity with their own capacity constraints.

Finally, a clinical stakeholder has also highlighted that the HASU designation of a hospital may result in an unintended consequence of patients choosing to self-present at these sites, creating additional demand within their emergency departments.

[38] RCP (2016) National clinical guideline for stroke

[39] Royal College of Physicians (2016) National clinical guideline for stroke. Fifth edition.

3.2.2 Clinical inter-dependencies

If links between clinical inter-dependent services across the wider STP programme are not appropriately maintained, this has the potential to negatively impact on the safety of patient care.

The South-East Coast Clinical Senate has thoroughly documented the co-dependencies between stroke services and other acute services.[40] As part of the wider STP programme, it is important that these dependencies are appropriately maintained to ensure that all hospital services remain safe and do not negatively impact patient care. For example, the Royal College highlights that cardiology, renal wards, and cardiothoracic units are examples of the high-risk clinical areas which may need to directly admit patients to a HASU. Therefore, where wider STP development plans include these other acute services it is important to continue to review these dependencies.

The full evaluation undertaken by the Programme has highlighted that all the shortlisted proposals achieve the co-dependencies outlined by the South-East Coast Clinical Senate and have the required co-dependencies for mechanical thrombectomy, yet Proposal D provides these to the greatest extent. Proposals A and D have also been highlighted to best achieve the requirements for a Major Emergency Centre.

3.2.3 Ambulance service capacity

The proposed changes will result in longer ambulance journeys for some patients required to be conveyed to a HASU, as well as additional transfers, which may negatively impact the capacity of the ambulance service.

Patients will be conveyed to one of three comprehensive stroke units, meaning that the ambulance service will be required to undertake some longer journeys than currently undertaken. As outlined in **Error! Reference source not found.**, there may also be an increased number of transfers for patients currently receiving other care in hospital but requiring access to a HASU. This will have a negative impact on the capacity of the ambulance service in terms of ambulance and paramedic resources. It is understood that facilities and infrastructure are a key enabler within the continued development of these proposals. Once a preferred proposal has been decided, the ambulance service should be involved in assessing the materiality of this impact and how it can be mitigated.

Stakeholders and the community engagement have also highlighted this impact, noting that additional resources may be required to minimise the impact on the wider ambulance service and its response times.

3.3 Workforce impacts

3.3.1 Workforce standards

The consolidation of workforce resources will enable the three comprehensive stroke units to sustainably achieve recommended workforce standards. Increased consultant presence is associated with positive outcomes for patients. These impacts are potentially less likely to be realised if Proposal C or D was chosen as an option.

[40] South East Coast Clinical Senate (2014) The Clinical Co-Dependencies of Acute Hospital Services –A Clinical Senate Review

Consolidation of these services, and the associated workforce, will allow for recommended workforce standards to be achieved, which are in turn associated with improved patient outcomes. For example, seven-day consultant ward rounds will be delivered across the three hospitals, in contrast to the current situation where seven-day ward rounds only operate at one site and are not always consultant led.

Stakeholders consulted as part of this IIA considered that, in the long-term, stroke services in their current form are not sustainable, due to the current workforce pressures on staff as they work hard to try and maintain the quality of care. Anecdotally, it is reported that this has created challenges in retaining staff with specialist yet scarce skills and expertise. The proposed consolidation will therefore ensure that appropriate rota patterns can be established, creating a more sustainable working environment for staff, as well allowing for new clinical standards of care to be delivered.

A clinical stakeholder also highlighted, however, that the appetite for consultants to specialise in stroke services can be lower than other specialities, and is declining. This may therefore create a longer-term risk that the new model of care may not be delivered as planned. Nonetheless, the consolidation of workforce resources onto fewer sites will create more opportunity to achieve appropriate staffing levels and the implementation of the new model of care may encourage staff to join the service.

Stakeholders from the community engagement believed that that the concentration of expertise in the combined HASU and ASUs will allow clinical resources to be pooled, enabling workforce standards to be achieved.

The full evaluation undertaken by the Programme has identified that to achieve these workforce requirements, Proposals C and D would require the greatest investment in, and the recruitment of, additional high quality consultant staff.

3.3.2 Workforce sustainability

Proposed changes will create a more sustainable workforce for providing stroke care across Kent and Medway. This in turn will support the retention of current staff, as well as future recruitment requirements.

As described in section 3.1 above, the consolidation of workforce resources will enable the three comprehensive stroke units to establish appropriate rota patterns and a more sustainable working model for staff. This contrasts with the current situation where stakeholders have anecdotally commented that some staff are being asked to work one in two weekends, which does not enable an appropriate work life balance. Clinical stakeholders have highlighted that this is likely to support the retention of current staff, as well as the recruitment of staff in the future. This is important in an area where anecdotally in recent years, several stroke consultants have left the service, moving to areas that are better organised and have already made these reconfiguration changes.

In the longer term, recruitment may also benefit from staff being attracted to move to Kent and Medway to work as part of an established and high-quality stroke network, which offers a variety of specialist roles and training opportunities. Clinical stakeholders supported this view, as did stakeholders in local listening events.[41] [42] Community engagement also corroborated that through the creation of more resilient teams, factors such as staff satisfaction, staff retention

[41] East Kent Delivery Board (March 2017) East Kent Listening Event: Feedback Report

[42] West Kent CCG (April 2017) West Kent Health and Care Listening Events: Feedback Reports

and recruitment will also be positively impacted by a greater ability to develop roles and responsibilities, increased availability of specialisation and training opportunities.

3.3.3 Workforce turnover

The reconfiguration of stroke services is considered to bring challenges for some staff, which could result in negative impacts such as increased staff turnover and the loss of current expertise.

Clinical and community engagement stakeholders have identified that some negative workforce impacts may be realised as part of the proposed reconfiguration. For example, it is widely recognised that there is a national challenge in terms of recruiting to stroke physician posts and one stakeholder highlighted the risk that existing staff may leave if the implementation process is too lengthy, creates uncertainty and is not properly communicated.

The full evaluation undertaken by the Programme has identified that Proposal C could result in the greatest issue in vacancies, followed by Proposal D. Proposal B is the most favourable proposal in terms of vacancies. In contrast, in terms of staff turnover, whilst Proposal A could create the greatest negative impact on staff turnover, Proposals C and D are the most favourable.

The proposed change is likely to require staff from four of the current sites to change their place of employment. This may result in some staff having to travel further to their place of work; which is likely to have an impact in terms of the personal costs of travel, as well as the inconvenience associated with additional journey times and the implications on childcare commitments for example.

Some of these staff can also work across different specialties and may therefore look for opportunities to move departments within their existing employer. This may have a short term transitional negative impact on the operational running of the service, and particularly during its transfer to a new site.

As a result of the proposals, some staff may not feel able or willing to change their working arrangements and may therefore not continue working in this service area. This may be a risk if staff with specialist expertise which are in demand nationally are lost. Stakeholders highlighted that the recruitment of new staff can be time-consuming and expensive.

4 Travel and access impacts

This chapter identifies travel and access impacts, which could potentially be experienced as a consequence of implementing the proposals. The chapter presents impacts for BLA as the journeys by patients for the services assessed would typically be made by this mode of transport. Quantitative and qualitative journey time analysis is provided for each of the shortlisted proposals; the associated tables for the long list of proposals are provided within the supporting annex along with maps visualising BLA travel times.

Detailed analysis by an equality group is included within the equality chapter (chapter 5) and further details (including mapping of the journey times from all areas across the study area) can be found in the supporting annex.

4.1 Qualitative journey time analysis

4.1.1 Service impacts

4.1.1.1 Impacts on ambulance service journey times and capacity

The proposed changes will result in longer ambulance journeys for some patients required to be conveyed to a HASU which may negatively impact the capacity of the ambulance service.

Patients will be conveyed to one of three comprehensive stroke units, meaning that the ambulance service will be required to undertake some longer journeys than currently undertaken. This will have a negative impact on the capacity of the ambulance service in terms of ambulance and paramedic resources. It is understood that facilities and infrastructure are a key enabler within the continued development of these proposals. Once a preferred proposal has been decided, the ambulance service should be involved in assessing the materiality of this impact and how it can be mitigated.

Stakeholders and the community engagement have also highlighted this impact, noting that additional resources may be required to minimise the impact on the wider ambulance service and its response times.

4.1.2 Travel impacts for patients

The proposed changes will mean that some patients will have to travel further to access a comprehensive stroke service. Whilst it is recognised that this delay to care could have a potential negative impact on the outcome of the patient, it is considered that this is offset by having access to a streamlined and fully resourced HASU service on arrival.

Within local listening events and engagement undertaken as part of this IIA, some stakeholders expressed concern about the distance to specialist services, delaying access to care. There is recognition that this may increase the 'call to needle time' which can have a negative impact on health outcomes for patients. It may also increase the period in which patients may experience discomfort during the ambulance journey itself.

National guidance states that people with suspected acute stroke should be admitted directly to a HASU and be assessed for emergency stroke treatments by a specialist physician without delay. It recognises however the balance between location and critical mass; "*stroke services should be organised to treat a sufficient number of patients to ensure that the specialist skills of*

the workforce are maintained".[43] It is recognised that whilst the patient may receive a delay in accessing care, the treatment they receive when arriving at the HASU will be streamlined, provided by staffing with appropriate expertise and will be of high quality. This is corroborated by other reports that state whilst delay for people with life-threatening conditions is linked to poorer outcomes, it is the timing of the start of appropriate treatment rather than the timing of arrival at hospital that affects the outcome.[44] Therefore, rapid access to the specialist team once at the hospital can offset or overcome the risk created by the additional travel time.

4.1.3 Travel impacts for family, carers, and visitors

For the period that care is provided at the comprehensive stroke unit, negative travel and access impacts may be experienced by the visitors and carers of patients. This may also have some impact on the recovery of patients.

It is recognised that family, carers, and visitors will have to travel further to visit patients receiving HASU, ASU or rehabilitation care and this is explored further in the travel and access impacts section of this report.

Whilst stakeholders are generally accepting of receiving specialist care in a location further away from their place of residence, where rehabilitation is hospital based, they have highlighted that potential negative impacts may be experienced as patients will be recovering from their stroke further away from their home, potentially constraining access to carers and visitors. It is considered that this could have a negative impact on their recovery and general wellbeing including feeling isolated.

4.2 Methodology for quantitative journey time analysis for patients living and receiving care in the study area

4.2.1 Patient activity data

Travel and access analysis has been undertaken on the basis of available current patient activity for stroke services[45]. Patient activity data[46], has been used to provide as accurate a picture as possible about the potential impacts for patient journey times and to understand the potential volume of patients which would require longer trips. It is understood that activity patterns will not be exactly the same in future, but it provides the best proxy available to understand the impacts.

The report uses patient data from the North East London Commissioning Support Unit (NEL CSU) on stroke services for the following sites:

- William Harvey Hospital
- Queen Elizabeth The Queen Mother
- Kent & Canterbury
- Medway Maritime

[43] RCP (2016) National clinical guideline for stroke

[44] Kings Fund (2011) Reconfiguring hospital services

[45] An uplift for TIA/ mimics has not been applied as information on the geographical location of these patients is not represented in the patient activity data for stroke. A universal uplift could be applied across all sroke patients; however this would have no implications for travel and access as this would simply uplift all stroke patient activity. The raw stroke patient activity has been used for this assessment to aide transparency.

[46] Data availability has permitted collation and analysis of activity for 2015/16 for patients who accessed services within Kent and Medway and who are also resident in the study area.

Data from Dartford and Gravesham Trust and Maidstone and Tunbridge Wells Trust has been used for the following sites:

- Maidstone Hospital
- The Tunbridge Wells Hospital
- Darent Valley Hospital

Patient data includes information on the sex, age and ethnicity of the patient.

Impacts have been discussed within the equality impacts chapter for those with disabilities, those who are pregnant or recently have given birth and for those from deprived communities.

4.2.2 Travel time data and analysis

Travel time data has been provided by Carnall Farrar and 'off peak car' has been used to represent travel times by BLA. The baseline travel time has been calculated based upon the patient data and calculates the travel time from the patients' residential LSOA to the hospital based upon the service site they are currently using. The future travel time for these patients under each proposal has then been calculated by firstly understanding whether the hospital they are currently accessing is still offering stroke services under each of the proposals. If this hospital is still within scope it is assumed that the patient would still attend this hospital site and thus the travel time will not change. If the hospital is no longer offering stroke services under each proposal then it is assumed that the patient will travel to the nearest alternative hospital site included in each proposal (based on the hospital with the minimum travel time). Sites considered under each option are included in table 3 in section 2[47].

As, in some instances patients are not currently travelling to the nearest hospital site, analysis showed that there are some travel time savings under each of the proposals. However, these have been characterised as 'no change' rather than presenting them as a reduction. Presenting them as reduction would be misleading because these travel time 'savings' would be possible under the baseline scenario as well as the future proposal.

The report has utilised thresholds of 30 and 60 minutes to report on the travel impacts.

4.2.3 Quantitative journey time impacts by BLA

Based on current stroke patient activity data, 94 per cent of stroke patients have access to stroke services by BLA within 30 minutes and 100 per cent within 60 minutes. Across all of the proposed shortlisted proposals there is a reduction in accessibility within 30 minutes by BLA for patients currently accessing stroke services. This ranges from a reduction to 71 per cent in proposal E to 84 per cent in proposal D. Accessibility within 60 minutes by BLA is in line with the baseline as 100 per cent of all patients can access stroke services under each shortlisted proposal. This is shown in Table 5 below.

[47] This does not include sites outside the Kent and Medway study area.

Table 5: BLA journey times for the patient population under each proposal

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Baseline (current service configuration)	29%	66%	94%	99%	100%	100%
Proposal A	23%	54%	82%	92%	96%	100%
Proposal B	11%	38%	79%	93%	96%	100%
Proposal C	22%	52%	82%	93%	96%	100%
Proposal D	21%	51%	84%	93%	96%	100%
Proposal E	10%	25%	71%	90%	96%	100%

Source: Carnall Farrar travel time data

Table 6: Percentage point change from baseline for BLA journey times for the patient population under each proposal

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Proposal A	-6pp	-12pp	-11pp	-7pp	-4pp	No change
Proposal B	-18pp	-29pp	-15pp	-7pp	-4pp	No change
Proposal C	-7pp	-14pp	-11pp	-7pp	-4pp	No change
Proposal D	-8pp	-15pp	-10pp	-6pp	-4pp	No change
Proposal E	-19pp	-41pp	-23pp	-9pp	-4pp	No change

Source: Carnall Farrar travel time data

In summary, the table concludes that:

- Proposal E has the most negative impact upon accessibility within 30 minutes with only 71 per cent of patients able to access services within 30 minutes, which is a reduction of 23 percentage points. Proposal E also has the largest reduction in accessibility within 10 minutes reducing from 29 per cent in the baseline to 10 per cent of patients.
- Proposal D has the least negative impact upon accessibility as 84 per cent of patients can still access stroke services by BLA within 30 minutes.
- Proposal A and C both provide 82 per cent of patients with accessibility within 30 minutes by BLA.

Table 7 provides a breakdown of patients experiencing both no change and an increase in travel time accessibility by BLA under each of the shortlisted proposals. This further reinforces the findings of the previous analysis and identifies that proposal E has the highest proportion of patients experiencing an increase in travel time by BLA, largely due to the removal of Medway Maritime hospital. For instance, 63 per cent of patients will experience an increase in journey times compared to 21 per cent in proposal A, 23 per cent in proposal C and 24 per cent in proposal D. Proposal A, however, has the fewest number of patients experiencing an increase in journey time by BLA.

Table 7: Patient experiencing change in journey time by BLA by proposal

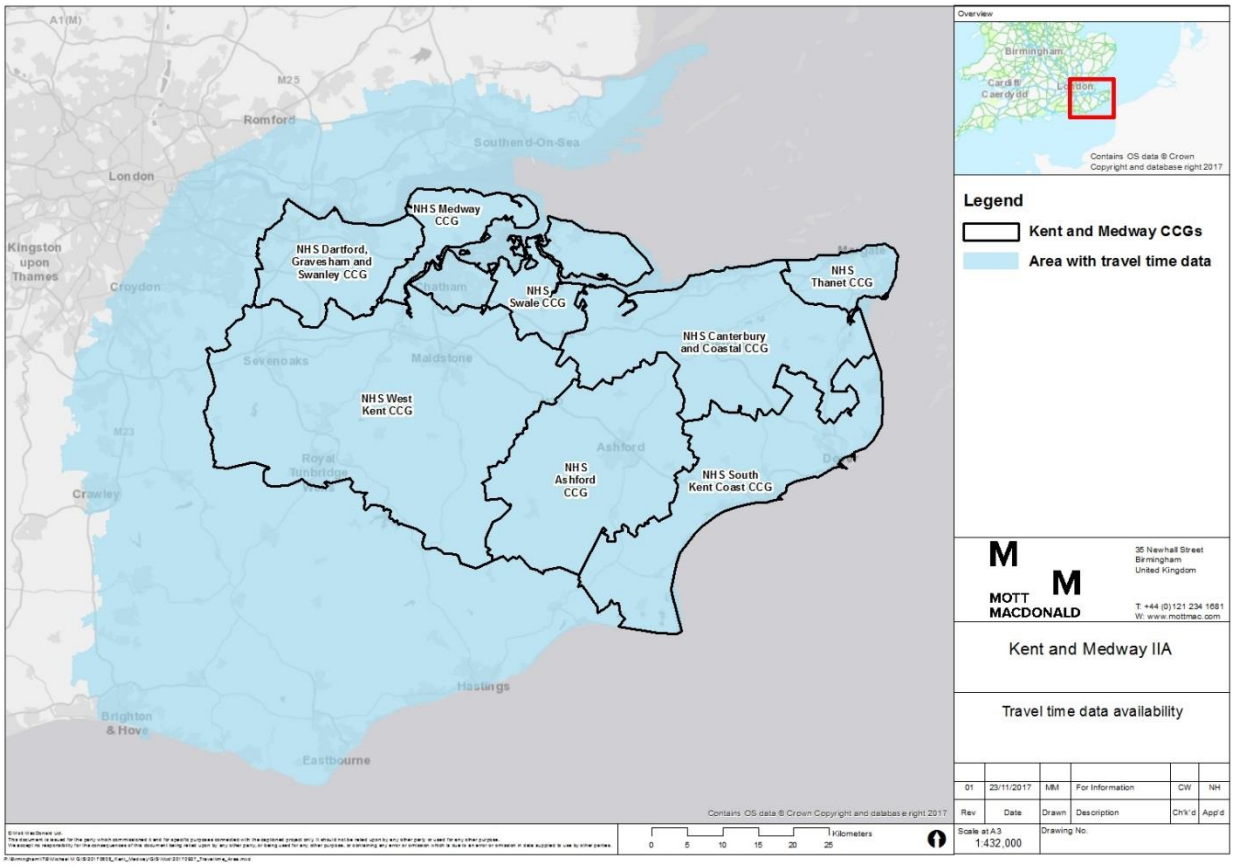
	No change	Increase	No change (%)	Increase (%)
Proposal A	3,560	940	79%	21%
Proposal B	1,811	2,689	40%	60%
Proposal C	3,477	1,023	77%	23%
Proposal D	3,420	1,080	76%	24%
Proposal E	1,686	2,814	37%	63%

Source: Carnall Farrar travel time data

4.3 Methodology for inflow quantitative journey time analysis

This analysis has been based upon patients who are accessing stroke services within the study area but their home LSOA is outside the study area. The figure below illustrates the area this relates to.

Figure 4: Map showing the area travel time data available for



Source: Mott MacDonald

The same methodological approach set out in 4.2.2 has been used for this analysis. The following data sources have been used:

- The Maidstone and Tunbridge Wells (MTW) NHS trust have provided for all Non Elective inpatient activity accessing stroke services at Maidstone Hospital and Tunbridge Wells Hospital
- Dartford and Gravesham (DGT) NHS trust have provided patient data for all Non Elective inpatient activity accessing stroke related services at Darent Valley Hospital.

Please note inflow activity is primarily limited to DGT and MTW due to geography of the study area. A review of data provided by EKUHFT and the CSU highlights between 17 inflow patients. This has a negligible impact on the analysis below.

4.3.1 Quantitative journey time impacts by BLA (inflows)

Based on current stroke inflow patient activity data, 69 per cent of stroke inflow patients have access to stroke services by BLA within 30 minutes and 98 per cent within 60 minutes. Across all of the proposed shortlisted proposals there is a reduction in accessibility within 30 minutes by BLA for inflow patients currently accessing stroke services. This ranges from a reduction to 0 per cent in proposal C to 37 per cent in proposals B and C. Accessibility within 60 minutes by BLA is mostly in line with the baseline, with a reduction in accessibility of no more than 4 percentage points under each shortlisted proposal. This is shown in Table 8 below.

Table 8: BLA journey times for the patient population under each proposal (inflow)

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Baseline (current service configuration)	7%	42%	64%	80%	93%	98%
Proposal A	7%	36%	38%	41%	60%	94%
Proposal B	7%	41%	43%	48%	82%	95%
Proposal C	0%	0%	0%	41%	81%	95%
Proposal D	0%	8%	34%	83%	95%	98%
Proposal E	7%	50%	75%	89%	95%	98%

Source: Carnall Farrar travel time data

Table 9: Percentage point change from baseline for BLA journey times for the patient population under each proposal (inflow)

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Proposal A	No change	-6pp	-27pp	-41pp	-36pp	-4pp
Proposal B	No change	-1pp	-21pp	-39pp	-12pp	-3pp
Proposal C	-7pp	-42pp	-64pp	-42pp	-13pp	-3pp
Proposal D	-7pp	-34pp	-31pp	2pp	2pp	No change
Proposal E	No change	+8pp	+11pp	+9pp	1pp	No change

Source: Carnall Farrar travel time data

In summary, the table concludes that:

- Proposal C has the most negative impact upon accessibility within 30 minutes with 0 per cent of inflow patients able to access services within 30 minutes, which is a reduction of 64 percentage points. Proposals C and D have the largest reduction in accessibility within 10 minutes reducing from 7 per cent in the baseline to 0 per cent of inflow patients.

- Proposal E has a positive impact upon accessibility as 75 per cent of inflow patients can still access stroke services by BLA within 30 minutes. This is because the majority of inflow patients are attending the Darent Valley Hospital or the Tunbridge Wells hospital which are included within this option. Due to the geography of the area it is likely that any inflow patients currently attending Maidstone or Medway Maritime hospitals will reduce their travel times when switching to Darent Valley, Tunbridge Wells or William Harvey Hospitals.

Table 10 provides a breakdown of inflow patients experiencing both no change and an increase in travel time accessibility by BLA under each of the shortlisted proposals. This further reinforces the findings of the previous analysis and identifies that proposal C has the highest proportion of inflow patients experiencing an increase in travel time by BLA. For instance, 81 per cent of inflow patients will experience an increase in journey times compared to 48 per cent in proposal A, 44 per cent in proposal B and 36 per cent in proposal D. Proposal E, however, has the fewest number of inflow patients experiencing an increase in journey time by BLA.

Table 10: Patients expeirincing a change in journey time by BLA by proposal (inflow)

	No change	Increase	No change (%)	Increase (%)
Proposal A	77	72	52%	48%
Proposal B	83	66	56%	44%
Proposal C	29	120	19%	81%
Proposal D	95	54	64%	36%
Proposal E	149	0	100%	0%

Source: Carnall Farrar travel time data

Please note that inflow patient activity accounts for 3.2 per cent of total activity.

4.4 Methodology for total activity quantitative journey time analysis

This analysis has been based upon patients who are accessing stroke services within the study area but their home LSOA is outside the study area, and those who are accessing stroke services within the study area and live within the study area.

4.4.1 Quantitative journey time impacts by BLA (total activity)

Based on current stroke patient activity data, 93 per cent of stroke patients have access to stroke services by BLA within 30 minutes and 100 per cent within 60 minutes. Across all of the proposed shortlisted proposals there is a reduction in accessibility within 30 minutes. This ranges from a reduction to 71 per cent in proposal E to 82 per cent in proposal D. Accessibility within 60 minutes by BLA is in line with the baseline as 100 per cent of all patients can access stroke services under each shortlisted proposal. This is shown in Table 11 below.

Table 11: BLA journey times for the patient population under each proposal (total activity)

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Baseline (current service configuration)	28%	66%	93%	99%	100%	100%
Proposal A	23%	53%	81%	91%	95%	100%
Proposal B	11%	38%	78%	91%	96%	100%
Proposal C	21%	50%	80%	91%	96%	100%
Proposal D	20%	50%	82%	93%	96%	100%
Proposal E	10%	26%	71%	90%	96%	100%

Source: Carnall Farrar travel time data

Table 12: Percentage point change from baseline for BLA journey times for the patient population under each proposal (total activity)

	Within 10 minutes	Within 20 minutes	Within 30 minutes	Within 40 minutes	Within 50 minutes	Within 60 minutes
Proposal A	-6pp	-12pp	-12pp	-8pp	-5pp	No change
Proposal B	-18pp	-28pp	-15pp	-7pp	-4pp	No change
Proposal C	-7pp	-15pp	-13pp	-8pp	-4pp	No change
Proposal D	-8pp	-16pp	-10pp	-6pp	-4pp	No change
Proposal E	-19pp	-40pp	-22pp	-9pp	-4pp	No change

Source: Carnall Farrar travel time data

In summary, the table concludes that:

- Proposal E has the most negative impact upon accessibility within 30 minutes with only 71 per cent of patients able to access services within 30 minutes, which is a reduction of 22 percentage points. Proposal E also has the largest reduction in accessibility within 10 minutes reducing from 28 per cent in the baseline to 10 per cent of patients.
- Proposal D has the least negative impact upon accessibility as 82 per cent of patients can still access stroke services by BLA within 30 minutes.
- Proposal A provides 81 per cent of patients with accessibility within 30 minutes by BLA and proposal C provides 80 per cent of patients with accessibility within 30 minutes by BLA.

Table 13 provides a breakdown of patients experiencing both no change and an increase in travel time accessibility by BLA under each of the shortlisted proposals. This further reinforces the findings of the previous analysis and identifies that proposal E has the highest proportion of patients experiencing an increase in travel time by BLA, largely due to the removal of Medway Maritime hospital. For instance, 61 per cent of patients will experience an increase in journey times compared to 22 per cent in proposal A and 25 per cent in proposal C and 24 per cent in proposal D. Proposal A, however, has the fewest number of patients experiencing an increase in journey time by BLA.

Table 13: Patients experiencing a change in journey time by BLA by proposal (total activity)

	No change	Increase	No change (%)	Increase (%)
Proposal A	3,637	1,012	78%	22%
Proposal B	1,894	2,755	41%	59%
Proposal C	3,506	1,143	75%	25%
Proposal D	3,515	1,134	76%	24%
Proposal E	1,835	2,814	39%	61%

Source: Carnall Farrar travel time data

5 Equality impacts

5.1 Overview

In order to assess the impact of the service changes on protected characteristic and deprived groups, the scoping phase involved detailed analysis to understand which groups may have a disproportionate need for stroke services. This section provides a summary of this work, setting out the groups scoped in for stroke services, and also provides an indication of the demographic representation of each group in the local area (where relevant and where the demographics of Kent and Medway differ from the national averages.)

5.1.1 Stroke services: summary

The following groups were identified as having a disproportionate need for stroke services:

Table 14: Scoped in equality groups

Equality group	Summary of evidence presented in the scoping report
Age: Older people	High blood pressure is a key risk factor for strokes, this is common in older people.
Disabled people[48]	Living with a disability increases the likelihood of having a stroke as rates of Atrial Fibrillation (AF), which causes irregular heartbeat and increases the risk of stroke, are more common among disabled people.
Pregnancy and maternity	Pregnancy alters the level of female hormones which can lead to developing certain conditions and having a stroke.
Race and ethnicity: Black and Afro-Caribbean people, people with a South Asian background	Those from certain minority ethnic backgrounds have a pre-disposition to certain factors which can lead to having a stroke, such as high blood pressure, cholesterol and diabetes.
Sex: Male	AF, a factor which increases the risk of having a stroke, is more common in men compared to women.
People from deprived communities	There are a number of lifestyle factors that increase the risk of having a stroke such as obesity, physical inactivity and an unhealthy diet.

Source: Kent and Medway Sustainability and Transformation Plan Scoping report 2017

5.2 Health outcomes

As identified in the health component of this IIA, the proposals under the STP are likely to provide positive health impacts including improved clinical outcomes, and overall service improvement. These long term impacts are likely to be experienced disproportionately by those groups listed in section 5.1.1 above due to their higher propensity to require stroke services.

5.3 Service familiarity

Reconfiguring the delivery of services may impact certain equality groups as travelling to a new location and being treated by different healthcare professionals may lead to an increase in anxiety. These will be transitional and relate to service and geographical familiarity. Groups likely to be affected include older people, disabled people and some people from BAME backgrounds, particularly those who do not have English as a first language who traditionally find it more difficult to navigate the healthcare system.

[48] The marker for those living with a disability will be those who have identified as living with a limiting long term illness (LLTI)

5.4 Journey time impacts for equality groups

5.4.1 Methodology and assumptions

As with the travel and access analysis presented in chapter four, this journey time analysis on equality groups has, where possible, been undertaken on the basis of available patient activity data for stroke services. Patient activity data includes information on the sex, age and ethnicity of the patient, so robust travel impact analysis has been possible on the following scoped in equality groups:

- Age: older patients aged 65+
- Sex: Males
- Race and ethnicity: BAME patients

Activity data is not available for the other equality groups identified as having a disproportionate need for stroke services (disabled people; women who are pregnant or on maternity leave[49]; and people from socio-economically deprived backgrounds[50]). As such, for these groups travel time analysis has been undertaken only the basis of population data, which is the best available alternative in the absence of appropriate activity data for these groups.

Using the best available data, travel times for the scoped in equality groups are compared to the overall population travel times. This ascertains whether there is a greater impact on a particular group.

The tables in section 5.4.2 onwards highlight the travel times for stroke services by scoped in equality groups, comparing the baseline scenario with the future proposals. An equality group is considered to experience disproportionate negative journey times impacts if one or both of the following is realised:

- In terms of journey time access within 30 minutes, the proportion of patients / population from a given equality group is five percentage points or more lower than the proportion of overall patients / population.
- In terms of the percentage point change from the baseline, the proportion of patients / population from a given equality group change is five percentage points or more higher than the overall proportion of patients / population.

5.4.2 Baseline

None of the groups identified as having a higher need for vascular care currently experience disproportionately higher journey times.

Table 15: Baseline journey travel time by BLA (patient activity data)

	Within 30 minutes	Within 60 minutes
Total patients	94%	100%
Patients aged 65 and over	94%	100%
Male patients	93%	100%
BAME patients	97%	100%

Source: Carnall Farrar travel time data

[49] Proxy data, (females aged 16-44 years) has been use for this equality group.

[50] Deprivation is calculated using the lower layer super output area (LSOA) in which a patient is resident. It is recognised that not every patient in a deprived LSOA will be experiencing deprivation themselves, but that this is the best available data. An LSOA is an administrative boundary with a minimum population of 1,000 and a maximum population of 3000.

Table 16: Baseline journey travel time by BLA (population data)

	Within 30 minutes	Within 60 minutes
Population overall	99%	100%
Females aged 16-44	99%	100%
Population with LLTI	99%	100%
Most deprived quintile	99%	100%

Source: UK Census 2011/IMD 2015

5.4.3 Proposal A

Table 17: Proposal A travel time by BLA (patient activity data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total patients	82%	-12pp	100%	No change
Patients aged 65 and over	82%	-12pp	100%	No change
Male patients	84%	-9pp	100%	No change
BAME patients	95%	-2pp	100%	No change

Source: Carnall Farrar travel time data

- There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.

Table 18: Proposal A travel time by BLA (population data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Population overall	71%	-28 pp	100%	98%
Females aged 16-44	73%	-25 pp	98%	-2 pp
Population with LLTI	67%	-32 pp	97%	-3 pp
Most deprived quintile	71%	-28 pp	100%	No change

Source: UK Census 2011/IMD 2015

- There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.

5.4.4 Proposal B

Table 19: Proposal B travel time by BLA (patient activity data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total patients	79%	-15pp	100%	No change
Patients aged 65 and over	79%	-15pp	100%	No change
Male patients	81%	-12pp	100%	No change
BAME patients	93%	-4pp	100%	No change

Source: Carnall Farrar travel time data

- There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.

Table 20: Proposal B travel time by BLA (population data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Population overall	73%	-26 pp	99%	-1 pp
Females aged 16-44	75%	-24 pp	99%	-1 pp
Population with LLTI	68%	-31 pp	99%	-1 pp
Most deprived quintile	60%	-39 pp	100%	No change

Source: UK Census 2011/IMD 2015

The analysis above shows that there will be some disproportionate negative impacts for those from the most deprived quintile by BLA under proposal B:

- Only 60% of those from the most deprived quintile will be able to access stroke services within 30 minutes by BLA, compared to 73% of the population.
- There will be a 39 percentage point drop in those from the most deprived quintile being able to reach stroke services within 30 minutes by BLA, compared to only 26 percentage point drop for the general population.

The analysis above shows that there will be some disproportionate negative impacts for those with an LLTI by BLA under proposal B:

- Only 68% of those with an LLTI will be able to access stroke services within 30 minutes by BLA, compared to 73% of the population.
- There will be a 31 percentage point drop in those with a LLTI being able to reach stroke services within 30 minutes by BLA, compared to only 26 percentage point drop for the general population.

5.4.5 Proposal C

Table 21: Proposal C travel time by BLA (patient activity data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total patients	82%	-12pp	100%	No change
Patients aged 65 and over	82%	-12pp	100%	No change
Male patients	84%	-9pp	100%	No change
BAME patients	85%	-12pp	100%	No change

Source: Carnall Farrar travel time data

- There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.

Table 22: Proposal C travel time by BLA (population data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Population overall	71%	-27 pp	95%	-5 pp
Females aged 16-44	74%	-25 pp	95%	-5 pp
Population with LLTI	68%	-31 pp	96%	-4 pp
Most deprived quintile	65%	-33 pp	99%	-1 pp

Source: UK Census 2011/IMD 2015

The analysis above shows that there will be some disproportionate negative impacts for those from the most deprived quintile by BLA under proposal C:

- Only 65% of those from the most deprived quintile will be able to access stroke services within 30 minutes by BLA, compared to 71% of the population.
- There will be a 33 percentage point drop in those from the most deprived quintile being able to reach stroke services within 30 minutes by BLA, compared to only 27 percentage point drop for the general population.

5.4.6 Proposal D

Table 23: Proposal D travel time by BLA (patient activity data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total patients	84%	-10pp	100%	No change
Patients aged 65 and over	84%	-10pp	100%	No change
Male patients	85%	-8pp	100%	No change
BAME patients	80%	-17pp	100%	No change

Source: Carnall Farrar travel time data

The analysis above shows that there will be some disproportionate negative impacts for BAME patients by BLA under proposal D:

- There will be a 17 percentage point drop in patients from a BAME background being able to reach stroke services within 30 minutes by BLA, compared to the 10 percentage point drop for the total number of patients.

Table 24: Proposal D travel time by BLA (population data)

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Population overall	75%	-24 pp	100%	No change
Females aged 16-44	77%	-22 pp	100%	No change
Population with LLTI	70%	-28 pp	100%	No change

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Most deprived quintile	65%	-34 pp	100%	No change

Source: UK Census 2011/IMD 2015

The analysis above shows that there will be some disproportionate negative impacts for those from the most deprived quintile by BLA under proposal D:

- Only 65% of those from the most deprived quintile will be able to access stroke services within 30 minutes by BLA, compared to 75% of the population.
- There will be a 34 percentage point drop in those from the most deprived quintile being able to reach stroke services within 30 minutes by BLA, compared to only 24 percentage point drop for the general population.

The analysis above shows that there will be some disproportionate negative impacts for those with an LLTI by BLA under proposal D:

- Only 70% of those with an LLTI will be able to access stroke services within 30 minutes by BLA, compared to 75% of the population.

5.4.7 Proposal E

Table 25: Percentage able to reach stroke services within 30 and 60 minutes by blue light ambulance using patient activity data

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total patients	71%	-23pp	100%	No change
Patients aged 65 and over	71%	-23pp	100%	No change
Male patients	72%	-21pp	100%	No change
BAME patients	93%	-4pp	100%	No change

Source: Carnall Farrar travel time data

- There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.

Table 26: Percentage able to reach stroke services within 30 and 60 minutes by blue light ambulance for proposal eleven using population data

	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Population overall	74%	-25pp	100%	No change
Females aged 16-44	76%	-23pp	100%	No change
Population with LLTI	68%	-30pp	100%	No change
Most deprived quintile	59%	-40pp	100%	No change

Source: UK Census 2011/IMD 2015

The analysis above shows that there will be some disproportionate negative impacts for those from the most deprived quintile by BLA under proposal E:

- Only 59% of those from the most deprived quintile will be able to access stroke services within 30 minutes by BLA, compared to 74% of the population.
- There will be a 40 percentage point drop in those from the most deprived quintile being able to reach stroke services within 30 minutes by BLA, compared to only 25 percentage point drop for the general population.

The analysis above shows that there will be some disproportionate negative impacts for those with an LLTI by BLA under proposal E:

- Only 68% of those with an LLTI will be able to access stroke services within 30 minutes by BLA, compared to 74% of the population.
- There will be a 30 percentage point drop in those with an LLTI being able to reach stroke services within 30 minutes by BLA, compared to only 25 percentage point drop for the general population.
-

5.4.8 Other travel and access impacts for equality groups

Stakeholder and community engagement including the focus groups undertaken for this IIA identified several other **negative** impacts associated with increased journey times for equality groups:

- **Increased stress and anxiety**: increased journey times or the need to make different and/or unfamiliar journeys to access care, is likely to affect some equality groups to a greater extent than the general population. These groups include:[51]
  - Those who find navigating new journeys, particularly using public transport, more challenging and problematic, for example older people and those with mobility or vision impairments.
  - Those who are less confident in making unfamiliar journeys, which may result in anxiety or panic attacks for example older people or those with a disability.
  - Those who also no longer frequently drive in busy areas, such as older people or disabled people, and particularly those with mental health issues, are also likely to be affected.
  - Those who may not be confident in making journeys at night, for example older people or those with a disability such as impaired vision.
  - Those who do not have access to a private mode of transport and are reliant on assistance or public transport, such as older people who cannot afford to run a car or are unable to drive anymore, as well as those from deprived communities.
- **Increased costs associated with travel**: some patients and visitors, for example those living in East Kent and travelling to West Kent, will experience increased travel costs. This is likely to disproportionately impact upon those traditionally on lower incomes, such as those from deprived communities, disabled people and older people.
- **The consequence of access difficulties for visitors and carers**: increased journey times (and associated costs) for visitors and carers of patients receiving care in a 'non-local' location may limit or prohibit regular visits from relatives. This could affect patients'

[51] It should be noted that these impacts are identified not only for patients but also for visitors and relatives who will also need to access new sites.

experience in hospital, and could disproportionately impact those who are more reliant on assistance and support, for example, disabled and older people – especially those with learning difficulties or mental health conditions. Some of those from BAME backgrounds who do not have English as their first language may also rely on relatives to help translate. Limited access to carer or relative support would mean the patient is less likely to be able to communicate effectively with clinical staff to express their preferences or ask questions about their care.

Table 27: Groups affected summary table – shortlist proposals

Proposal	Groups impacted
Proposal A	There are no disproportionate negative impacts for the groups listed above in terms of access within 30 minutes or change from the baseline.
Proposal B	Those from deprived backgrounds will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal B • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal B.
	Those with an LLTI will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal B • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal B.
Proposal C	Those from deprived backgrounds will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal C • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal C.

Proposal D	Patients from a BAME background: • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal D. Those from deprived backgrounds will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal D • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal D.
	Those with an LLTI will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal D
Proposal E	Those from deprived backgrounds will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal E • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal E.
	Those with an LLTI will have: • less access than the population overall to stroke services within 30 minutes by BLA under Proposal E • be disproportionately impacted by the percentage point change from the baseline by BLA under Proposal E.

Source: Mott MacDonald 2017

6 Sustainability impacts

6.1 Overview

This chapter details the assessment of GHG emissions under each of the shortlisted proposals for stroke services for Kent and Medway. The results for the full set of proposals are presented in the supporting annex. The chapter outlines the scope of the assessment, the methods used to estimate emissions from each proposal, presents the results of the assessment and provides commentary on the results.

By necessity the assessment has used a variety of assumptions to produce the results. Some of these assumptions, may have resulted in an over or under estimations of emissions. However, as the same methodology has been applied to all proposals, the assessment provides a useful comparison between proposals in terms of carbon emissions.

6.1.1 Building Energy Use

Data for the consumption of gas and electricity for each of the proposals, for all of the buildings, after the changes are implemented was not available. Instead, a proxy for consumptions was used to estimate additional energy use. First, consumption rates of gas and electricity over the last four years for each building were averaged and divided by the floor space of each building. This resulted in an average consumption rate per square meter of each building.

Data was available on changes to the floor space utilised under each proposal and at each building assuming beds would be used for 10 days per patient, (none of the proposals were anticipated to result in a reduction in utilised floor space, as the hospitals consulted indicated any floor space freed up by the changes would be used for other purposes). By multiplying the change in floor space by the average rates of gas and electricity consumption per unit of floor space, it was possible to estimate the change in building energy consumption under each proposal. This assumes that any newly utilised floor space will have the same energy consumption rate as the current rate of the building where the newly utilised floor space is located.

To calculate carbon emissions from energy use, emissions factors for 2017 were sourced from the Department for Business, Energy and Industrial Strategy[52]. As the carbon intensity of the electricity gird is expected to reduce in the future, the use of emissions factors for the electricity grid published in 2017 is a conservative assumption. These were multiplied by the consumption of data to resulting in carbon emissions data for each proposal. This method assumes that the energy emissions from the newly utilised floor space will be additional to current energy emissions.

6.1.2 Travel

Patient data for 2015/16 was used to form the basis of a travel time analysis, which assessed how long it would have taken each patient to travel to the hospital where they would receive stroke care under each proposal. This data was then used as the basis for the carbon assessment for travel.

[52] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017

This was undertaken by multiplying each journey time by the average speed of traffic on A-roads in Kent during 2016 based on statistics published by the Department of Transport[53]. This provided an estimated distance travelled. As the patients were stroke patients, it was assumed each patient would travel alone by ambulance. As such the total distance travelled by all patients was multiplied by the emissions factor for 'average van' (representing an ambulance) published by the Department for Business, Energy and Industrial Strategy[54]. This resulted in estimated carbon emissions due to patient travel for each proposal.

Across the NHS patient travel accounts for 44% of all travel emissions (NHS staff, visitors, patients, and contractors)[55]. To account for all travel emissions, the results of the patient travel assessment were uplifted in line with the ratio of patient travel to other travel, to produce an estimate of all emissions from travel for each proposal. Across the NHS, patient travel will have used a variety of transport modes. However, for this assessment it has been assumed that all patients have travelled via ambulance as they are stroke patients. This means that the assumption to uplift the patient travel data in-line with the ratio of patient travel to other travel across the NHS has likely overestimated total travel emissions.

6.2 Results

Table 28 below provides details of the results in terms of tCO_2e per proposal per annum.

Table 28: Carbon assessment results

Emissions category	Proposal A	Proposal B	Proposal C	Proposal D	Proposal E
Change in building energy use (tCO_2e)	223	451	231	219	514
Change in patient Travel (tCO_2e)	7	7	7	7	7
Change in all travel (tCO_2e)	16	16	17	16	15
Total change in emissions (tCO_2e)	239	467	248	235	529

The assessment shows that all proposals are expected to increase emissions. Proposal D would result in the lowest change in GHG emissions. However, Proposals A, C and D are similar in terms of GHG emissions. Proposal E has the highest emissions, which are nearly twice that of the other proposals. This is mainly because the increase in required floor space is relatively consistent between proposals A, C and D whilst proposal E has a much higher floor space increase. Proposal B presents a similar scenario to proposal E.

The carbon footprint for the whole NHS in 2015 was 22.8MtCO2e, and in line with the climate change act 2008, the NHS aims to reduce emissions by 80% based on a 1990 baseline by 2050[56]. According to the Kent and Medway Partnership Trust Estates Strategy 2015-2020[57], carbon emissions in 2013/14 from buildings were 6,500tCO_2e, and from business travel were 600 tCO_2e. Although reductions to emissions are targeted, the increase in emissions due to the changes to services under all proposals is expected to be less than 10% of Kent and Medway's

[53] https://www.gov.uk/government/statistical-data-sets/average-speed-and-delay-on-local-a-roads-cgn05

[54] https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017

[55] NHS Sustainable Development Unit (2012), Carbon Footprint update for NHS in England 2012, http://www.sduhealth.org.uk/policy-strategy/reporting/nhs-carbon-footprint.aspx - (2012 is that most recent year where the travel data is broken down into travel types)

[56] NHS Sustainable Development Unit (2016), Carbon Footprint update for NHS in England 2015, http://www.sduhealth.org.uk/policy-strategy/reporting/nhs-carbon-footprint.aspx

[57] Kent and Medway Partnership Trust (2015) ESTATES STRATEGY 2015-20

building energy and business travel emissions, and a very small proportion of the overall NHS carbon footprint, therefore the increase in emissions are considered to be small.

7 Conclusions

This chapter brings together the impacts from across the service areas and impact assessment topics and outlines potential ways to enhance opportunities and to mitigate or reduce negative impacts.

7.1 Summary of impacts

The table below provides a high level summary of the positive and negative impacts experienced across all the impact assessment areas.

Table 29: Impact summary table

Impact assessment area	Summary of positive impacts	Summary of negative impacts
Health	• The proposed changes will improve patient outcomes and remove the variation currently experienced. • The consolidation of workforce resources will enable the three comprehensive stroke units to sustainably achieve recommended workforce standards. • Rehabilitation services for stroke patients will be improved, supporting patients to regain their independence and overall quality of life. • Proposed changes will create a more sustainable workforce for providing stroke care across Kent and Medway.	• For patients experiencing a stroke whilst already in hospital at one of the four sites no longer providing stroke services, a transfer will be required to a HASU. This could potentially have a negative impact on patient outcomes although appropriate protocols will be in place to mitigate against this. • With activity for stroke services being consolidated into fewer hospitals, there is a risk that capacity could become constrained within these units. • If links between clinical inter-dependent services across the wider STP programme are not appropriately maintained, this has the potential to negatively impact on the safety of care. • The reconfiguration of stroke services is considered to bring challenges for some staff, which could result in increased staff turnover and the loss of current expertise. • Patient choice will reduce for these specialist stroke services.
Travel and access	N/A	• The proposed changes will mean that some patients will have to travel further to access a stroke service. • The proposed changes will result in longer ambulance journeys for some patients required to be conveyed to a HASU, as well as increased transfers, which will negatively impact the capacity of the ambulance service. • Across all shortlisted options there is a reduction in accessibility within 30 minutes by BLA • Proposal E has the highest proportion of patients experiencing an increase in travel time by BLA.

Equality	• Improved clinical outcomes for the equality groups who have disproportionate need for stroke services: – Age: older people – Disabled people – Pregnancy and maternity – Race and ethnicity – Sex: male – People from deprived communities	• Disproportionately longer journey times for equality groups for some of the proposals (deprived communities, those from a BAME background and those with an LLTI) • Increased stress and anxiety from unfamiliar journeys • Increased costs associated with travel • Lack of acceptable alternative transport methods
Sustainability	N/A	• Proposal A – small negative impact (239 tCO_2e) • Proposal B – small negative impact (467 tCO_2e) • Proposal C – small negative impact (248 tCO_2e) • Proposal D – small negative impact (235 tCO_2e) • Proposal E – small negative impact (529 tCO_2e)

Source: Mott MacDonald

Table 30: Summary table of identified impacts specific to proposals

Proposal	Health	Travel and access	Equality	Sustainability
A	• A could create the greatest negative impact on staff turnover	-	• No equality groups will be negatively disproportionately impacted by longer journey times	• A small negative impact (239 tCO_2e)
B	• B is the is the most favourable proposal in terms of vacancies	•	• Those from the most deprived quintile and those with an LLTI will experience longer travel times and have less access than the population overall.	• A small negative impact (467 tCO_2e)
C	• Positive outcomes associated with increased consultant presence are potentially less likely to be realised under this proposal. • C could result in the greatest issue in terms of staff vacancies.	-	• Those from the most deprived quintile will experience longer travel times and have less access than the population overall.	• A small negative impact (248 tCO_2e)

D	• Positive outcomes associated with increased consultant presence are potentially less likely to be realised under this proposal. • D provides to the greatest extent the desired co-dependencies.	• D has the least negative impact upon accessibility as 84 per cent of patients can still access stroke services by BLA within 30 minutes.	• Those from the most deprived quintile and those from a BAME background will experience longer travel times. • Those from the most deprived quintile and those who have an LLTI will have less access than the population overall.	• A small negative impact (235 tCO_2e)
E	•	• E has the highest proportion of patients experiencing an increase in travel time by BLA.	• Those from the most deprived quintile and those who have an LLTI will experience longer travel times and will have less access than the population overall.	• A small negative impact (529 tCO_2e)

7.2 Enhancements and mitigations

Arising from this assessment, is a set of actions which focus on potential ways to enhance opportunities and to mitigate or reduce the effect of the potential negative impacts. It is suggested that these are considered by the STP as part of the implementation of proposals.

7.2.1 Health impacts

This section discusses potential ways in which to enhance opportunities and to mitigate or reduce the effect of the potential negative impacts identified in the health impact assessment for consideration by decision makers as part of the implementation of proposals.

Table 31: Mitigating actions

Impact Area	Impact	Enhancement / mitigating action
Health outcomes	Health outcomes	• Further detail on the care model for rehabilitation is required, responding to the lack of clarity that some stakeholders perceive around this. This is an essential part of the stroke pathway of care. • As well as treatment, focus must also be placed on prevention and health promotion activities to counter potential risk factors for stroke. • The stroke clinical group should review estimated ambulance travel times for the shortlisted and preferred options to ensure that they achieve relevant standards. • As part of evaluating the impact of these changes, activity and outcome information should be closely monitored to ensure standards and outcomes of care are maintained. • Appropriate protocols should be established for patients already in hospital but requiring urgent transfer to a HASU.
Service impacts	Capacity	• Continue to update STP activity modelling to ensure that sufficient capacity can be provided at selected Kent and Medway hospitals, for the increased volume of stroke related activity, as well as demand for inter-dependent and clinical support services. • The assessment of capacity and resources must have sensitivities applied including: – The capacity of HASU/ASU services at neighbouring hospitals (should this be closer to patients than their nearest HASU in Kent and Medway) – The impact on capacity if other patients choose to self-present at hospitals with a HASU and require other acute services.
	Clinical inter-dependencies	• As the wider STP programme develops, continues to review the co-dependencies matrix to ensure that essential links are maintained.
Workforce impacts	Workforce	• A programme of engagement with clinical, nursing and wider staff should be undertaken, with clear messages to ensure that staff recognise that they are valued and are proactively encouraged to stay within the Kent and Medway stroke network, despite potential changes to their local service. This engagement should be commenced with all existing services in advance of the announcements of the short list or preferred option. • A workforce plan for the stroke network should be established which focuses on both the short term and longer term resource and succession planning of services. This should consider potential recruitment strategies as well as the impact of trends in specialisation to ensure that the new model of care can be delivered. • Incentives to encourage staff to relocate should be considered. For example, one stakeholder suggested offering training opportunities to nurses who are band 6 or below. • Where staff are not able to transition to these new arrangements, alternative approaches should be sought to ensure that they are retained within Kent and Medway.

Implementation	Communication	• Communications with the public should continue to highlight the drivers for change; high quality care and improved outcomes. • This should include clear messages to the public on the new care models and where to go for services to minimise potential negative transitional impacts. • Review the current methods of communicating and engaging with local community groups, local organisations, and groups representing members of the community from protected characteristics to ensure the entire community is aware of the proposed changes.
	Governance	• Ensure that the clinical regiment currently established continues as the stroke programme progresses. This includes due process, an independent chair of the clinical reference group and clinical engagement.
	Enablers	• The South-East Coast Clinical Senate identified that in order for potential benefits to be realised, timescales for implementation need to be realistic, and the feasibility of the models is dependent on effective enabling functions (digital, workforce and estates). Stakeholders have also highlighted these enablers.

7.2.2 Travel and access

Once a preferred option has been decided, the ambulance service should be involved in assessing the impact of change on their capacity and ascertain the additional resources that may be needed to minimise any impact on the wider ambulance service.

The current travel plans for hospitals selected in the preferred options should be reviewed in line with any increase in the volume of patients and visitors. Further collaboration with the local authorities will help greater integration of transport strategies and thus help to mitigate any travel impacts.

Finally it is suggested that additional engagement takes place with organisations offering voluntary transport to hospitals to understand the impacts of increased travel times on funding and capacity of the service.

7.2.3 Equality impacts

This section discusses 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 for consideration by decision makers as part of the implementation of proposals.

Table 32: Mitigating Actions

Impact area	Impact	Enhancement / mitigating action
Travel and access	Disproportionately longer journey times for equality groups for some of the proposals (deprived communities, those from a BAME background and those with an LLTI)	• **Maximise public transport accessibility of specialist centres** through engagement with local transport providers. • **Ensure the effective communication** of the future model of care to the local population, so they understand how to access and use services and the potential increased journey times
	Increased stress and anxiety from unfamiliar journeys	
	Increased costs associated with travel	
Service delivery		• Frontline services staff should feel confident in being able to communicate with all patients, including those who are Deaf or do not speak English. Members of staff should be able to call upon staff with BSL/English interpreters using remote access such as Skype, FaceTime or Video Relay Service (VRS) where available.

7.2.4 Sustainability

No additional measures to enhance or mitigate sustainability impacts have been identified.

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B. Equality chapter of scoping report

B.1 Overview

This section of the report considers each of the nine 'protected characteristic' groups as defined by the Equality Act 2010, as well as considering deprived communities.[58] These groups are:

- Age – specifically children (those under 16) and older people (those aged 65 and over)
- Disability
- Gender reassignment
- Marriage and civil partnership
- Pregnancy and maternity
- Race and ethnicity
- Religion and belief
- Sex
- Sexual orientation
- Deprived communities

For each group, a summary table is presented identifying whether, and for which services, they have a disproportionate or differential need.

Definition of terms

Disproportionate need refers to a need for the service / treatment over and above the general population.

Differential need refers to a group that has different types of need for the service during delivery.

Where possible, density maps and population data tables have also been provided. The population for Kent and Medway and east Kent[59] have been stated, along with national figures to act as a comparator.

Table 31 below outlines the protected characteristics and their disproportionate need for Stroke services.

[58] Although not included as a protected characteristic, it is accepted best practice to review deprivation.

[59] Outlined in the tables as: 'Total Study Area' which represents the whole of Kent and Medway, and East Kent.

Table 33: Evidence of disproportionate need for Stroke services.

Protected characteristic	Evidence of disproportionate need for Stroke
Age: children (0-16 years)	
Age: older people	✓
Disability	✓
Gender re-assignment	
Marriage and civil partnership	
Pregnancy and maternity	✓
Race and ethnicity	✓
Sex: male	✓
Sex: female	
Sexual orientation	
Deprivation	✓

Source: Mott MacDonald 2017

B.2 Age: Older people (65 and over)

B.2.1 Stroke services

There is a high demand for stroke services within the 65 and over age group. Three quarters of strokes (75%) in the UK occur in people aged 65 or older.[60] At the time of the census in 2011, this age group represented 16% of the UK population.[61] Evidence shows that more than half of all people over the age of 75 have high blood pressure, which is a contributory factor in 54% of strokes.[62] Figures in Kent and Medway highlight that the numbers of hospital admissions for strokes by CCG and Kent region shows that the 75-79 age group (between 2011/12 and 2013/14) had the most strokes.[63] The next highest categories were the 80-84 and 70-74 age groups.

The regularity with which strokes occur in this age bracket indicates that older people are likely to experience a disproportionate impact of any changes to this service.

B.2.1.1 Demographic profile strokes services in Kent and Medway: older people

Changes to stroke services are under consideration across the whole of Kent and Medway. The table below shows that within Kent and Medway, the proportion of those aged 65 and over (19%) is broadly in line with the national average (18%). There is one CCG – Medway – where the proportion of people over 65 is more than two percentage points lower (3%) then the national average. South Kent Coastal (23%) and Thanet (23%) CCGs all have proportions above the national average.

[60] Stroke Association (2015): 'Stroke Statistics'.
[61] Office for National Statistics (2011) '2011 Census: Population Estimates for the United Kingdom, March 2011'
[62] Stroke Association (2015): 'Stroke Statistics'.
[63] Kent and Medway Public Health Observatory (2015): 'Kent and Medway: Stroke Profile'.

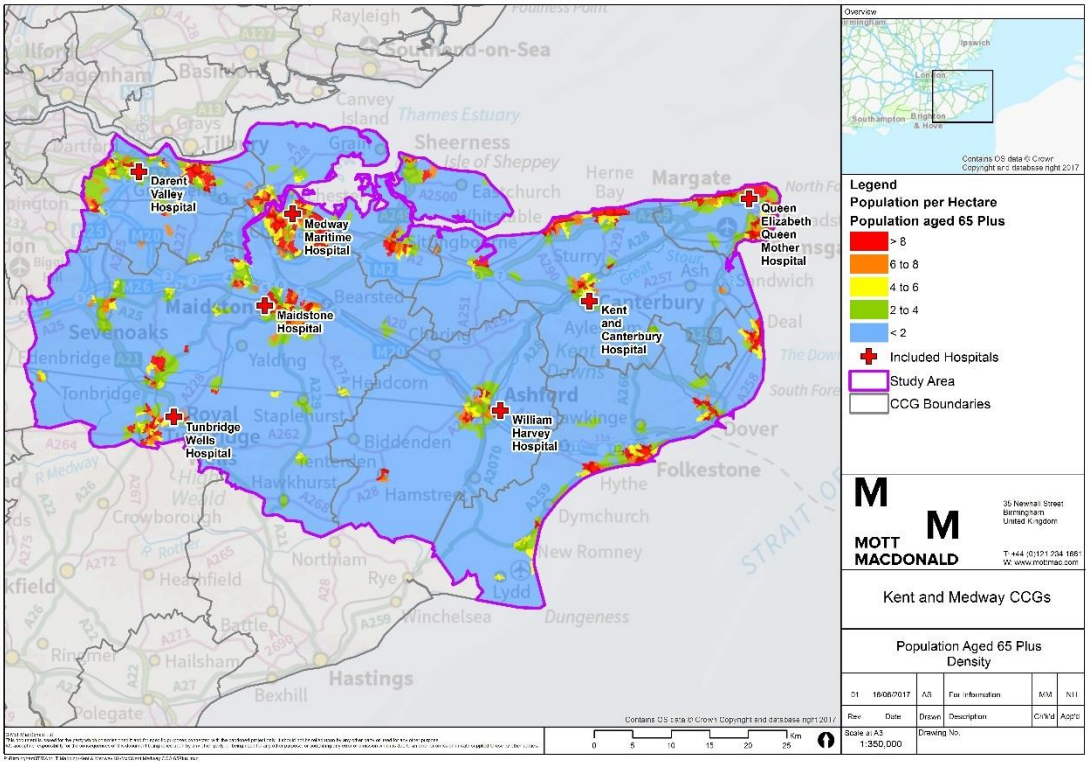
Table 34: **Age - older people (65 and over)**

Study area	Total population	Aged 65 and over	Aged 65 and over (%)
Ashford CCG	124,250	23,585	19%
Canterbury and Coastal CCG	207,653	43,176	21%
Dartford, Gravesham and Swanley CCG	258,208	44,152	17%
Medway CCG	276,492	42,511	15%
South Kent Coastal CCG	205,463	46,928	23%
Swale CCG	112,528	20,378	18%
Thanet CCG	139,772	31,919	23%
West Kent CCG	476,845	90,136	19%
Kent and Medway	1,801,211	342,785	19%
England	54,786,327	9,711,572	18%

Source: LSOA population estimates 2015, ONS

Figure 5 below shows that the highest densities of those aged 65 and over are located in the urban centres of Maidstone, Chatham, Gillingham and Margate. There are other areas of moderate to high density, particularly on the coast, but the majority of this rural study area has relatively low densities of people aged 65 and over.

Figure 5: **Population aged 65 and over**



Source: LSOA population estimates 2015, ONS

B.3 Disabled people

B.3.1 Stroke services

The need for stroke services among disabled people is likely to be higher as rates of atrial fibrillation (AF) - which causes irregular heartbeat and increases the risk of stroke fivefold - are much higher amongst this group.[64] The strokes suffered by people with AF are also more severe and are more likely to prove fatal.[65]

Data for people with learning disabilities shows that strokes are around ten times more common in people with learning disabilities up to the age of 34, compared to those without a learning disability.[66] People with learning disabilities are also more likely to have factors associated with an increased risk of stroke, for example 81% of people with learning disabilities have high blood pressure, which is substantially more than the 64% of people without learning disabilities.[67] Obesity is also twice as common in people aged 18 to 35 with learning disabilities. High blood pressure and obesity are two leading causes of stroke.[68]

B.3.1.1 Demographic profile strokes services in Kent and Medway: disabled people

Changes to stroke services are under consideration within the whole of Kent and Medway. The table below shows that the proportion of people who live in Kent and Medway who live with a limiting long-term illness (LLTI) (17%) is broadly in line with the national average (18%). South Kent Coastal and Thanet CCGs both have higher proportions (21% and 23% respectively) of people with a LLTI than the national figure.

Table 29: Disability

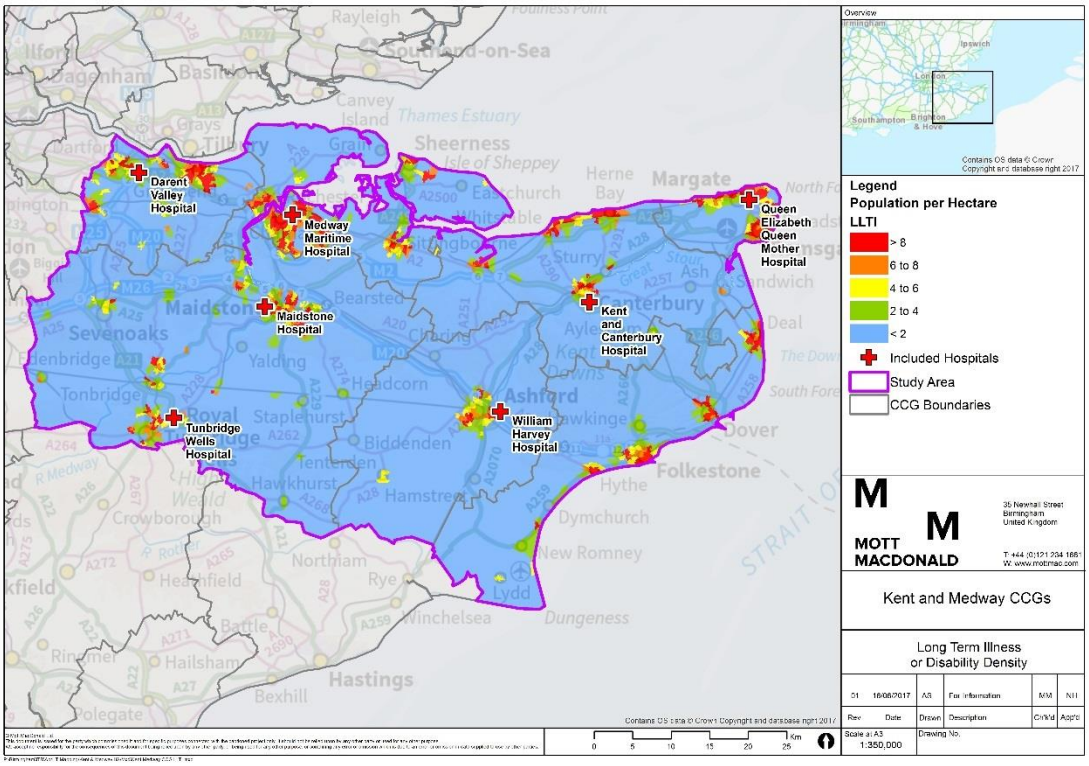
Study area	Total population 2011	LLTI	LLTI (%)
Ashford CCG	117,956	19,085	16%
Canterbury and Coastal CCG	198,275	36,138	18%
Dartford, Gravesham and Swanley CCG	245,999	40,043	16%
Medway CCG	263,925	43,354	16%
South Kent Coastal	201,924	42,440	21%
Swale	106,424	20,037	19%
Thanet CCG	134,186	31,348	23%
West Kent CCG	458,976	67,947	15%
Kent and Medway	1,727,665	300,392	17%
England	53,107,169	9,352,586	18%

Source: LSOA population estimates 2015, ONS

Figure 6 below shows that those living with an LLTI in Kent and Medway are predominantly located in urban centres, particularly around Gillingham, Margate and Gravesend. All of the hospitals are located within areas of moderate to high densities of people living with an LLTI.

[64] Stroke Association (2012): 'Stroke statistics'.
[65] Atrial Fibrillation (date unknown): 'Preventing a stroke crisis: why does AF matter?'.
[66] NHS (2016): 'Health and care of people with learning disabilities'.
[67] NHS (2016): 'Health and care of people with learning disabilities'.
[68] NHS choices (2015): 'Stroke'.

Figure 6: **Population living with an LLTI**



Source: LSOA population estimates 2015, ONS

B.4 Pregnancy and maternity

B.4.1 Stroke services

Pregnancy causes the levels of female hormones to rise, which causes changes in the blood vessels and the make-up of the blood. Pregnancy can also cause increased blood pressure.[69] These changes increase the risk of stroke; pregnant women are 13 times more likely to have a stroke than non-pregnant women of the same age.[70] In addition, there are several causes of stroke that are unique to pregnancy and the postpartum period, such as preeclampsia and eclampsia, amniotic fluid embolus, postpartum angiopathy and postpartum cardiomyopathy.[71]

B.4.1.1 Demographic profile strokes services in Kent and Medway: pregnancy and maternity

Changes to stroke services are under consideration within the whole of Kent and Medway. To analyse levels of pregnancy and maternity in the study areas we have used data on the number of women aged 16-44 within the population. The table below shows that within Kent and Medway, the number of women aged 16 to 44 (18%) is broadly in line with the national average

[69] Stroke Association (2012): 'Women and stroke'.
[70] Stroke Association (2012): 'Women and stroke'.
[71] Tate, J. and Bushnell, C. (2011): 'Pregnancy and stroke risk in women'.

(19%). South Kent Coastal (16 has a proportion of women aged 16 to 44 that is two or more percentage points lower than the national average of 19%.

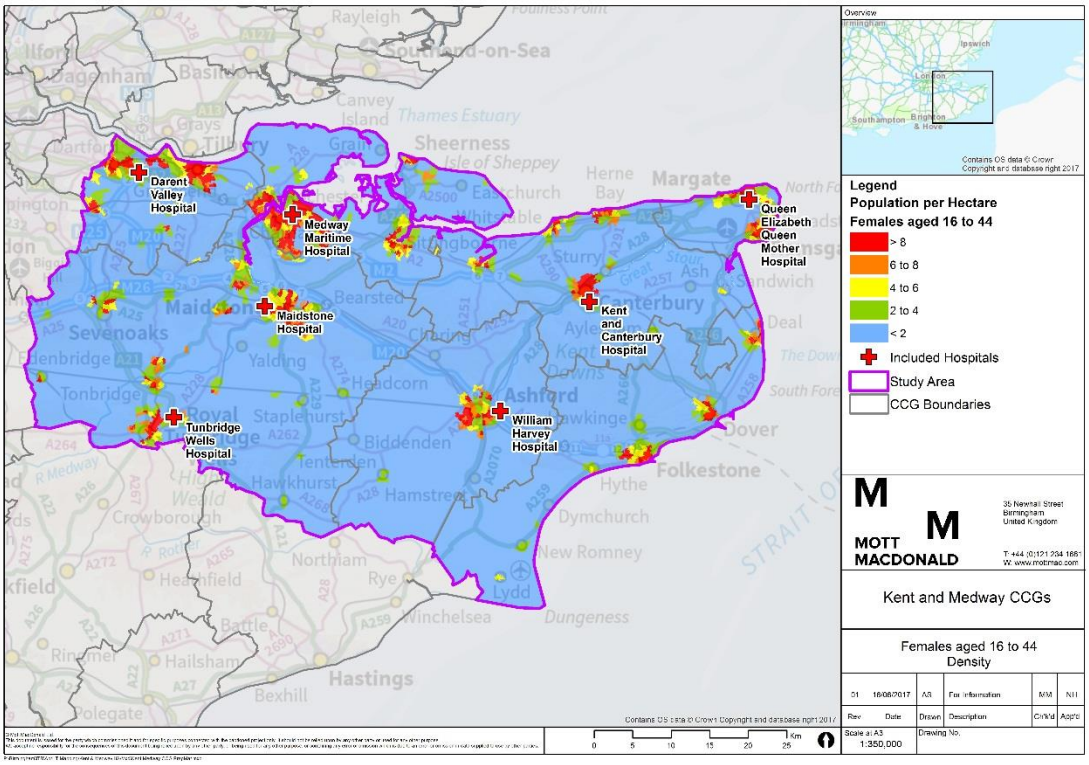
Table 35**: Females aged 16-44**

Study area	Total population	Females aged 16-44	Females aged 16-44 (%)
Ashford CCG	124,250	21,829	18%
Canterbury and Coastal CCG	207,653	39,700	19%
Dartford, Gravesham and Swanley CCG	258,208	48,605	19%
Medway CCG	276,492	53,756	19%
South Kent Coastal CCG	205,463	32,647	16%
Swale CCG	112,528	19,993	18%
Thanet CCG	139,772	23,187	17%
West Kent CCG	476,845	82,381	17%
Kent and Medway	1,801,211	322,098	18%
England	54,786,327	10,336,501	19%

Source: LSOA population estimates 2015, ONS

Figure 7 shows that the highest densities of females aged 16 to 44 are in the urban centres of Gillingham, Chatham, Canterbury, Ashford and Gravesend. The study area overall has relatively low densities of women aged 16 to 44.

Figure 7**: Population of females aged 16-44**



Source: LSOA population estimates 2015, ONS

B.5 Race and ethnicity

Evidence of disproportionate need has been identified for stroke services.

B.5.1 Stroke services

Black people are twice as likely to have a stroke than white people,[72] because this group has a higher prevalence of factors that increase their risk of stroke, including high blood pressure, cholesterol and diabetes.[73] Furthermore, some lifestyle factors are more common amongst some African and Caribbean people, than the rest of the UK population, such as carrying weight around their waist and smoking.[74]

People form a South Asian background are more likely to have a stroke at a younger age than White people. They also have an increased prevalence of factors that increase their risk of stroke, including high blood pressure, cholesterol and diabetes. [75]

B.5.1.1 Demographic profile strokes services in Kent and Medway: BAME

Changes to stroke services are under consideration within the whole of Kent and Medway. The table below shows the proportion of those from BAME backgrounds in Kent and Medway (11%) is significantly below the national average (20%) apart from in Dartford, Gravesham and Swanley CCG (18%).

Table 36**: BAME**

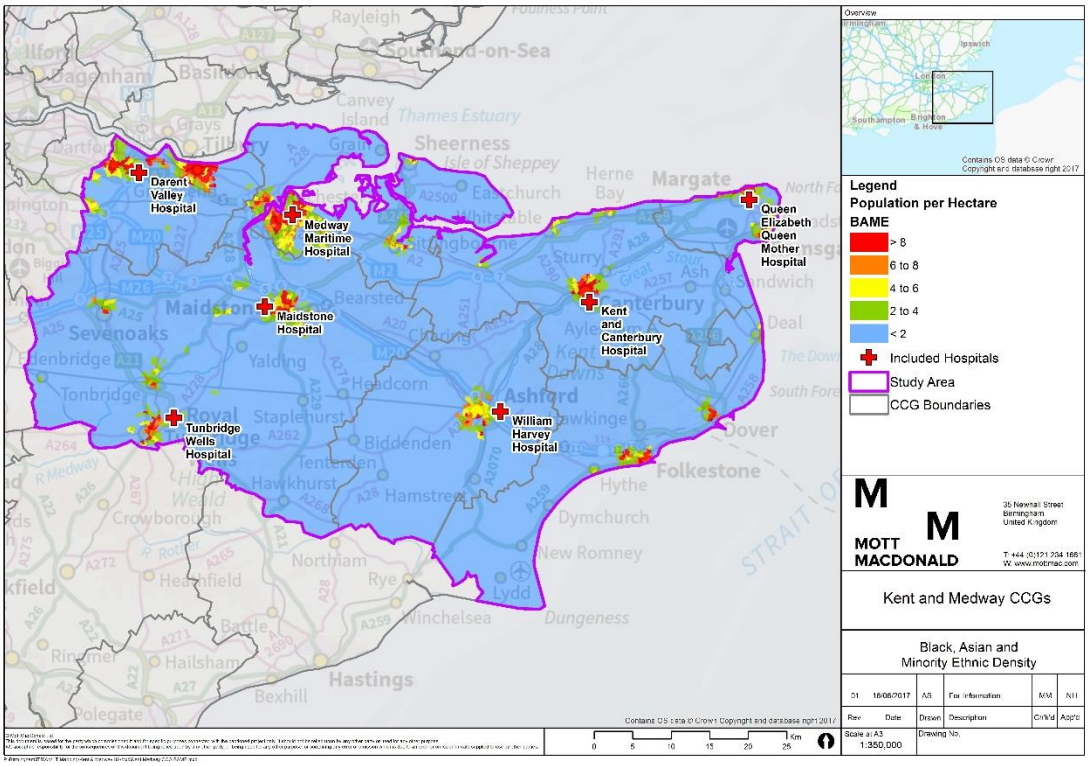
Study area	2011 total population	BAME	BAME (%)
Ashford CCG	117,956	12,458	11%
Canterbury and Coastal CCG	198,275	21,680	11%
Dartford, Gravesham and Swanley CCG	245,999	43,845	18%
Medway CCG	263,925	38,271	15%
South Kent Coastal CCG	201,924	16,774	8%
Swale CCG	106,424	7,893	7%
Thanet CCG	134,186	12,840	10%
West Kent CCG	458,976	44,692	10%
Kent and Medway	1,727,665	198,453	11%
England	53,107,169	10,733,220	20%

Source: LSOA population estimates 2015, ONS

Figure 8 below shows that the highest densities of those from a BAME background live within the urban centres of the study area, including Canterbury, Gravesend, Gillingham and Chatham. There are also other hotspots within the area with moderate densities of people from BAME groups, including in Ashford and Maidstone.

[72] Stroke Association (2016): 'State of the Nation Stroke statistics'.
[73] Stroke Association (2016): 'State of the Nation Stroke statistics'.
[74] Stroke Association (2016): 'Reducing your risk of stroke: information for black African and black Caribbean people'.
[75] Stroke association, (2016). 'State of the Nation Stroke statistics'

Figure 8: **Population of people from BAME backgrounds**



Source: LSOA population estimates 2015, ONS

B.6 Sex

Evidence of disproportionate need has been identified for stroke services,

B.6.1 Stroke services

Men face a 25% higher risk of having a stroke and at a younger age compared to women.[76] Men are also 1.5 times more likely to have AF; which increases the risk of having a stroke fivefold.[77]

B.6.1.1 Demographic profile vascular and strokes services in Kent and Medway: sex

Changes to vascular and stroke services are under consideration within the whole of Kent and Medway. Table 35 below shows that the number of men and women living within Kent and Medway is the same as the national average (49% and 51% respectively).

[76] Royal College of Physicians Sentinel Stroke National Audit Programme (SSNAP) (2014): How good is stroke services? First SSNAP Annual Report prepared on behalf of the Intercollegiate Stroke Working Party December 2014.

[77] Stroke Association (2015): 'Stroke Statistics'.

Table 37: Sex

Study Area	Total population	Males	Males (%)	Females	Females (%)
Ashford CCG	124,250	60,403	49%	63,847	51%
Canterbury and Coastal CCG	207,653	101,422	49%	106,231	51%
Dartford, Gravesham and Swanley CCG	258,208	126,926	49%	131,282	51%
Medway CCG	276,492	137,320	50%	139,172	50%
South Kent Coastal CCG	205,463	101,181	49%	104,282	51%
Swale CCG	112,528	55,750	50%	56,778	50%
Thanet CCG	139,772	67,517	48%	72,255	52%
West Kent CCG	476,845	234,247	49%	242,598	51%
Kent and Medway	1,801,211	884,766	49%	916,445	51%
England	54,786,327	27,029,286	49%	27,757,041	51%

Source: LSOA population estimates 2015, ONS

B.7 Deprivation

Evidence of disproportionate need has been identified for stroke services.

B.7.1 Stroke services

People from the most economically deprived areas of the UK are around twice as likely to have a stroke and are three times more likely to die from a stroke than those from the least deprived areas.[78] This is due to the strong association between deprivation and stroke risk factors such as higher levels of obesity, physical inactivity, an unhealthy diet, smoking and poor blood pressure control.[79]

The Indices of Deprivation (IMD) 2015, show that Thanet continued to rank as the most deprived local authority in Kent and Dover (located in the South Kent Coastal CCG) ranked as the fourth most deprived.[80] Local information also shows that the Thanet and South Kent Coastal CCGs have the highest prevalence of strokes and transient ischaemic attack (TIAs), as well as a high prevalence of hypertension and diabetes.[81]

This suggests that there is a link between deprivation, prevalence of factors associated with an increased risk of stroke, and actually numbers of people having a stroke.

B.7.1.1 Demographic profile strokes services in Kent and Medway: Deprivation

The table below shows that the proportion of people residing in the most deprived quintile in Kent and Medway (14%) is below the national average (20%). There are two CCGs where levels of deprivation are higher than the national figure: Thanet (37%) and Swale (23%). Four CCGs have lower levels of people in the most deprived quintile – Ashford (11%), Canterbury and Coastal (10%), and West Kent (4%).

[78] Stroke association (2016): 'State of the Nation Stroke statistics'.
[79] Public Health England (2014): 'Adult obesity and type 2 diabetes'.
[80] Business Intelligence Statistical Bulletin (2015): 'The English Index of Multiple Deprivation (2015): headline findings for Kent'.
[81] Kent and Medway Public Health Observatory (2015): 'Kent and Medway: stroke profile'.

The least deprived quintile in Kent and Medway is in line with the national average (20%). Only West Kent CCG has a higher proportion of people (38%) living in the least deprived quintile than the national average. Three CCGs (South Kent Coastal (5%), Swale (7%), and Thanet (2%) have significantly lower proportion of people living the least deprived quintile compared to the national average.

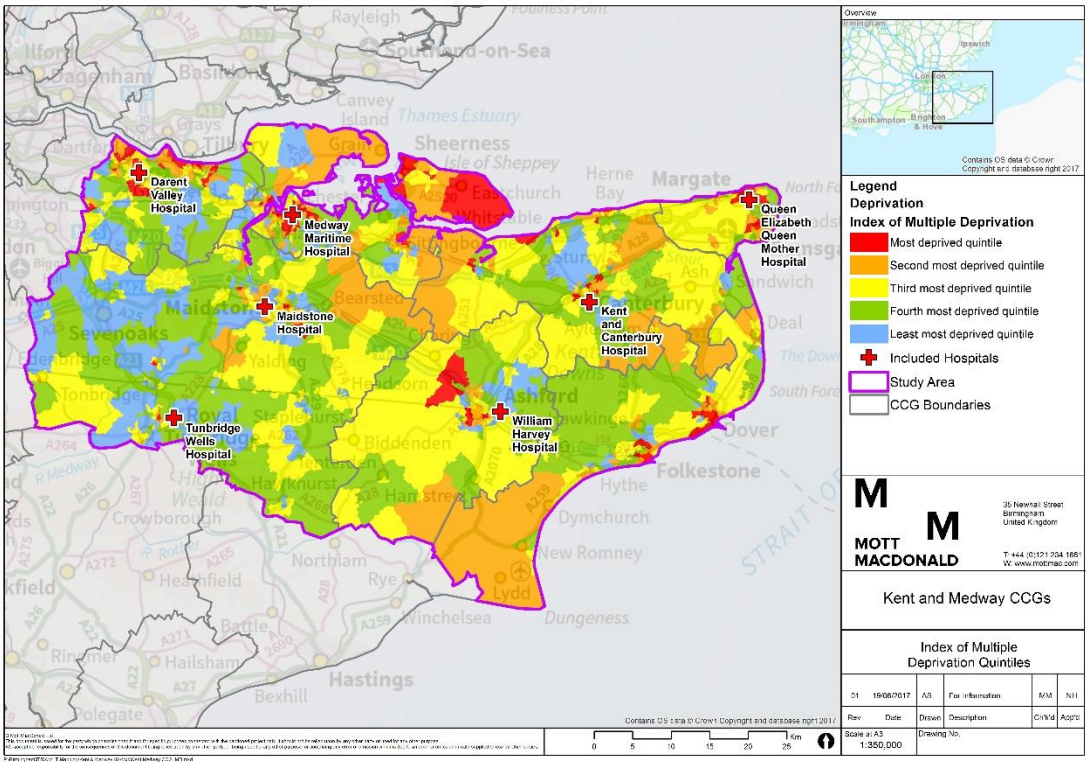
Table 38**: Deprivation quintiles**

CCG	Most deprived quintile	Second most deprived quintile	Third most deprived quintile	Fourth most deprived quintile	Least deprived quintile
Ashford CCG	14,076 (11%)	17,304 (14%)	44,199 (36%)	31,372 (25%)	17,299 (14%)
Canterbury & Coastal CCG	20,863 (10%)	37,389 (18%)	56,314 (27%)	58,473 (28%)	34,614 (17%)
Dartford, Gravesham and Swanley CCG	32,808 (13%)	61,628 (24%)	54,783 (21%)	56,715 (22%)	52,274 (20%)
Medway CCG	55,991 (20%)	81,990 (30%)	45,394 (16%)	46,312 (17%)	46,805 (17%)
South Kent Coastal CCG	36,841 (18%)	51,808 (25%)	57,586 (28%)	48,091 (23%)	11,137 (5%)
Swale CCG	26,274 (23%)	33,192 (29%)	27,440 (24%)	17,738 (16%)	7,884 (7%)
Thanet CCG	51,116 (37%)	31,789 (23%)	28,083 (20%)	25,704 (18%)	3,080 (2%)
West Kent CCG	17,756 (4%)	42,962 (9%)	97,210 (20%)	139,034 (29%)	179,883 (38%)
Kent and Medway	255,725 (14%)	358,062 (20%)	411,009 (23%)	423,439 (24%)	352,976 (20%)
England	11,087,624 (20%)	11,154,703 (20%)	11,021,188 (20%)	10,814,029 (20%)	10,708,783 (20%)

Source: IMD 2015

Figure 9 below shows the distribution of the deprivation quintiles across the study area. The most deprived areas are around the Isle of Sheppey, Chatham, Gravesend and an area to the northwest of Ashford. Whereas the least deprived areas are around Sevenoaks, areas surrounding Tonbridge and an area north of Canterbury.

Figure 9: **Indices of Multiple Deprivation (IMD) – overall deprivation quantiles for Kent and Medway study area (8 CCGs)**



APPENDIX 3 Summary

Currently four trusts provide stroke services across seven sites: 1) Darent Valley Hospital; 2) Kent and Canterbury Hospital; 3) Maidstone Hospital; 4) Medway Maritime Hospital; 5) Queen Elizabeth Queen Mother Hospital; 6) Tunbridge Wells Hospital; 7) William Harvey Hospital.

The proposed change is to deliver stroke care for Kent and Medway in three Hyperacute Stroke Units (HASU). Table 1 outlines the short listed proposals.

Table 1. Shortlisted proposals.

Proposal	A HASU at:
A	Darent Valley Hospital Medway Maritime Hospital William Harvey Hospital
B	Darent Valley Hospital Maidstone Hospital William Harvey Hospital
C	Maidstone Hospital Medway Maritime Hospital William Harvey Hospital
D	Tunbridge Wells Hospital Medway Maritime Hospital William Harvey Hospital
E	Darent Valley Hospital Tunbridge Wells Hospital William Harvey Hospital

The Mott MacDonald report states that Proposal D has the least negative impact upon accessibility as 84 per cent of patients can still access stroke services within 30 minutes and proposal B has the most negative impact with only 79 per cent of patients able to access stroke services within 30 minutes; see page 26 of the Mott MacDonald report. It is important to note that the Mott MacDonald report does not include analysis for proposal E as this was introduced at a later stage.

The analysis completed by the Medway Public Health Intelligence Team also found that proposal D has the least negative impact upon accessibility as 87 per cent of residents can still access stroke services within 30 minutes. However, this analysis found that proposal A has the most negative impact, with only 80 per cent of residents able to access stroke services within 30 minutes.

Mott MacDonald Report Methodology

The Mott MacDonald report presents travel and access impacts for blue light ambulance (BLA) as the journeys by patients for the services assessed would typically be made by this mode of transport.

Travel time data has been provided by Carnall Farrar and 'off peak car' has been used to represent travel times by BLA. The baseline travel time has been calculated based upon the patient data and calculates the travel time from the patients' residential LSOA to the hospital based upon the service site they are currently using. The future travel time for these patients under each proposal has then been calculated; see page 25 of the Mott MacDonald report for further details.

The Mott MacDonald report used activity data for 2015/16 for patients who accessed services within Kent and Medway and who are also resident in the study area.

Medway Public Health Intelligence Team Analysis

Based on current stroke service locations, 100 per cent of Kent and Medway residents have access to stroke services by BLA within 30 minutes and 60 minutes. Across all of the shortlisted proposals there is a reduction in accessibility within 30 minutes by BLA for Kent and Medway residents. This ranges from a reduction to 80 per cent in proposal A to 87 per cent in proposal D. Accessibility within 60 minutes by BLA is in line with the baseline as 100 per cent of all Kent and Medway residents can access stroke services under each shortlisted proposal. This is shown in Table 2 below.

Table 2. Estimated percentage of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in all shortlisted proposals.

	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Current (baseline)	40%	88%	100%	100%	100%
Proposal A	20%	48%	80%	98%	100%
Proposal B	16%	51%	85%	98%	100%
Proposal C	20%	46%	85%	98%	100%
Proposal D	19%	44%	87%	98%	100%
Proposal E	15%	42%	84%	98%	100%

Table 3. Percentage point change from baseline for BLA journey times for Kent and Medway residents for all shortlisted proposals.

	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Proposal A	-20pp	-40pp	-20pp	-2pp	No change
Proposal B	-24pp	-37pp	-15pp	-2pp	No change
Proposal C	-20pp	-42pp	-15pp	-2pp	No change
Proposal D	-21pp	-44pp	-13pp	-2pp	No change
Proposal E	-25pp	-45pp	-16pp	-2pp	No change

In summary Tables 2 and 3 show:

- Proposal A has the most negative impact upon accessibility as only 80 per cent of residents would be able to access stroke services by blue light ambulance within 30 minutes, which is a reduction of 20 percentage points.
- Proposal D has the least negative impact upon accessibility as 87 per cent of residents would be able to access stroke services by blue light ambulance within 30 minutes.
- Proposals B and C both provide 85 per cent of residents accessibility to stroke services by blue light ambulance within 30 minutes. However, proposal B has a more negative impact on accessibility as only 16 per cent of residents would be able to access stroke services within 10 minutes.
- It is also important to note that proposal E has the most negative impact upon shorter travel times to stroke services. Only 15 per cent of residents would have access to stroke services by blue light ambulance within 10 minutes and 42 per cent of residents within 20 minutes, which are the largest reductions at 25 percentage points and 45 percentage points respectively.

Medway Public Health Intelligence Team Methodology

Medway Public Health Intelligence Team used Public Health England's Strategic Health Asset Planning and Evaluation (SHAPE) tool to complete the travel and access analysis. SHAPE is a web-enabled, evidence-based application, which informs and supports the strategic planning of services. The application is built around a mapping tool and supports travel time analyses for existing and possible future sites.

SHAPE uses the Route360° catchment generation API created by Motion Intelligence to generate access catchments for walk, cycle, car and public transport, for one or many sites and then provides detailed population demographics for any specific catchment area.

The following parameters were selected for the stroke services reconfiguration travel and access analysis:

Mode of transport: Car off peak was used to represent travel times by blue light ambulance in line with the methodology used in the Mott MacDonald report.

- The SHAPE tool calculates travel times using the normal speed limits but takes into account junctions, crossings and traffic lights.
- The SHAPE tool has validated these travel times with similar data on Google Maps.

Included population: Estimated number of Kent and Medway residents that live within the specified travel time.

- For a specified travel time, the SHAPE tool determines a catchment area.
- Each Lower Super Output Area (LSOA) has a Population Weighted Centroid (PWC).
- If the PWC of an LSOA is inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the included population calculation.
- The SHAPE tool determines the LSOA population from ONS Small Area Population Estimates Mid-2015.

Excluded population: Estimated number of Kent and Medway residents that do not live within the specified travel time.

- If an LSOAs PWC is not inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the excluded population calculation.

*There is one LSOA North West of Faversham that is not included in any of the travel time analysis. This LSOAs PWC is not inside any of the specified travel time catchment areas, which is likely due to issues with the SHAPE tool's road definitions in that area and the travel time algorithm. The population of this LSOA is 1,695 residents.

Total population: Estimated total number of Kent and Medway residents.

- The sum of both the included and excluded populations.

Percentage within travel time: The estimated percentage of the total Kent and Medway residents that live within the specified travel time:

$$\frac{Included\ population}{Total\ population} * 100$$

Current

Table 4. Map index of the current stroke service locations.

Hospital	Map Index
Darent Valley Hospital	01 HAc
Kent and Canterbury Hospital	02 HAc
Maidstone Hospital	03 HAc
Medway Maritime Hospital	04 HAc
Queen Elizabeth Queen Mother Hospital	05 HAc
Tunbridge Wells Hospital	06 HAc
William Harvey Hospital	07 HAc

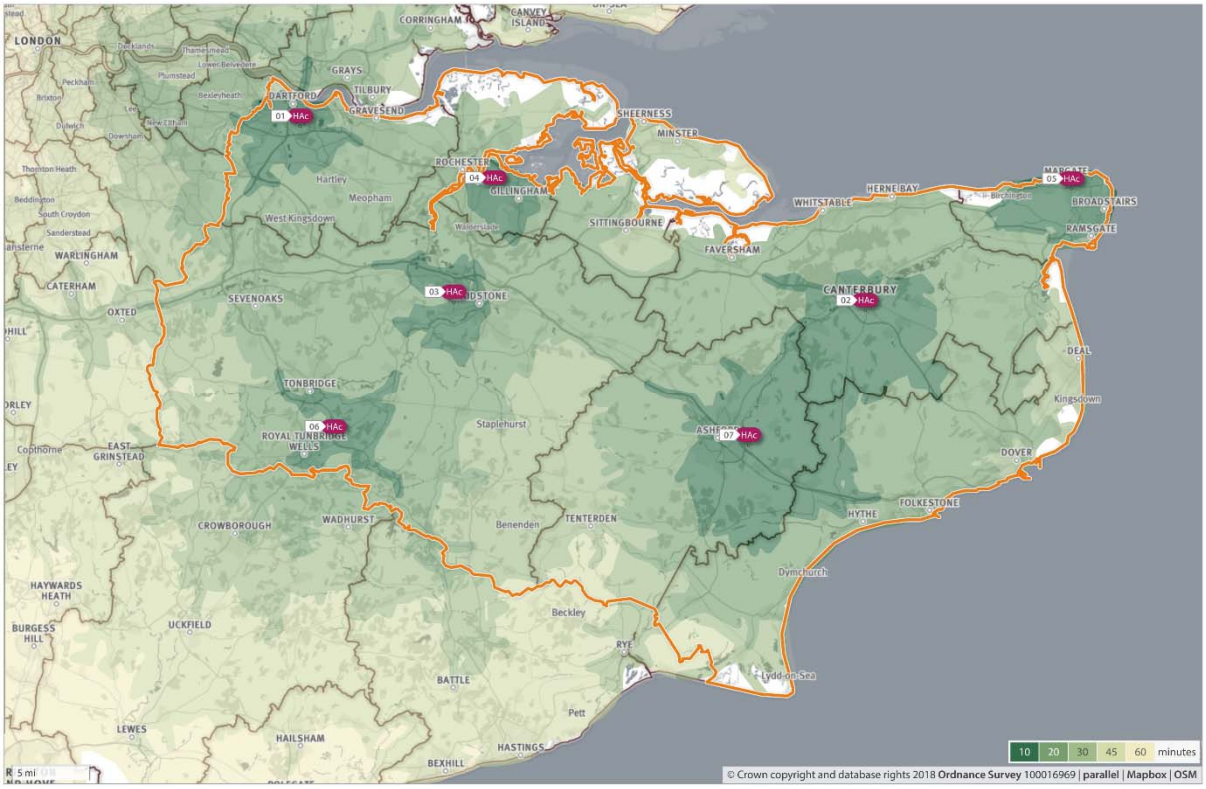


Figure 1. Kent and Medway residents that currently live within a 10 to 60 minute BLA journey of a stroke service. **Source:** PHE; SHAPE Place. **Date Accessed:** 22/01/2018.

Table 5. Estimated number of Kent and Medway residents that currently live within a 10 to 60 minute BLA journey of a stroke service.

Current locations	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	723,953	1,580,616	1,794,047	1,799,516	1,799,516
Excluded population	1,077,258	220,595	7,164	1,695	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	40%	88%	100%	100%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 24/01/2018.

Proposal A

Locations: 1) Darent Valley Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 6. Map index for the HASU locations in proposal A.

Hyperacute Stroke Units	Map Index
Darent Valley Hospital	01 HAc
Medway Maritime Hospital	02 HAc
William Harvey Hospital	03 HAc

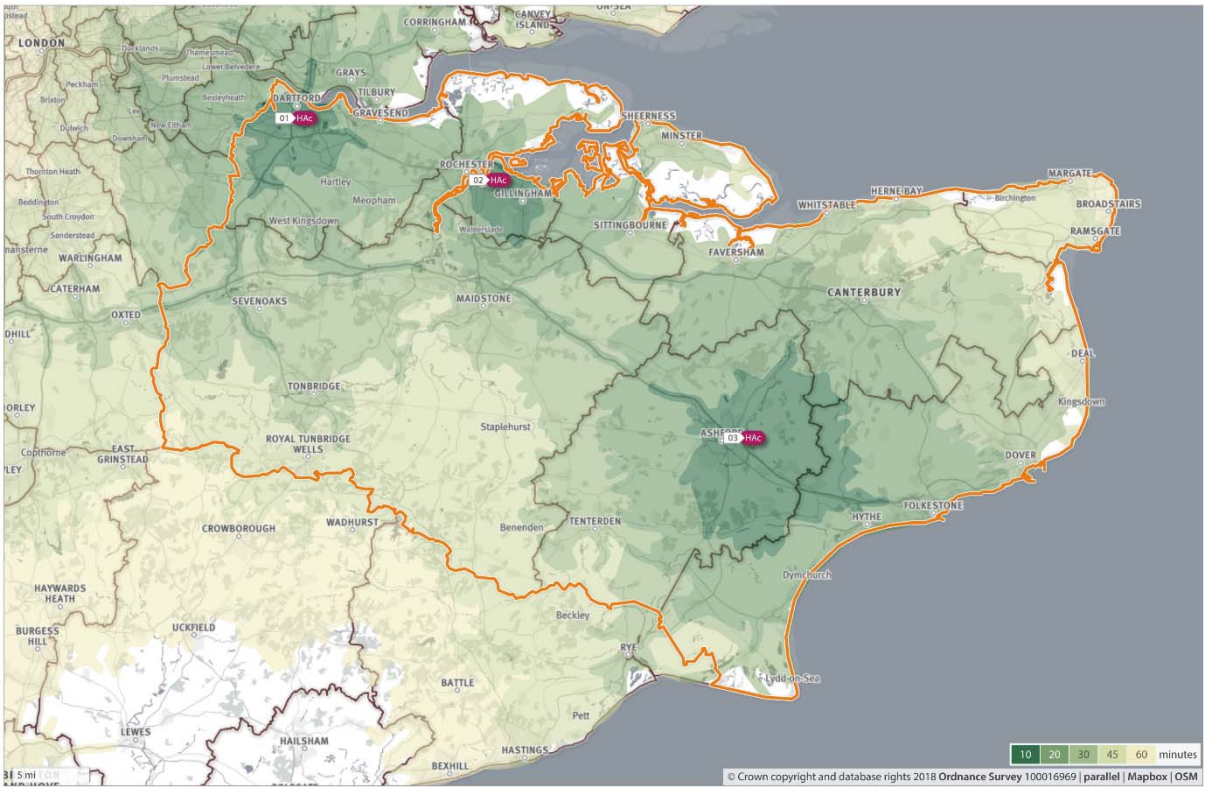


Figure 2. Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal A. **Source:** PHE; SHAPE Place. **Date Accessed:** 22/01/2018.

Table 7. Estimated number of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal A.

Proposal A	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	358,194	862,273	1,441,593	1,765,715	1,799,516
Excluded population	1,443,017	938,938	359,618	35,496	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	20%	48%	80%	98%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 24/01/2018.

Proposal B

Locations: 1) Darent Valley Hospital; 2) Maidstone Hospital; 3) William Harvey Hospital.

Table 8. Map index for the HASU locations in proposal B.

Hyperacute Stroke Units	Map Index
Darent Valley Hospital	01 HAc
Maidstone Hospital	02 HAc
William Harvey Hospital	03 HAc

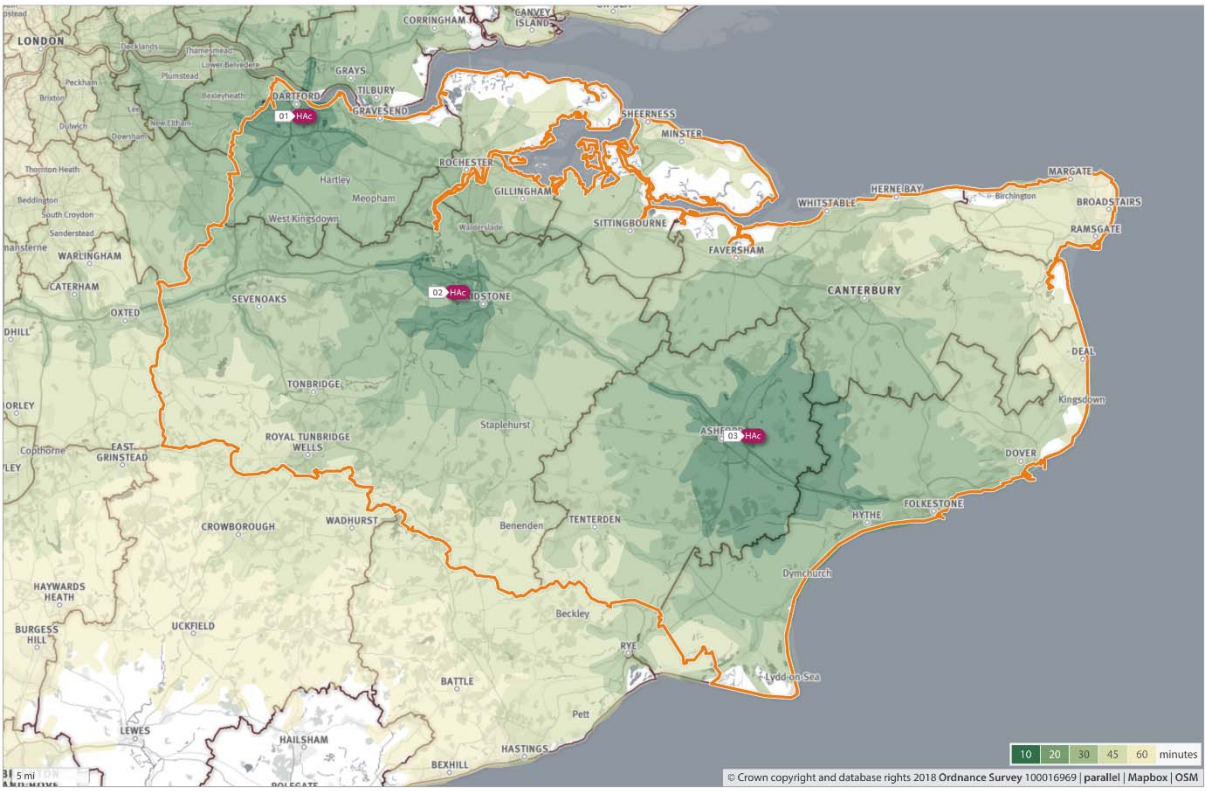


Figure 3. Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal B. **Source:** PHE; SHAPE Place. **Date Accessed:** 22/01/2018.

Table 9. Estimated number of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal B.

Proposal B	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	289,719	914,731	1,523,907	1,765,715	1,799,516
Excluded population	1,511,492	886,480	277,304	35,496	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	16%	51%	85%	98%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 24/01/2018.

Proposal C

Locations: 1) Maidstone Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 10. Map index for the HASU locations in proposal C.

Hyperacute Stroke Units	Map Index
Maidstone Hospital	01 HAc
Medway Maritime Hospital	02 HAc
William Harvey Hospital	03 HAc

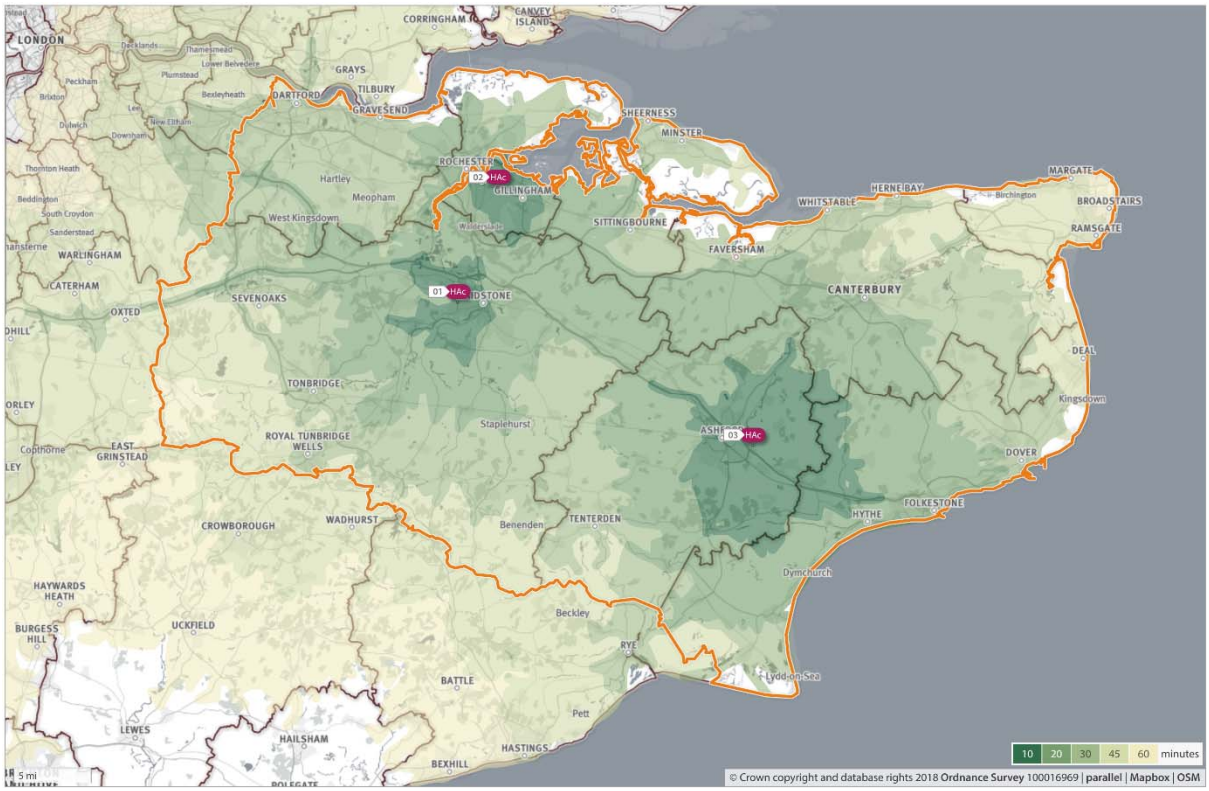


Figure 4. Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal C. **Source:** PHE; SHAPE Place. **Date Accessed:** 22/01/2018.

Table 11. Estimated number of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal C.

Proposal C	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	354,049	825,358	1,531,039	1,762,102	1,799,516
Excluded population	1,447,162	975,853	270,172	39,109	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	20%	46%	85%	98%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 24/01/2018.

Proposal D

Locations: 1) Tunbridge Wells Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 12. Map index for the HASU locations in proposal D.

Hyperacute Stroke Units	Map Index
Medway Maritime Hospital	01 HAc
Tunbridge Wells Hospital	02 HAc
William Harvey Hospital	03 HAc

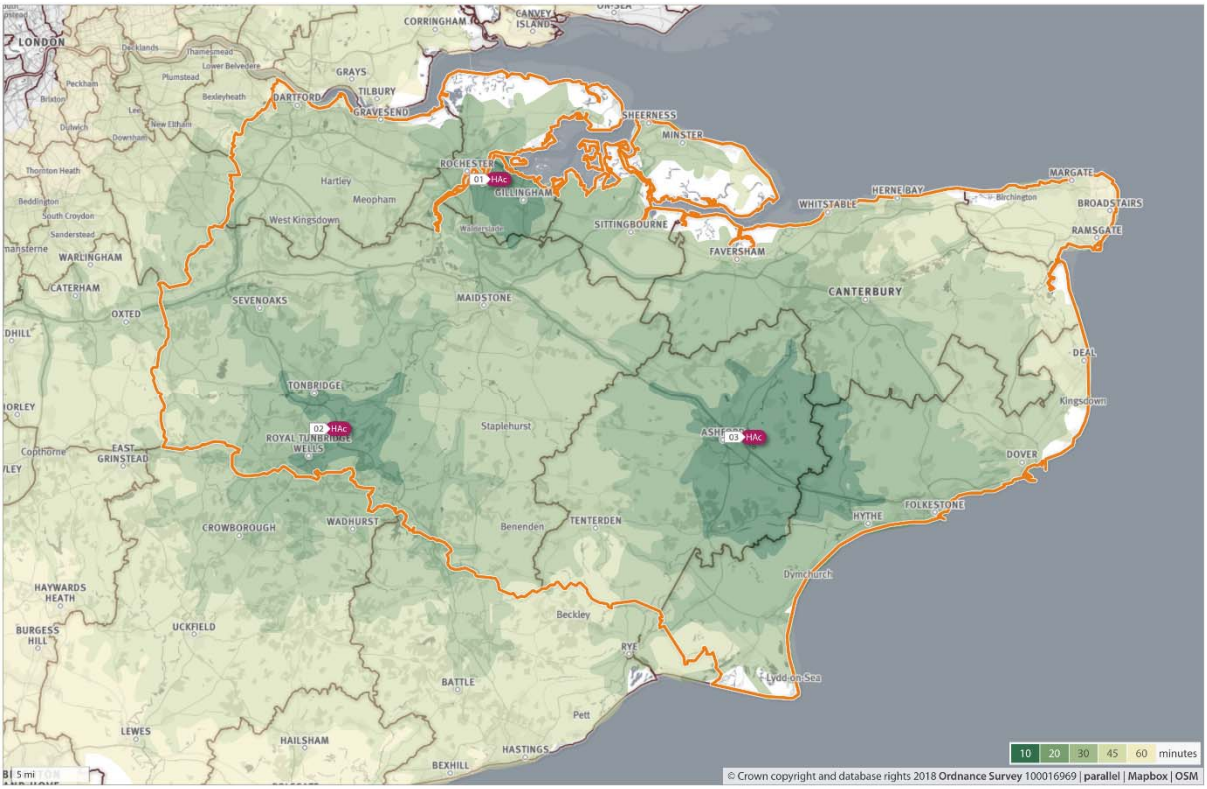


Figure 5. Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal D. **Source:** PHE; SHAPE Place. **Date Accessed:** 22/01/2018.

Table 13. Estimated number of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal D.

Proposal D	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	335,522	791,794	1,568,314	1,765,715	1,799,516
Excluded population	1,465,689	1,009,417	232,897	35,496	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	19%	44%	87%	98%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 24/01/2018.

Proposal E

Locations: 1) Darent Valley Hospital; 2) Tunbridge Wells Hospital; 3) William Harvey Hospital.

Table 14. Map index for the HASU locations in proposal E.

Hyperacute Stroke Units	Map Index
Darent Valley Hospital	01 HAc
Tunbridge Wells Hospital	02 HAc
William Harvey Hospital	03 HAc

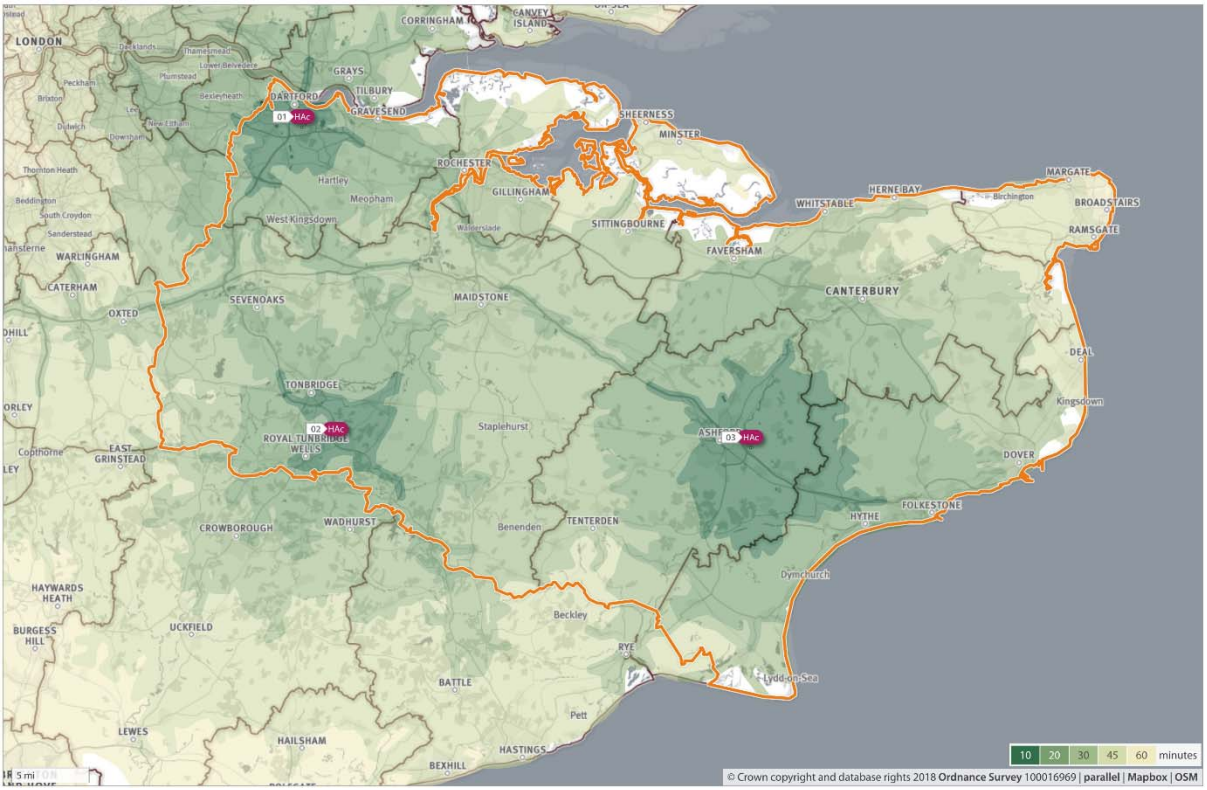


Figure 6. Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal E. **Source:** PHE; SHAPE Place. **Date Accessed:** 29/01/2018.

Table 15. Estimated number of Kent and Medway residents that would live within a 10 to 60 minute BLA journey based on the HASU locations in proposal E.

Proposal E	Travel time within				
	10 minutes	20 minutes	30 minutes	45 minutes	60 minutes
Included population	271,192	762,997	1,512,929	1,765,715	1,799,516
Excluded population	1,530,019	1,038,214	288,282	35,496	1,695*
Total population	1,801,211	1,801,211	1,801,211	1,801,211	1,801,211
Percentage within travel time	15%	42%	84%	98%	100%

Source: PHE; SHAPE Place. **Date Accessed:** 29/01/2018.

Appendix 4 Summary

The Mott MacDonald report identified older people as having a disproportionate need for stroke services. High blood pressure is a key risk factor for strokes and this is common in older people.

For all shortlisted proposals (A-D), Mott MacDonald found no disproportionate impacts for patients aged 65 and over. This patient group was within five percentage points of the change to the patients overall for all proposals. It is important to note that the Mott MacDonald report does not include analysis for proposal E as this was introduced at a later stage.

The analysis completed by the Medway Public Health Intelligence Team found no disproportionate impacts for residents aged 65 and over for proposals A to E. However, it is important to note the following:

- Proposal A has the most negative impact upon accessibility as only 77 per cent of residents aged 65 and over would be able to access stroke services by blue light ambulance within 30 minutes, which is a reduction of 23 percentage points.
- Proposal D has the least negative impact upon accessibility as 84 per cent of residents aged 65 and over would be able to access stroke services by blue light ambulance within 30 minutes.

Mott MacDonald Report Methodology

The Mott MacDonald report presents travel and access impacts for blue light ambulance (BLA) as the journeys by patients for the services assessed would typically be made by this mode of transport. Activity data for 2015/16 was used for patients who accessed services within Kent and Medway and who are also resident in the study area. Travel times for the patients aged 65 and over were compared to the overall population travel times. This ascertains whether there is a greater impact on a particular group; see page 29 of the report for further details.

The tables in the Mott MacDonald report (see pages 29-32) highlight the travel times for stroke services by scoped equality groups, comparing the baseline scenario with the future proposals. They considered that equality groups which experience a five percentage point difference or more in comparison to the population overall to be disproportionality impacted by the proposal.

Medway Public Health Intelligence Team Analysis

Medway Public Health Intelligence Team Methodology

Medway Public Health Intelligence Team used Public Health England's Strategic Health Asset Planning and Evaluation (SHAPE) tool to complete the equality impacts analysis. SHAPE is a web-enabled, evidence-based application, which informs and supports the strategic planning of services. The application is built around a mapping tool and supports travel time analyses for existing and possible future sites.

SHAPE uses the Route360° catchment generation API created by Motion Intelligence to generate access catchments for walk, cycle, car and public transport, for one or many sites and then provides detailed population demographics for any specific catchment area.

The following parameters were selected for the stroke services reconfiguration equality impacts analysis:

Mode of transport: Car off peak was used to represent travel times by blue light ambulance in line with the methodology used in the Mott MacDonald report.

- The SHAPE tool calculates travel times using the normal speed limits but takes into account junctions, crossings and traffic lights.
- The SHAPE tool has validated these travel times with similar data on Google Maps.

Included population: Estimated number of Kent and Medway residents that live within the specified travel time.

- For a specified travel time, the SHAPE tool determines a catchment area.
- Each Lower Super Output Area (LSOA) has a Population Weighted Centroid (PWC).
- If the PWC of an LSOA is inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the included population calculation.
- The SHAPE tool determines the LSOA population from ONS Small Area Population Estimates Mid-2015.

Excluded population: Estimated number of Kent and Medway residents that do not live within the specified travel time.

- If an LSOAs PWC is not inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the excluded population calculation.

*There is one LSOA North West of Faversham that is not included in any of the travel time analysis. This LSOAs PWC is not inside any of the specified travel time catchment areas, which is likely due to issues with the SHAPE tool's road definitions in that area and the travel time algorithm. The population of this LSOA is 1,695 residents.

Total population: Estimated total number of Kent and Medway residents.

- The sum of both the included and excluded populations.

Percentage within travel time: The estimated percentage of the total Kent and Medway residents that live within the specified travel time:

$$\frac{Included\ population}{Total\ population} * 100$$

Current

Table 1. Current journey travel time to stroke services by BLA.

Current	Within 30 minutes	Within 60 minutes
Total residents	100%	100%
Residents aged 65+	99%	100%

Date Accessed: 24/01/2018.

Proposal A

Locations: 1) Darent Valley Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 2. Estimated percentage of Kent and Medway residents that would live within a 30 and 60 minute journey by BLA based on the HASU locations in proposal A.

Proposal A	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total residents	80%	-20pp	100%	No change
Residents aged 65+	77%	-23pp	100%	No change

Date Accessed: 24/01/2018.

Proposal B

Locations: 1) Darent Valley Hospital; 2) Maidstone Hospital; 3) William Harvey Hospital.

Table 3. Estimated percentage of Kent and Medway residents that would live within a 30 and 60 minute journey by BLA based on the HASU locations in proposal B.

Proposal B	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total residents	85%	-15pp	100%	No change
Residents aged 65+	82%	-18pp	100%	No change

Date Accessed: 24/01/2018.

Proposal C

Locations: 1) Maidstone Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 4. Estimated percentage of Kent and Medway residents that would live within a 30 and 60 minute journey by BLA based on the HASU locations in proposal C.

Proposal C	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total residents	85%	-15pp	100%	No change
Residents aged 65+	82%	-18pp	100%	No change

Date Accessed: 24/01/2018.

Proposal D

Locations: 1) Tunbridge Wells Hospital; 2) Medway Maritime Hospital; 3) William Harvey Hospital.

Table 5. Estimated percentage of Kent and Medway residents that would live within a 30 and 60 minute journey by BLA based on the HASU locations in proposal D.

Proposal D	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total residents	87%	-13pp	100%	No change
Residents aged 65+	84%	-15pp	100%	No change

Date Accessed: 24/01/2018.

Proposal E

Locations: 1) Darent Valley Hospital; 2) Tunbridge Wells Hospital; 3) William Harvey Hospital.

Table 6. Estimated percentage of Kent and Medway residents that would live within a 30 and 60 minute journey by BLA based on the HASU locations in proposal E.

Proposal E	Within 30 minutes	Percentage point change from baseline	Within 60 minutes	Percentage point change from baseline
Total residents	84%	-16pp	100%	No change
Residents aged 65+	81%	-18pp	100%	No change

Date Accessed: 29/01/2018.