West Yorkshire Healthy Futures Stroke/Hyper Acute Stroke and Acute Stroke
Strategic Case for Change

Final V6.0

1 March 2017

Version Control

DOCUMENTATION DETAILS

Work Stream Name	West Yorkshire Healthy Futures Stroke/HAS Project	
Date	11 January 2017	
Author	Linda Driver	
Clinical Lead	Name	Dr Andy Withers NHS Bradford District CCG & Project Chair - West Yorkshire Healthy Futures
	Email	andrew.withers2@bradford.nhs.uk
Commissioner Lead	Name	Jo Webster Accountable Officer NHS Wakefield CCG & Project Sponsor - West Yorkshire Healthy Futures
	Email	Jo.Webster@wakefieldccg.nhs.uk
Provider Clinical Leads	Name	Acute Provider Clinical Lead representatives from each Acute Trust across the Yorkshire and Harrogate STP footprint are members of the Stroke/HAS Project Task and Finish Group Email and contact details are referenced in the distribution list

DOCUMENT HISTORY

Document Location	To be added following approval of final version	
Revision History	V1.0 Date of this revision:	11 January 2017
	V2.0 Date of next revision:	24 January 2017
	V3.0 Date of next revision:	30 January 2017
	V4.0 Date of next revision:	16 February 2017
	V5.0 Date of next revision:	23 February 2017
	V6.0 Date of next revision:	1 March 2017

VERSION DETAILS

Version number	Revision date	Changes made by	Summary of changes	Approved by
1.0			Strategic Case for Change developed which builds upon the following: - Healthy Futures Programme Hyper Acute Stroke Current	

			State Assessment V1.0 Final (February 2015) - Healthy Futures Hyper Acute Stroke Services Review: Options Appraisal Final (July 2015) - Yorkshire and Humber Strategic Clinical Network Hyper Acute Stroke Service 'Blueprint' recommendations for West Yorkshire V1.1 (June 2016)	
2.0	24 Jan 2017	Linda Driver Project Lead	Strategic Case for Change updated to reflect key points of discussion by Stroke/HAS Task & Finish Group members.	
3.0	30 Jan 2017	Linda Driver Project Lead	Strategic Case for Change updated to reflect feedback from Stroke/HAS Task and Finish Group members and WYAAT provider representatives.	
4.0	16 Feb 2017	Linda Driver Project Lead	Strategic Case for Change updated to reflect feedback from Healthy Futures Clinical Forum Members meeting (7 February 2017.) HF Clinical Forum members required specific reference to 7 day standards.	
5.0	23 Feb 2017	Linda Driver Project Lead	Strategic Case for Change updated to reflect feedback from Stroke/HAS Task and Finish Group members (23 February 2017) and to reflect comments received following circulation to Urgent and Emergency Care Network members (15 February 2017.)	
6.0	28 Feb 2017	Linda Driver Project Lead	Strategic Case updated to reflect further feedback from WYAAT, final review with clinical Chair of Stroke/HAS Task and Finish Group and final format.	
6.0	May 2017	Linda Driver Project Lead	Strategic Case reflects feedback from Clinical Senate Working Party.	

DISTRIBUTION LIST

Name	Title	Email
The names and contact details of the West Yorkshire Healthy Futures Stroke/HAS Task & Finish Group members is embedded for reference.	West Yorkshire Healthy Futures Stroke/HAS Task & Finish Group	 West Yorkshire Healthy Futures Strol
The draft Strategic Case for Change has been circulated to the following stakeholders for onward cascade and comment.	- Clinical Forum Members - Health Futures Collaborative Forum Members - West Yorkshire Association of Acute Trust Medical Director's Forum and Chief Officer's Forum - Yorkshire Ambulance Service Chief Officer Forum	
The Strategic Case for Change will be circulated to NHS England as part of the Stage 1 Assurance process following approval by Healthy Futures Collaborative Forum (7 March 2017)	- NHS England	
The Strategic Case for Change will be circulated to Yorkshire & Humber Clinical Senate members following approval by Healthy Futures Collaborative Forum (7 March 2017)	- Yorkshire and Humber Clinical Senate members	

Contents

1. Executive summary (page 6 to 12)

2. Background and context (page 13 to 15)

3. Strategic fit and support from clinical commissioners and key stakeholders (page 15 to 20)

4. Approach (page 20 to 25)

5. Overview of key findings (page 25 to 39)

6. Literature review (page 39 to 47)

7. Conclusion, recommendations and next steps (47 to 49)

Appendix A Glossary

Appendix B Literature review references

1. Executive Summary

1.1 The Yorkshire and Humber and West Yorkshire and Harrogate context

Nationally and locally lots of work has taken place to improve outcomes for people who have had a stroke. Although the numbers of people having a stroke are expected to increase in the coming years the good news is that the number of deaths related to stroke continues to decline.

In 2015/16 there were approximately 3,600 stroke admissions into West Yorkshire Hospitals (based on Stroke Sentinel National Audit Programme data[1]). Previous analysis (2013) showed the majority of strokes (74% of all strokes) occurred in the 65+ age group with the greatest concentration in the 75+ population (52% of all strokes).

Progress in improving stroke care over the past 10 – 15 years has increased the demand for the provision of specialist hyper acute stroke services. This has led to some of our hyper acute stroke services experiencing difficulty in recruiting and retaining the skilled workforce needed to meet these demands. We want to make sure our services are 'fit for the future' and we make the most of new technology and the skills of our valuable workforce whilst maximising opportunities to improve quality and outcomes for local people.

There are challenges for the health and social care system and most importantly for stroke survivors, their families and carers. This alongside an ageing population, with complex health and social care needs, means we have to change if we want to continue to further improve people's quality of life with the resources we have available.

In view of this, health professionals and key stakeholders across West Yorkshire and Harrogate have been considering how we can further improve our hyper acute stroke and acute stroke care services so they are 'fit for the future' whilst maximising the opportunity to increase quality and outcomes for people. We also want to ensure that care across the whole stroke pathway is working effectively to meet the current and future needs of our population in line with our agreed vision to:

Reduce the incidence of stroke and avoidable deaths due to stroke, across the West Yorkshire health economy, minimising the long term effects and improving the quality of life for survivors. This will be achieved by providing consistently high quality care that is responsive to individual needs and through encouraging healthier lifestyles and reducing inequalities in risk factors of stroke.

Improving stroke outcomes for our population has therefore been included as a key priority within the West Yorkshire and Harrogate draft Sustainability and Transformation Plan (STP)[2].

1.2 Why change?

Stroke is a life changing event and evidence shows the care that people receive in the first few hours can make a difference to how well they recover. This includes having specialist scans to assess the nature of the stroke and if appropriate receive clot-busting drugs

[1] https://www.strokeaudit.org/

[2] West Yorkshire and Harrogate. Sustainability and Transformation Plan draft proposals, October 2016.

(thrombolysis) delivered by specialist staff working in sustainable and resilient hyper acute stroke units.

We have an ageing population and the number of people who suffer a stroke is also expected to increase. We therefore believe that if we are to continue to improve people's quality of life, with the resources we have available, we must change the way in which we deliver stroke services to ensure we are making the most of our valuable skilled workforce, modern technology and equipment in order to maximise opportunities to further improve stroke outcomes and quality for our population.

The *NHS 5 Year Forward View*[3] published in October 2014 sets out a clear direction for the NHS, showing why change is needed and what it will look like. It states that, for some services, there is a compelling case for greater concentration of care highlighting there is a strong relationship between the number of patients and the quality of care, derived from the greater experience these more practiced clinicians have, access to costly specialised facilities and equipment, and the greater standardisation of care that tends to occur.

Our work to date has made reference to the growing number of examples across the UK where commissioners and providers are working collaboratively to improve access to specialist stroke inpatient care where patients are taken to specialist units rather than the nearest hospital.

This focus is being driven from a national level and stems from the concentration of specialist stroke services that occurred in 2010 across two metropolitan areas of England (Greater Manchester and London) and from supporting international research that suggests that specialist centres can improve the provision of evidence based care e.g. by improving access to specialist care and thrombolysis, the latter of which, when undertaken more frequently, can lead to better outcomes[4].

Another key driver for change is set out in *The Government's mandate to NHS England for 2016-17*[5] which sets an objective that anyone who needs urgent or emergency hospital care will have access to the same level of consultant assessment and review, diagnostic tests and consultant-led interventions, whatever the day of the week. Alongside this *The 2017-19 NHS Shared Planning Guidance*[6] states there is an ambition for 5 urgent network specialist services to meet these standards by November 2017 and Hyper Acute Stroke (specialist care for acute stroke patients) is one of these 5 specialist services.

From a West Yorkshire and Harrogate perspective work has taken place with the Strategic Clinical Network, our consultants, doctors and other health care professionals, as part of the wider Yorkshire and Humber Region, and this work has informed our Strategic Case for Change and recommendations.

In particular:

[3] NHS England (2014) Five Year Forward View. Available from https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf (accessed 3 Nov 2016)

[4] Hunter R, Davie C, Rudd A, Thompson A, Walker H, Thompson N, et al. Impact on Clinical and Cost Outcomes of a Centralized Approach to Acute Stroke Care in London: A Comparative Effectiveness before and after model. Plos One.8,8.

[5] The Government's mandate to NHS England for 2016-17, Department of Health, January 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/494485/NHSE_mandate_16-17_22_Jan.pdf

[6] NHS Operational Planning and Contracting Guidance 2017 – 2019, NHS England and NHS Improvement, September 2016, https://www.england.nhs.uk/wp-content/uploads/2016/09/NHS-operational-planning-guidance-201617-201819.pdf

- ***Case for Change Stroke Prevention (2014)[7],*** which identified opportunities, key enablers and benefits of adopting a unified approach to prevention across West Yorkshire and Harrogate footprint (improving quality and outcomes, improving performance against key metrics, reducing risks and costs);
- ***The Healthy Futures Programme Hyper Acute Stroke Services Review: Current State Assessment V1.0 Final (25 February 2015***)[8] which identified a significant number of opportunities, that when implemented, have the potential to improve sustainability and resilience;
- ***Healthy Futures Hyper Acute Stroke Services Review: Options Appraisal Final (7 July 2015)[9];*** and
- ***The Hyper Acute Stroke Services Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups Version 1.1*****. published in June 2016**[10]

During Q3 2016/17 a 'desk top review' was carried out by the Stroke/Hyper Acute Stroke Task and Finish Group to build on upon the work done previously to determine whether there were any significant changes to the assumptions and recommendations outlined in the 'Blueprint'. The recurring key themes, from all the work that has taken place to date, which have informed the Strategic Case for Change are as follows:

- Depending on where you live, some people may have better experiences and access to services than others;
- By changing the way we deliver care after stroke, we can maximise the opportunities to further improve outcomes and quality for our patients whilst also reducing our patients' chances of living with a disability afterwards;
- Although some Trusts have improved their performance against some of the Stroke Sentinel National Audit Programme (SSNAP)[11] metrics, variation in the quality of our specialist hyper acute services and pathways continues to exist. Further work is therefore required to reduce this variation and ensure that, no matter where our patients live and what time of day they are admitted, our patients have access to consistently high quality services and pathways;
- We currently have 5 hyper acute stroke units in West Yorkshire and Harrogate. In view of the requirements to meet new quality standards e.g. *National Clinical Guideline for stroke, Fifth Edition 2016*[12], 7 day standards[13] (including early supported discharge at weekends), improved access to imaging and Intra Arterial Thrombectomy (IAT) technology[14] developments, further work is needed to determine the optimal service delivery models to ensure our services are 'fit for the future' and delivering improved outcomes for our patients;

---

[7] West and South Yorkshire and Bassetlaw Commissioning Support Unit (2014). Healthy Futures Programme:Case for Change Stroke Prevention.

[8] Healthy Futures Stroke Programme. Hyper-Acute Stroke Services Review: Current State Assessment V1.0 Final, 25 February 2015.

[9] Healthy Futures Stroke Programme. Hyper-Acute Stroke Services Review: Options Appraisal, Version: Final for approval, 7 July 2015.

[10] Yorkshire and Humber Strategic Clinical Networks. Hyper Acute Stroke Services, Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups V1.1, June 2016.

[11] Royal College of Physicians Sentinel Stroke National Audit Programme. 2016, https://www.strokeaudit.org/results.aspx

[12] Royal College of Physicians. Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fifth Edition, 2016.

[13] NHS England (2016) Business Plan 2016/17. Available from https://www.england.nhs.uk/wp-content/uploads/2016/03/bus-plan-16.pdf (accessed 14 November 2016)

[14] Royal College of Physicians. Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fifth Edition, 2016 Section 3.5, p41

- Progress in improving stroke care over the past 10 – 15 years has increased the demand for the provision of specialist hyper acute stroke services. This has led to some of our hyper acute stroke services experiencing difficulty in recruiting and retaining the skilled workforce needed to meet these demands and deliver services in line with the required quality standards. In view of the projected demographic growth increase of 12.7%[15] by 2020 we want to determine how we can make the most of the skills of our valuable workforce whilst maximising opportunities to further improve the quality of services and outcomes for local people;
- Across the Yorkshire and Humber footprint a number of hyper acute services have experienced resilience issues which have required emergency commissioning and provider arrangements to be put in place. We want to determine the optimal service delivery models that will further improve the resilience of our specialist hyper acute and acute stroke services so they are fit for the future and we minimise the risks of our services experiencing resilience issues;
- Evidence from elsewhere shows that the outcomes following hyper-acute stroke are better if people are treated in specialised centres that achieve a minimum number of strokes per annum and do not exceed a maximum number of strokes, even if this increases travelling time following the event; this is likely to be the case in West Yorkshire & Harrogate
- We know that most people with a suspected stroke arrive at hospital by ambulance and we need to work closely with our ambulance staff who provide assessment and treatment as they convey people to the right hospital for their medical needs;
- Ongoing rehabilitation should be provided at locations closer to where people live, and they should be transferred to these as soon as possible after initial treatment;
- In line with the Strategic Clinical Network 'Blueprint' recommendations further modelling is required to review patient flows across the West Yorkshire and Harrogate footprint to ensure we are optimising the resilience of our stroke model set in the context of the Urgent and Emergency Care Network Programme and wider Yorkshire and Humber developments e.g. cross boundary flows from Working Together Programme developments; and
- Adopting a whole pathway approach to the provision of stroke services is crucial to further improving the quality of services and maximising clinical outcomes for our population e.g. we need to ensure repatriation from our specialist hyper acute stroke services into our acute stroke or community rehabilitation services are working effectively so that we avoid delays along the care pathway and we ensure inter-dependencies between our specialist hyper acute and acute stroke services are understood. We also need to continue to work with our place based colleagues to ensure that, across the West Yorkshire and Harrogate footprint, we maintain a focus on the implementation of place based prevention strategies, hypertension and atrial fibrillation pathway developments, post-acute rehabilitation, end of life and voluntary sector care.

1.3 Conclusions, recommendations and next steps

1.3.1 Conclusion

There is strong evidence that outcomes following stroke are better if people are treated in specialised centres, even if this increases travelling time following the event, and this is likely

[15] Healthy Futures Stroke Programme. Hyper-Acute Stroke Services Review: Current State Assessment V1.0 Final, 25 February 2015, Section 6.3.1, p40

to be the case in West Yorkshire & Harrogate. Ongoing rehabilitation should, however, be provided at locations closer to where people live, and they should be transferred to these as soon as possible after initial treatment.

The importance of taking a 'whole system' and 'whole pathway approach' to improving stroke care has also been highlighted through discussions with our local clinicians and other key stakeholders (reflecting our agreed vision for stroke care) and is in line with work taking place elsewhere e.g. Manchester and our literature review findings.

Across West Yorkshire and Harrogate, significant work has already taken place in our Hospitals and our Ambulance Service to improve the quality of care and outcomes for stroke. Work has also taken place across our place based footprints to further reduce the risk of stroke through the implementation of a range of initiatives e.g. atrial fibrillation and hypertension pathway developments and implementation of prevention strategies.

The outcome of our work, to date, suggests that in order to further improve quality and stroke outcomes for our patients further work is now required to determine the optimal service delivery models across the West Yorkshire and Harrogate footprint so that our services are 'fit for the future'.

Our work to date has been supported by the Strategic Clinical Network, which included consultants and doctors and other clinical and non-clinical stakeholders across the West Yorkshire and Harrogate STP footprint.

The recommendations made are in line with new models of care described in the *NHS 5 Year Forward View*. Work taking place in other areas such as Manchester and London, and our strategic vision and priorities set out in the public summary of the *West Yorkshire and Harrogate Draft Sustainability and Transformation PlanP*[16] published November 2016.

1.3.2 Recommendations

As a result of the work we have done to date, we believe the information outlined in this Strategic Case for Change demonstrates that if we are to further improve the quality of our specialist stroke services, outcomes and experience for our patients further work is required to ensure that our services are resilient and 'fit for the future'.

In view of this we recommend that we begin the work to develop our proposals to determine the optimal service delivery models and pathways that need to be in place across the West Yorkshire and Harrogate footprint set in the context of ensuring that we are maximising the opportunities to further improve care and outcomes for our population along the whole stroke care pathway.

1.3.3 Next steps

The Strategic Case for Change (V6.0) reflects comments from the following stakeholders:

- West Yorkshire Healthy Futures Stroke/HAS Task and Finish (T&F) Group members (includes Trust and Ambulance service clinical representatives and CCG commissioner clinical chair and Chief Officer representatives);
- West Yorkshire Association of Acute Trust (WYAAT) colleagues (including Medical Directors and Chief Officers);

[16] West Yorkshire and Harrogate. Draft Sustainability and Transformation Plan Public Summary, November 2016.

- Urgent and Emergency Care Network colleagues (representation includes clinical and non clinical representatives from acute, non acute and primary care providers, commissioners, Healthwatch and Local Authorities);
- Healthy Futures Clinical Forum members (includes CCG and Acute and Ambulance Provider clinical representatives); and
- Healthy Futures Collaborative Forum (11 CCG's and NHS England.)

Subject to the approval of the Healthy Futures Collaborative Forum (HFCF) on 7 March 2017 the Strategic Case for Change will be submitted to NHS England as part of the Stage 1 NHS England Assurance process[17].

The Clinical Senate will also be asked to review the Strategic Case for Change to determine whether they support our recommendations to commence further work to develop proposals to determine the optimal service delivery models for the population of West Yorkshire and Harrogate. Subject to the outcome of our discussions with NHS England we will also be seeking the Clinical Senate's views on the key areas that we should focus on in order to strengthen our discussions with key stakeholders to inform the development of our proposals.

Subject to approval of the Strategic Case for Change we will produce a public summary/easy read version at the earliest opportunity and this will be avaialable on the website.

We have developed a communications and engagement toolkit to inform discussion with our staff, Overview and Scrutiny Committees, Health and Well Being Boards, Governing Boards, Voluntary Sector, MPs, Media and other key stakeholders. On the 1 February 2017 we began a 6 week period of engagement with our population across the West Yorkshire and Harrogate STP footprint (led by Healthwatch) to gain their views on stroke care (prevention, primary care, 72hrs and rehabilitation through to after care). A mid point engagement review meeting is also scheduled.

A post engagement report will be prepared for consideration by key stakeholders and will inform the development of the next phase of our work (subject to NHS England approval to proceed to the Stage 2 Assurance process.)

Both the work that has taken place to date and the literature review highlight the importance of ensuring the whole stroke pathway is working effectively (from pre-hospital to long-term management) in order to support timely repatriation from specialist hyper acute stroke services to acute stroke or community stroke services, avoid delays along the whole care pathway and to maximise the opportunities to prevent stroke and improve outcomes and quality for our population.

In view of this, further discussions with the Yorkshire and Humber Academic Health Science Network (AHSN)[18], the Primary and Community Care STP work stream lead, Public Health, place based stroke leads and other key stakeholders will take place to determine the current position in relation to these important elements of the care pathway to inform the next phase of our work particularly in relation to the following:

17 NHS England, Effective Service Change: A support and guidance toolkit v.2 2016. Publications Gateway Reference 00814

18 http://www.yhahsn.org.uk/

- Gaining an improved understanding of the current position in relation to place based prevention work;
- Establishing whether the atrial fibrillation and hypertension interventions are delivering the intended benefits in line with projections; and
- Timely access and availability of early supported discharge (ESD), community rehabilitation, end of life, longer term care and voluntary care sector provision .

It is our intention to expand the core membership of the T&F Group to include a member of the Patient and Involvement Regional Lay member Reference Group, a public health representative and a community services representative.

Subject to NHS England approval to proceed to Stage 2 Assurance process, work will commence on the next phase of the project plan which will include, modelling and discussion with key stakeholders in the following areas:

- Workforce e.g. in hours and out of hours, inter-dependencies between specialist and acute stroke care;
- Business Intelligence e.g. travel times, impact of cross boundary flows and 7 day standards;
- Finance (validation of CCG and Provider costs and financial modelling approach, assumptions and principles);
- Further Equality Impact Analysis (which includes Joint Strategic Needs Analysis across each of the place based footprints) to further inform our communication and engagement activities;
- Communications and engagement e.g. review of engagement outputs, Equality Impact Assessment update and review, preparatory work for the pre-consultation engagement (subject to approval to proceed) and ongoing dialogue with key stakeholders, e.g. our population, our staff and STP partners; and
- Further discussion with NHS England specialised commissioners regarding Intra-Arterial Thrombectomy developments e.g. timelines, capacity and demand assumptions, impact on pathways and repatriation policies.

2. Background and context

2.1 National Context

Stroke is the third leading single cause of death in the United Kingdom[19] and has a devastating impact on the lives of people, their families and carers. Although the incidence of stroke is declining, stroke survivorship is creating significant challenges to the health and social care system, the society – and most importantly – stroke survivors, their families and carers.

The *National Stroke Strategy* published by the Department of Health in 2007[20] provided a national quality framework to secure improvements across the stroke pathway over a period of 10 years. The document's main recommendations were to provide hyper acute stroke units for rapid patient access and then transfer to dedicated stroke units for rehabilitation once patients are stabilised.

More recently the *National clinical guidelines for stroke (Fifth Edition 2016)* have been published which provide the most comprehensive and up to date document on how stroke care should be provided covering the whole pathway from pre-hospital to longer term management. The recommendations contained within this document will further inform our recommendations for transforming stroke care across the West Yorkshire and Harrogate STP footprint.

The *NHS 5 Year Forward View* published in October 2014 sets out a clear direction for the NHS, showing why change is needed and what it will look like. It states that for some services there is a compelling case for greater concentration of care highlighting there is a strong relationship between the number of patients and the quality of care derived from the greater experience these more practiced clinicians have, access to costly specialised facilities and equipment, and the greater standardisation of care that tends to occur. For example, consolidating 32 stroke units to 8 specialist ones in London achieved a 17% reduction in 30-day mortality and a 7% reduction in patient length of stay.

The Government's mandate to NHS England for 2016-17 also sets an objective that anyone who needs urgent or emergency hospital care will have access to the same level of consultant assessment and review, diagnostic tests and consultant-led interventions, whatever the day of the week. This objective will be delivered through the implementation of four priority clinical standards (Standard 2,5,6 and 8) selected from 10 identified by the NHS Services, Seven Days a Week Forum in 2013[21]. Alongside this *The 2017-19 NHS Shared Planning Guidance* states there is an ambition for 5 urgent network specialist services to meet these standards by November 2017 and Hyper Acute Stroke (specialist care for acute stroke patients) is one of these 5 specialist services.

[19] NHS England. Stroke Services: Configuration Decision Support Guide. Available from http://emsenate.nhs.uk/downloads/documents/End_of_Life/Stroke/Stroke_Services_Configuration_Support_Guide.pdf

[20] Department of Health, National Stroke Strategy. 2007, London.

[21] NHS Services, Seven Days a Week Forum, Summary of Initial Findings, December 2013, https://www.england.nhs.uk/wp-content/uploads/2013/12/forum-summary-report.pdf

2.2 West Yorkshire and Harrogate and Yorkshire and the Humber context

In West Yorkshire our agreed shared vision for stroke is as follows:

To reduce the incidence of stroke and avoidable deaths due to stroke, across the West Yorkshire health economy, minimising the long term effects and improving the quality of life for survivors. This will be achieved by providing consistently high quality care that is responsive to individual needs and through encouraging healthier lifestyles and reducing inequalities in risk factors of stroke.

In 2015/16 there were approximately 3,600 stroke admissions into West Yorkshire Hospitals (based on Stroke Sentinel National Audit Programme data). Previous analysis (2013) showed the majority of strokes (74% of all strokes) occurred in the 65+ age group with the greatest concentration in the 75+ population (52% of all strokes) and the estimated cost of admissions into hospital was approximately £15m. This does not take into consideration social care costs or the broader societal impact.

Across West Yorkshire considerable work has taken place to improve outcomes for stroke. For example prior to the publication of the National Stroke Strategy, Trusts within West Yorkshire and Harrogate with multiple admitting hospitals consolidated their Hyper-Acute Stroke Unit provision onto a single site significantly reducing the number of hospital sites admitting acute strokes. There are currently five Hyper Acute Stroke units within West Yorkshire based at:

- Bradford Teaching Hospitals NHS Foundation Trust – Bradford Royal Infirmary;
- Calderdale & Huddersfield NHS Foundation Trust – Calderdale Royal Hospital;
- Harrogate and District NHS Foundation Trust;
- Leeds Teaching Hospitals NHS Trust – Leeds General Infirmary; and
- Mid Yorkshire Hospitals NHS Trusts – Pinderfields Hospital.

Other examples of work that has taken place to improve stroke outcomes for patients are as follows:

- *The Yorkshire and Humber Strategic Clinical Network for Cardiovascular Disease (CVD)* [22] delivered an extensive programme of work that aimed to influence both what and how services are commissioned, facilitate improvements in performance, and address unwarranted variation in services;
- Provider participation in the *Sentinel Stroke National Audit Programme (SSNAP).* This aims to improve the quality of stroke care by auditing stroke services against evidence based standards, providing the ability to benchmark services, monitor progress against a background of change, support clinicians in identifying where improvements are needed, and empower patients to ask searching questions;
- The rollout and application of the GRASP–AF (atrial fibrillation) tool across West Yorkshire to help primary care clinicians to assess the risk of AF-related stroke and to encourage effective management; and

[22] http://www.yhscn.nhs.uk/index.php

- The implementation of local CCG initiatives. These include campaigns across primary care to increase the prescribing of anti-coagulants, risk profiling and care management through direct enhanced services, the delivery of 'hot clinics' that enable direct primary care access to stroke consultants, and the delivery of specialist clinics which review patients on AF Registers.

3. Strategic fit and support from clinical commissioners and key stakeholders

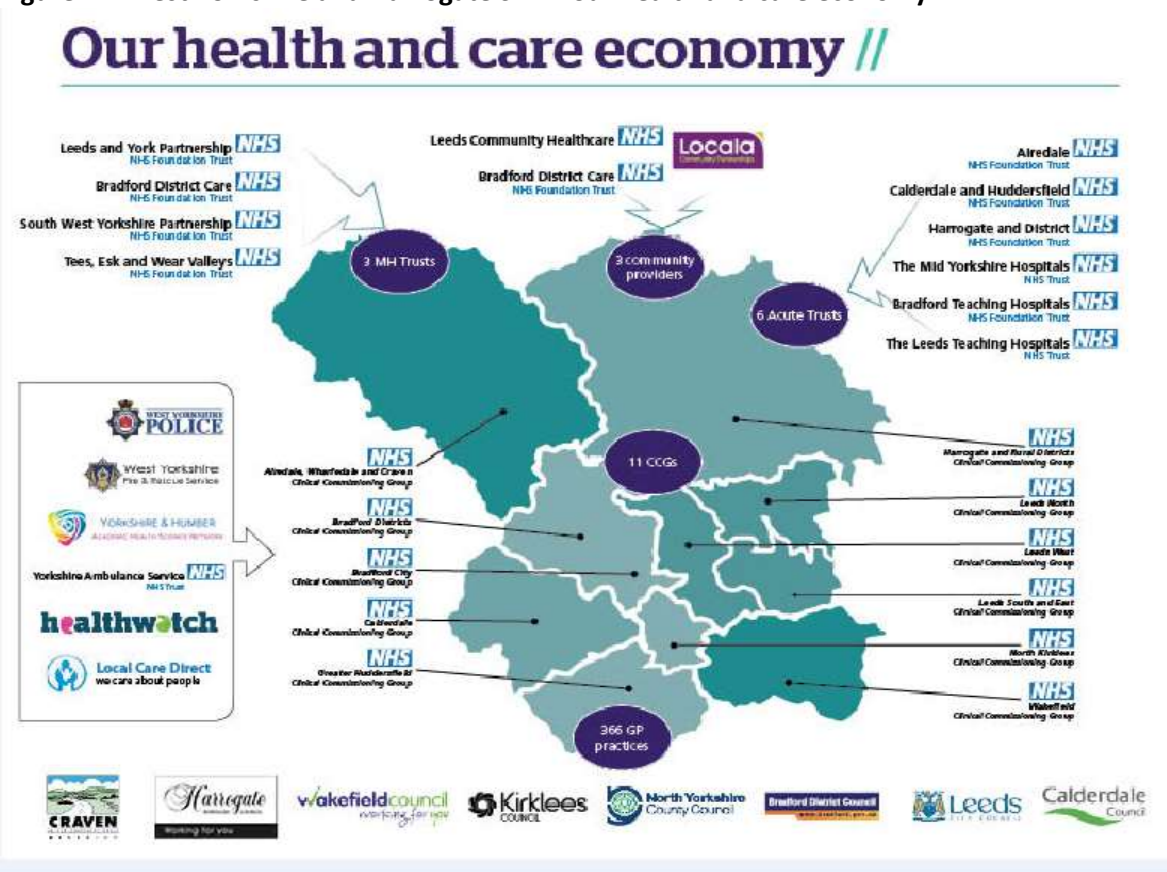
This Strategic Case for Change brings together all of the activities and key deliverables from work that has taken place to date which are core element of the Stage 1 NHS England Assurance process set in the context of the development of the draft West Yorkshire and Harrogate STP.

3.1 Strategic fit with West Yorkshire and Harrogate Sustainability Transformation Plan (STP) and local place based plans

In order to progress West Yorkshire and Harrogate wide service transformation key stakeholders across the West Yorkshire and Harrogate STP footprint have been working hard to establish a shared vision for transformed health and care delivery for West Yorkshire and Harrogate, focused on tackling all three gaps in the Five Year Forward View.

Figure 1 below provides an overview of our health and care economy and the key partners who are working collaboratively to identify opportunities to address the triple aims of improving health and wellbeing, care and quality, and finance and efficiency.

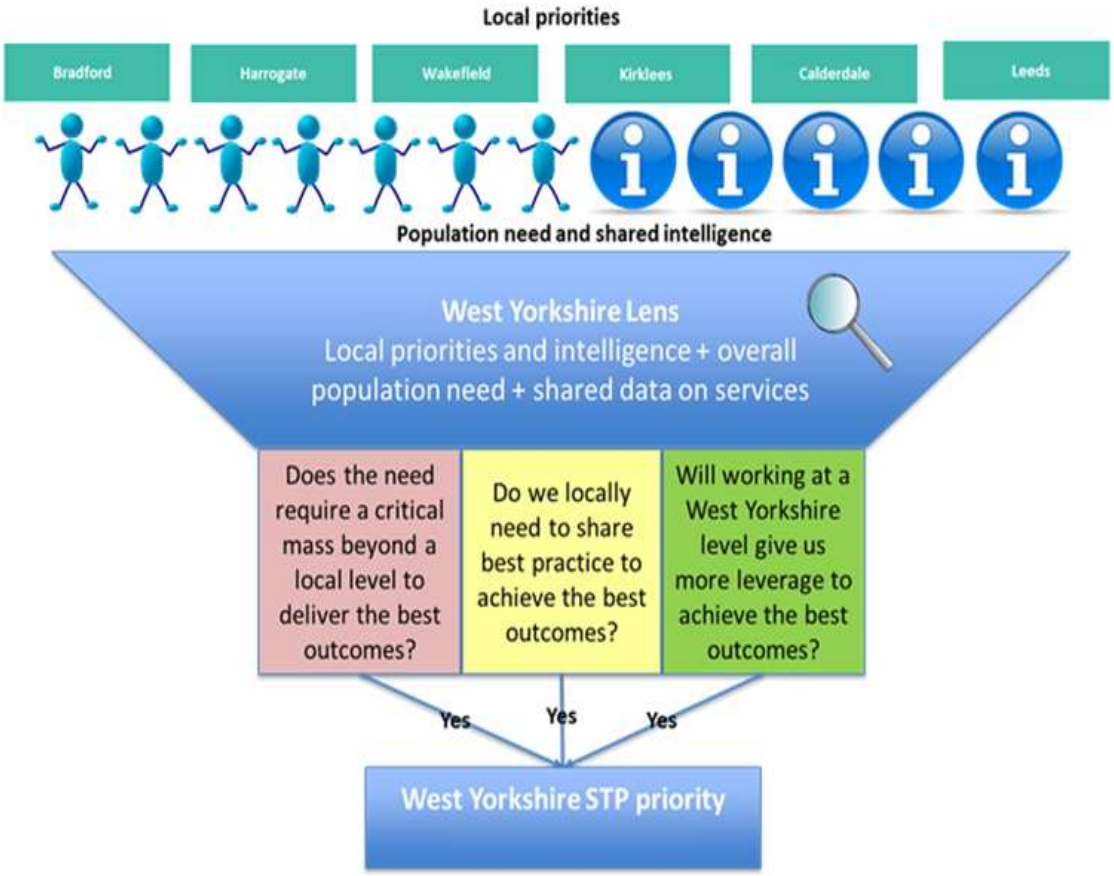
Figure 1 – West Yorkshire and Harrogate STP – our health and care economy



Our health and care economy serves a population of 2.6m people, with a total allocation of £4.7bn across health by 2021 and 113,000 health and social care staff. There are 650 care homes, 319 Domicilliary care providers, 10 Hospices, 8 large independent sector providers and thousands of Voluntary and Community Sector organisations within the footprint.

West Yorkshire and Harrogate STP stakeholders have set out how they will work together to determine which areas of work need to be progressed at a West Yorkshire level in order to deliver their shared vision. The diagram below (Figure 2) provides an overview of the approach that has been adopted for the West Yorkshire and Harrogate STP which recognises the importance of the work that is taking place at place based STP levels and the STP 'lens' that will be applied to determine what work requires a West Yorkshire and Harrogate STP approach.

Figure 2 – West Yorkshire and Harrogate STP – our approach



In view of the challenges currently facing specialist Hyper Acute Stroke and Acute Stroke services across the West Yorkshire and Harrogate STP footprint, key stakeholders agreed this work requires a West Yorkshire and Harrogate wide approach to further improve quality and outcomes for our population. Improving stroke outcomes is thefore included as a key strategic priority area within the West Yorkshire and Harrogate STP.

In line with our agreed vision to reduce the incidence of stroke and avoidable deaths due to stroke, encourage healthier lifestyles, reduce inequalities in risk factors of stroke, minimise the long term effects and improve the quality of life for survivors a number of high level metrics/indicators have been developed to measure progress towards addressing the 3 gaps described within the West Yorkshire draft STP. These include the following:

Care and quality gap

- Stroke Sentinel National Audit Performance (SSNAP) data

↓ Reduce median time between clock start and thrombolysis

↑ Increase proportion of stroke patients assessed by a stroke specialist consultant physician and nurse trained in stroke management within 24 hours of clock start

↑ Increase proportion of patients given swallow screen within 24 hours of clock start

↑ Increase proportion of patients scanned within 12 hours

(Increase from 'Blueprint' SSNAP performance data Oct – Dec 2015)

- Medical and Therapy workforce (SSNAP) and other Health Education England workforce metrics e.g. recruitment and retention

The 7 day hospital standards specific to hyper acute stroke services (as described in the *Urgent Network Specialist Services and 7 day hospital services baseline position November 2016*[23]*)* are as follows:

- Standard 2: Time to first consultant review;
- Standard 5: Access to diagnostics;
- Standard 6: Consultant-directed interventions; and
- Standard 8: Ongoing review.

There is an expectation for hyper acute stroke specialist services to meet these standards and associated metrics by November 2017.

Health and wellbeing gap

- Place based STP metrics

↓ Under 75 mortality rate from stroke

↓ Reduce hypertension QOF prevalence all ages national / West Yorkshire / CCG

↓ Reduce premature mortality from stroke

[23] Urgent Network Specialist Services and 7 day hospital services baseline position November 2016

↓ Reduce incidence of stroke (e.g. anticoagulant treatment – for every 25 patients with AF receiving an anticoagulant, we can avoid one stroke every 18 months)

↑ Identification and treatment of AF with OACs

(*Information source: West Yorkshire Population Health Characteristics by CCG*)

In order to take the work forward it was agreed a West Yorkshire Healthy Futures Stroke/HAS Task and Finish (T&F) Project Group should be set up to progress this work.

3.2 Support from clinical commissioners and key stakeholders

The governance arrangements for the T&F Group are outlined in Figure 3 and provide an overview of the relationships between key stakeholders across the wider STP footprint e.g. our Health and Well Being Boards, our Clinical Forum (which has clinical representatives from each Provider including Yorkshire Ambulance Service, NHS England and Clinical Commissioning Group's) and our Provider Forums which include the WYAAT Chief Officers and WYAAT Medical Director forums.

In line with the Strategic Clinical Network and Clinical Senate 'Blueprint' recommendations, the Project is part of the Urgent and Emergency Care Network (UECN) Transformation Programme. The Healthy Futures Collaborative Forum is a decision making group that will recommend the project deliverables that can progress to the next phase for approval by Accountable Organisations.

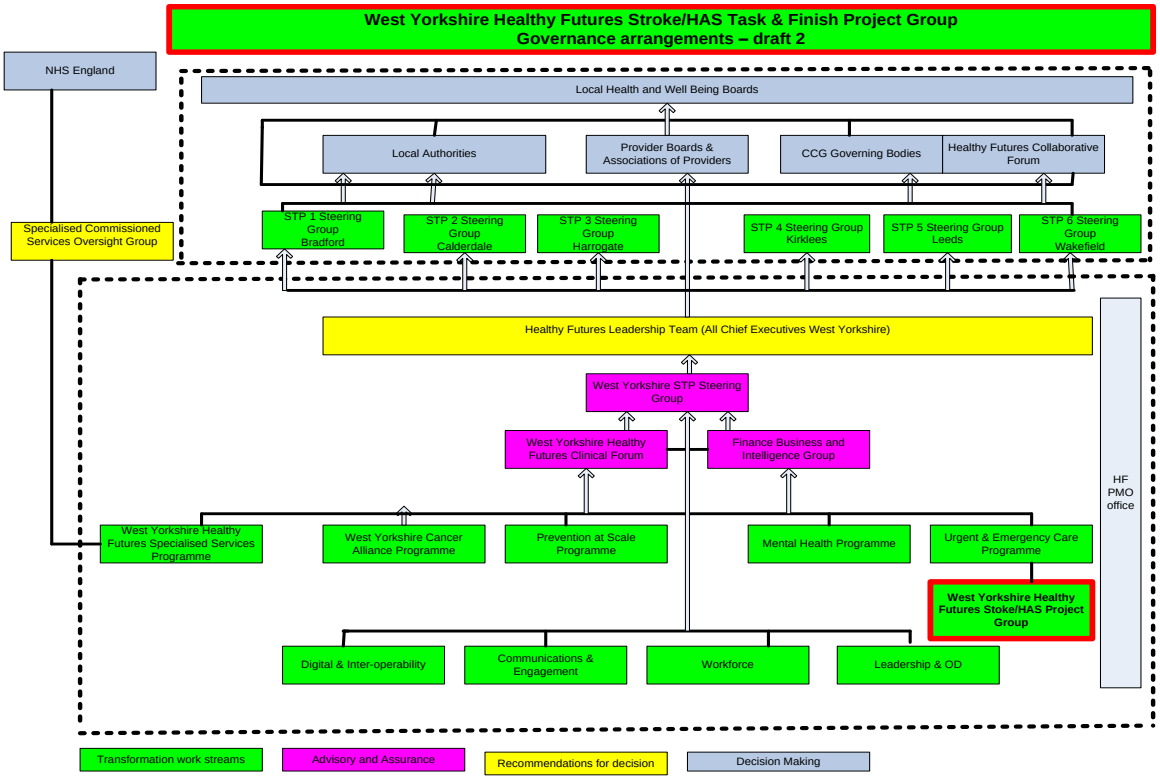
The Project has adopted a project management approach using the Healthy Futures Programme Management Office (PMO) project documentation. As the project is part of the UECN Transformation Programme, key outputs are shared with the UECN Steering Group to ensure inter-dependencies are managed. Mechanisms are are also in place to ensure that there is regular dialogue with the leads of other key work streams within the West Yorkshire STP e.g. primary and community care, workforce and digital interoperability to avoid duplication and maximise opportunities.

These arrangements have enabled us to have a continuous dialogue with our clinical and non-clinical colleagues across the West Yorkshire and Harrogate STP footprint in relation to developing an agreed clinical narrative which has informed our clinical case for change and the recommendations outlined in this Strategic Case for Change.

For example the content of the Project Initiation Document (PID) and the clinical narrative contained within this document and the communication and engagement toolkit products were shared for comment with Healthy Futures Collaborative Forum, Clinical Forum, WYAAT Chief Officers and Medical Director's Forum and Yorkshire Ambulance Service Clinical and non-Clinical Leads, and their feedback informed the content.

There have also been regular updates to Healthy Futures Clinical Forum and feedback from these meetings has informed the work of the Stroke/HAS T&F Group. The governance arrangements for the Stroke/HAS T&F Group are outlined in Figure 3 below.

Figure 3– Governance arrangements for the T&F Group



The T&F Group is chaired by Dr Andy Withers of NHS Bradford District CCG who was involved in previous Healthy Futures Stroke Programme work. The Sponsor for this work is Jo Webster, Chief Officer, NHS Wakefield CCG and Healthy Futures Collaborative Forum Lead Officer for this project.

Membership of this group includes a clinical representative from each of the acute trusts, and a West Yorkshire Association of Acute Trust (WYAAT) representative who liaises directly with wider WYAAT members to ensure there is an ongoing two way dialogue between the work of this group and wider stakeholders (clinical and non-clinical) in each of the provider organisations within the West Yorkshire and Harrogate STP footprint.

As we know that most people with a suspected stroke arrive at hospital by ambulance, a Yorkshire Ambulance representative is a core member of the group so that we can ensure we are working closely with our ambulance staff who provide assessment and treatment to patients as they convey them to the right hospital for their medical needs.

In view of workforce being one of the key drivers for change, a Health Education England representative is a core member of the group. The communications and engagement Lead for the STP is also a core member and has provided expertise in relation to the development of the communication and engagement plan, the toolkit and co-ordinating communication and engagement activities with Healthwatch, the Lay member group and the regional and place based Leads.

In order to ensure impacts and inter-dependencies associated with stroke transformation across the wider Yorkshire and Humber footprint are understood and are informing our

work, clinical and non-clinical representatives from the South Yorkshire, Bassetlaw and North Derbyshire (Working Together Programme), the Humber Coast and Vale footprint and NHS England are also members of the T&F Group (in line with the Clinical Senate recommendations). The Clinical Representative from the Working Together Programme is also the Clinical Network Lead for Stroke and provides further expertise into the work of the group, particularly in relation to cross boundary flow implications and Intra-Arterial Thrombectomy developments.

4. Approach

A structured approach has been adopted in developing our Strategic Case for Change which brings together a range of both quantative and qualitive methodologies to develop a clear understanding of provision across the West Yorkshire and Harrogate STP footprint and to identify the potential opportunities to further improve outcomes, quality and safety of stroke services for our population that are 'fit for the future'.

From an assurance perspective we are adopting the best practice approach to service transformation outlined in the *Department of Health Effective Service Change: A Support and Guidance Guide* in order to ensure our service transformation recommendations comply with the four key tests throughout the engagement, pre-consultation, consultation and post consultation phases and best practice checks. The four key tests are as follows:

- Strong public and patient engagement;
- Consistency with current and prospective need for patient choice;
- Clear evidence base; and
- Support for proposals from clinical commissioners.

4.1 Clear clinical evidence base

We have adopted an evidence based approach throughout the whole process and Section 6 of this document summarises the latest literature review conducted during Q3 2016/17. It provides reference to the most up to date and comprehensive clinical evidence available on how stroke care should be provided covering the whole pathway from pre-hospital to long-term management. It is important to note this builds upon the extensive literature review conducted as part of the *Current State Assessment Section 7 page 74* (Appendix B refers.)

The information included in this Strategic Case for Change also summarises and makes reference to the significant analysis (including scenario modelling and assumptions), literature reviews, risk assessments and options appraisals that were carried out as part of the Healthy Futures Programme.

This previous analysis has informed the work that has taken place across the wider Yorkshire and Humber sub regional footprints and the recommendations outlined in the Strategic Clinical Network 'Blueprint' recommendations which were reviewed and agreed with the Clinical Senate. As outlined in the Executive Summary the key documents are as follows:

- ***The Healthy Futures Programme Hyper Acute Stroke Services Review: Current State Assessment V1.0 Final (25 February 2015***) which identified a significant number of

opportunities, that when implemented, have the potential to improve sustainability and resilience;

- ***Healthy Futures Hyper Acute Stroke Services Review: Options Appraisal Final (7 July 2015);***
- ***The Hyper Acute Stroke Services Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups Version 1.1. was published in June 2016;*** and
- ***Case for Change Stroke Prevention (2014),*** which identified opportunities, key enablers and benefits (improving quality, reducing risks and costs and improving performance against key metrics) of adopting a unified approach to prevention across West Yorkshire and Harrogate footprint.

For ease of reference the key findings are summarised in Section 5 and provide further evidence against the four key tests and best practice checks.

In order to avoid duplication key stakeholders, e.g. Healthy Futures Collaborative Forum, Clinical Forum, WYAAT Forums and Yorkshire Ambulance Service representatives, asked the T&F Group to build upon all the work that has taken place to date.

In line with this agreed mandate, during Q3 2016/17 the T&F Group carried out a 'desk top review' to determine whether there were any significant changes to the assumptions and recommendations outlined in the 'Blueprint' assumptions and recommendations. During Q3 2016/17 the group has:

- Worked collaboratively with members of the Urgent and Emergency Care Network, Healthy Futures Collaborative Forum, Clinical Forum, WYAAT Forums and Yorkshire Ambulance Service colleagues to ensure they views and comments informed the development of the Project Initiation Document and have provided ongoing input into the work of the group and development of the draft Strategic Case for Change through regular briefings and ongoing dialogue;
- Built upon the work carried out previously by the Healthy Futures Programme which informed the *Strategic Clinical Network Hyper Acute Stroke 'Blueprint'* recommendations;
- Conducted a Literature review to consider more recent guidance e.g. *National Clinical Guidelines for Stroke: Fifth Edition 2016*;
- Considered the impact of new technologies e.g. Intra Arterial Thrombectomy - Mechanical Clot Retrieval developments;
- Worked collaboratively with members of the Working Together Programme (South Yorkshire and Bassetlaw) and Humber Coast and Vale colleagues to share and learn from developments and evidence from elsewhere and ensure impact of inter-dependencies and cross boundary flow impacts across the wider Yorkshire and Humber footprint are understood in line with Clinical Senate recommendations;
- Participated in a visit to the Greater Manchester Stroke Operational Delivery Network to meet with Clinicians, Therapists, Early Supported Discharge team representatives and key stakeholders to inform our future developments;
- Liaised with place based colleagues to encourage continued focus on reducing the risk factors associated with stroke and to identify opportunities to 'level up' and where possible 'scale up' further improvements at place; and
- Conducted a 'desk top review' looking at Access, Workforce and Quality and gained further insights from Acute Provider Clinical representatives on the current position in

relation to these dimensions to identify if there are any further factors that may affect the development of a Strategic Case for Change for the West Yorkshire and Harrogate footprint.

The outcome of the 'desk top review' is summarised in Section 5 of this document and has also informed the content of this Strategic Case for Change.

4.2 National best practice and learning from others

4.2.1 Working Together Programme and Humber Coast and Vale

In addition to reviewing the latest available evidence available as part of the literature review, colleagues from the Working Together Programme and Humber Coast and Vale (who are core members of the T&F Group) have been sharing their knowledge and expertise to inform the content of Strategic Case for Change and West Yorkshire and Harrogate STP colleagues would like to formally acknowledge their valuable contribution to this work.

4.2.2 Greater Manchester Stroke Operational Delivery Network

On the 6 January 2017 a representative from the T&F Group joined members of the Working Together Programme to visit the Greater Manchester Stroke Operational Delivery Network. Their Clinical Leads, Manager and Co-ordinator, Therapists, Director of Finance and other key stakeholders provided an overview of the progress they had made to date, key challenges, opportunities and key learning points. For example:

- **Whole pathway –** Colleagues emphasised the importance of focusing on the whole pathway particularly Community Rehabilitation services and Early Supportive Discharge as variation in this area can cause delays along the care pathway for some patients;
- **Modelling activity and cost assumption** – importance of getting shared ownership of the data inputs and modelling assumptions from the outset particularly in relation to direct admissions to non hyper acute stroke units;
- **Ambulance Services** - Early engagement with Ambulance Services is key;
- **SSNAP data quality improvement** – This has been a significant focus for the Network who have been working collaboratively with Units to further improve the quality of data and dissemination of reports to inform continuous service improvement;
- **Repatriation policies** – Importance of having shared agreements and shared ownership to avoid delays; and
- **The Network** – Colleagues summarised the roles, responsibilities and benefits of a Network e.g. supporting audits, sharing with others locally and nationally.

The Greater Manchester Stroke Operational Delivery Network published their *Annual Report July 2015 – July 2016 October 2016.*[24] It summarises the key impact of their new stroke pathway which we feel reflects the opportunites to further improve quality and stroke outcomes across the West Yorkshire and Harrogate footprint so that:

- More people than before will be treated on a specialist stroke unit;

[24] Greater Manchester Stroke Operational Delivery Network. Annual Report, July 2015 – July 2016.

- The majority of patients with suspected stroke will go straight to the right hospital for their medical needs by ambulance as paramedics are very good at taking people to the right hospital for their medical needs;
- The average length of stay in hospital for stroke will be reduced;
- The number of patients dying from a stroke will decrease; and
- Our Patients and carers will have an improved experience of care;

Manchester colleagues have agreed to share a number of products with both the Working Together Programme and West Yorkshire and Harrogate Stroke/HAS T&F Group which will be enable us to avoid duplication and benefit from the transformational changes they have been making to improve the quality and outcome of their stroke services e.g. service specifications, SSNAP data quality improvement methodologies, Network dashboard developments, tariff methodology and repatriation policies.

Subject to approval to proceed to the Stage 2 NHS England Assurance Gateway we intend to invite Manchester colleagues to attend a Clinical Summit to inform the development of proposals. We would like to formally acknowledge their valuable contribution to our work.

4.2.3 Yorkshire and Humber Academic Health Science Network (AHSN)

The Yorkshire and Humber Academic Health Science Network (AHSN) have advised us that they are making progress in their programme of *Stroke Prevention in atrial fibrillation*[25] in two areas in the West Yorkshire and Harrogate area with a view to preventing strokes over the next 18 months.

During Q3 2016/17 the T&F Group have raised awareness of the AHSN work with place based colleagues. We are in discussion with both the AHSN and the Primary and Community STP workstream leads to inform discussions with our place based Stroke Leads to further maximise the opportunities to realise the benefits of the stroke prevention programme for our local population.

It is particularly important that there is continued focus on this work in each of our place based footprints in view of the importance of achieving progress in relation to the *Stroke Prevention Case for Change* trajectories that were developed as part of the Healthy Futures Stroke Programme and their potential impact on our growth trajectories (Section 5.4 Figure 4 refers.)

4.2.4 West Yorkshire and Harrogate transformation developments

In addition to learning from elsewhere we know through discussion with our colleagues across the West Yorkshire and Harrogate STP footprint there are local transformation examples that will further inform our work. For example:

- Our clinical leads have highlighted a range of areas where stroke pathway improvements have been made e.g. Yorkshire Ambulance Service have worked with provider Trust colleagues to implement a number of changes to care pathways to improve access to specialist hyper acute care.

[25] Academic Health Science Network. Stroke Prevention in atrial fibrillation. Available from: http://www.yhahsn.org.uk/service/population-health-service/atrial-fibrillation/

We are continuing to liaise with key stakeholders across the West Yorkshire and Harrogate footprint to gain an improved understanding of the transformation work that has taken place across the stroke pathway to identify opportunities to learn, share and 'scale up at pace' where possible.

4.3 Communication and engagement – our population, our staff and other key stakeholders

Fundamental to improving stroke outcomes is engagement with our population, our staff and other key stakeholders across the West Yorkshire and Harrogate footprint and collecting and incorporating their feedback into our work.

A communications and engagement plan for the West Yorkshire Healthy Futures Stoke/HAS Project has been developed . It describes the range of activities and approaches that will span the life cycle of the project and is also referenced in the West Yorkshire and Harrogate draft STP Communication and Engagement plan. The Executive Summary (Section 1.3.3), Section 5.5.5, and Section 7.3 of this document provides and overview of work that has taken place to date and actions we will be taking as part of our next steps.

4.4 Equality Impact Assessment (EIA)

To ensure compliance with the *Equality Act 2010*[26], all strategies or policies, proposals for a new service or pathway or changes to an existing service or pathway, should be assessed for their relevance to equality, diversity and inclusion for patients, the public and for staff. A Integrated Quality Impact Assessment (which includes the EIA) has been developed and will be subject to ongoing review throughout the life cycle of our transformation project as it is key to informing our communication and engagement and project plan activities e.g. ensuring we are reaching our protected groups.

4.5 Risk

The Risk Register and mitigating actions is subject to ongoing review and update by the T&F Group throughout the life cycle of the transformation project and is also considered by the Urgent and Emergency Care Network.

A summary of the risks associated with the project are as follows and provide further context to this Strategic Case for Change and the recommendations outlined within it. The risks are as follows:

1. Key deliverables may not be delivered within planned timelines due to lack of project resources to progress key tasks, resulting in delay to implementing improved access to high quality, safe, sustainable & resilient stroke services for the population covered by the West Yorkshire and Harrogate STP footprint (Risk score 12);
2. Transformational changes cannot be implemented (subject to outcome of consultation with key stakeholders) due to lack of available & appropriately skilled

[26] http://www.legislation.gov.uk/ukpga/2010/15/contents

workforce to deliver care across the whole stroke care pathway resulting in continued variance in stroke outcomes across the West Yorkshire and Harrogate STP footprint (Risk score 9);

3. Transformational changes cannot be implemented (subject to consultation with key stakeholders) due to lack of provider engagement, resulting in delay in implementing, safe, sustainable resilient stroke services for the population covered by the West Yorkshire and Harrogate STP footprint (Risk score 9);
4. Incidence of stroke & avoidable deaths from stroke is not reduced due to insufficient focus at commissioner/public health/primary care provider level on implementing place based STP initiatives (prevention, atrial fibrillation, hypertension) resulting in increased demand for acute services and variance in West Yorkshire and Harrogate STP outcomes v national (Risk score 9);
5. Providers may not be able to implement the latest stroke guidelines due to lack of available and appropriately skilled workforce able to deliver new models of care resulting in continued variance in stroke outcomes across the West Yorkshire & Harrogate footprint (Risk score 9);
6. Existing Hyper Acute Stroke services across the West Yorkshire and Harrogate footprint may experience operational resilience issues due to inability to recruit and retain appropriately skilled workforce during the transformation transition period resulting in emergency commissioning arrangements being implemented in advance of new models of care being approved and implemented (Risk score 12);
7. Implementing new model of care may not be cost neutral as envisaged resulting in additional cost pressures across the West Yorkshire and Harrogate footprint and potential delay to implementing improved access to high quality, safe, sustainable & resilient stroke services for the population covered by the West Yorkshire & Harrogate footprint (Risk score 9); and
8. West Yorkshire and Harrogate Providers may experience further operational resilience issues due cross boundary flow impacts from the Working Together footprint resulting in further impacts on their workforce, potential impact on SSNAP performance and patient flow across the wider hospital (Risk score 9.)

5. Overview of key findings

As outlined in the Executive Summary, significant work has taken place across West Yorkshire and Harrogate and the wider Yorkshire and Humber footprint to review the current position with a view to identifying opportunities to further improve stroke outcomes and quality of care for our population. This section of the Strategic Case for Change summarises the key findings of this work which has informed our case for change and recommendations.

5.1 The Healthy Futures Programme Hyper Acute Stroke Services Review: Current state Assessment V1.0 Final (February 2015)

During 2013/14 the three sub-regions of Yorkshire and the Humber identified the need to undertake an assurance review to ascertain the resilience of their hyper-acute stroke services and to identify opportunities to further improve stroke care and outcomes to meet the needs of people from prevention, primary and community services and stroke after care.

For West Yorkshire and Harrogate, the review was undertaken as a part of the "Healthy Futures" programme and the key findings were included in the *The Healthy Futures Programme Hyper Acute Stroke Services Review: Current State Assessment V1.0 Final (February 2015),*. This included a scenario modelling exercises which looked at the potential impact on capacity and quality e.g. beds, workforce, costs and performance in relation to key quality measures.

The first stage of the review involved a two stepped approach:

1. Developing a baseline of hyper-acute stroke provision across West Yorkshire and Harrogate taking a snapshot of the current quality and performance of these services to identify gaps in service resilience; and
2. Testing elements of the sub-regional system to ensure that it is resilient for the future through a desk top scenario modelling exercise which looked at the impact on capacity e.g. beds, workforce and costs.

As the *Current State Assessment* was carried out at a sub-regional level, focus was placed on 'system resilience'. 'System resilience' is a collective term dependent on the resilience of the individual providers that make up the system. For the purposes of the *Current State Assessment Review* 'resilience' was therefore defined as:

'The ability to provide high quality and sustainable hyper-acute stroke services to patients'

Individual reports were developed for each of the hyper acute stroke service providers within West Yorkshire and Harrogate. Each report analysed the main stages of the hyper-acute stroke pathway and the supporting workforce. Each stage included an assessment against the relevant SAF standards and SSNAP performance indicators. Where deemed useful for the reader, contextual information was also provided. The reports were structured as follows:

1. Provider Overview
2. Workforce
3. Pre-hospital and Admission
4. Acute Assessments
5. Scanning
6. Thrombolysis & Other Acute Treatments
7. Patient Involvement
8. Stroke Pathway Contextual Information
9. Summary of Observations

The review highlighted the following:

- **Demographic changes up to 2020 –**The number of strokes admitted into hospital is projected to increase by 12.7%;
- **Importance of improved conditions management** – atrial fibrillation and hypertension interventions have the potential to offset a significant number of the projected increase in strokes caused by demographic changes. The net result is an increase of 5.6% in the number of strokes admitted into hospital;

- **Variation** - All providers evidenced areas for improvement to a greater or lesser extent but it was noted further action was required to further improve the quality of hyper-acute stroke care provided to patients. Considerable variation in the quality of hyper-acute stroke services across the West Yorkshire and Harrogate footprint when comparing providers and there was also variation in quality across the hyper-acute pathway when looking at individual providers;
- **Sustainability and resilience –** The report indicated further work was required to ensure stroke services across the West Yorkshire and Harrogate footprint were sustainable and resilient.

The review also highlighted a significant number of opportunities to further improve resilience grouped under two headings:

- **Reducing stroke admissions** e.g. through continued focus on Primary prevention and Health and Well Being; and
- **Improving quality and sustainability**.

5.2 Healthy Futures Hyper Acute Stroke Services Review Options Appraisal (7th July 2015)

Through extensive engagement with commissioners and providers the opportunities outlined above were explored further and the outputs were included in the *Healthy Futures Hyper Acute Stroke Services Review Options Appraisal (7th July 2015).* The key recommendations were as follows:

- **Hyper Acute Services Contingency Planning –** developing a framework for contingency planning to be adopted by all providers to minimise the risks of disruption, keep patients as safe as possible and reduce the impact on quality of care if any service was at risk of failure;
- **Develop repatriation protocol –** develop a single protocol signed up to by all providers across West Yorkshire; and
- **Hypertension Dashboard –** develop guidance for primary care on the diagnosis and management of patients with hypertension.

5.3 The Hyper Acute Stroke Services Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups

In November 2015 the 23 CCGs across the wider Yorkshire and Humber Region asked the Strategic Clinical Network and Clinical Senate to provide a high level overview of the three sub regional networks intentions regarding Hyper Acute Stroke services, to provide assurance that there is a single coherent view of the direction of travel and cross boundary impacts.

The Hyper Acute Stroke Services Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups Version 1.1. was published in June 2016. The 'Blueprint' highlighted a number of key drivers which indicated further work was required to further improve stoke outcomes for the population of the West Yorkshire and Harrogate STP footprint. In summary these were as follows:

- **Performance**: *Stroke Sentinel Audit National Audit Programme (SSNAP)* performance in Y&H Region remains disappointing with key metrics not being met e.g. the drivers

for change are quality, access and workforce but the resulting system must be financially sustainable;

- **Urgent and Emergency Care Mandate**: Stroke is one of five services expected to deliver *7 days service standards*. This will be challenging as the whole system is not working 7 days. Genuine whole pathway 24 hour services are required including early supported discharge at weekends;
- **Growth**: The confirmed strokes within Yorkshire and Humber (Y&H) is currently 9014 expected to rise to 9915 by 2020;
- **Outcomes:** The 'Blueprint' stated there is growing evidence, based on the London model that a Hyper Acute Stroke Unit that sees less than the minimum number of confirmed strokes per annum provides worse outcomes in terms of morbidity, and may be associated with poorer outcomes;
- **Workforce**: Workforce is a major consideration and needs to cover diagnostic and therapy staff as well as medical and nursing. Further work is therefore required to ensure we maximise the skills and resources of our valuable workforce .
- **Number of Units**: The number of units should be determined by workforce, geography (travel time) and long term financial viability, with the key drivers for change being quality, access and workforce;
- **Hyper Acute Stroke and Acute Stroke**: Consideration of whether Acute Stroke Services should be co-located with Hyper Acute Stroke services is required;
- **Activity Levels**: The 'Blueprint' describes a lower and upper threshold of confirmed strokes per annum (in line with national guidance);
- **Sustainability and Transformation Planning (STP)**: Transformation of Hyper Acute Stroke services needs to reflect the ambitions of the UECN in the context of STPs.

From a West Yorkshire and Harrogate STP footprint perspective the HAS 'Blueprint' recommends the following:

- Further reconfiguration within West Yorkshire is considered within the Urgent and Emergency Care Network Programme of work to optimise the resilience of the stroke service model.

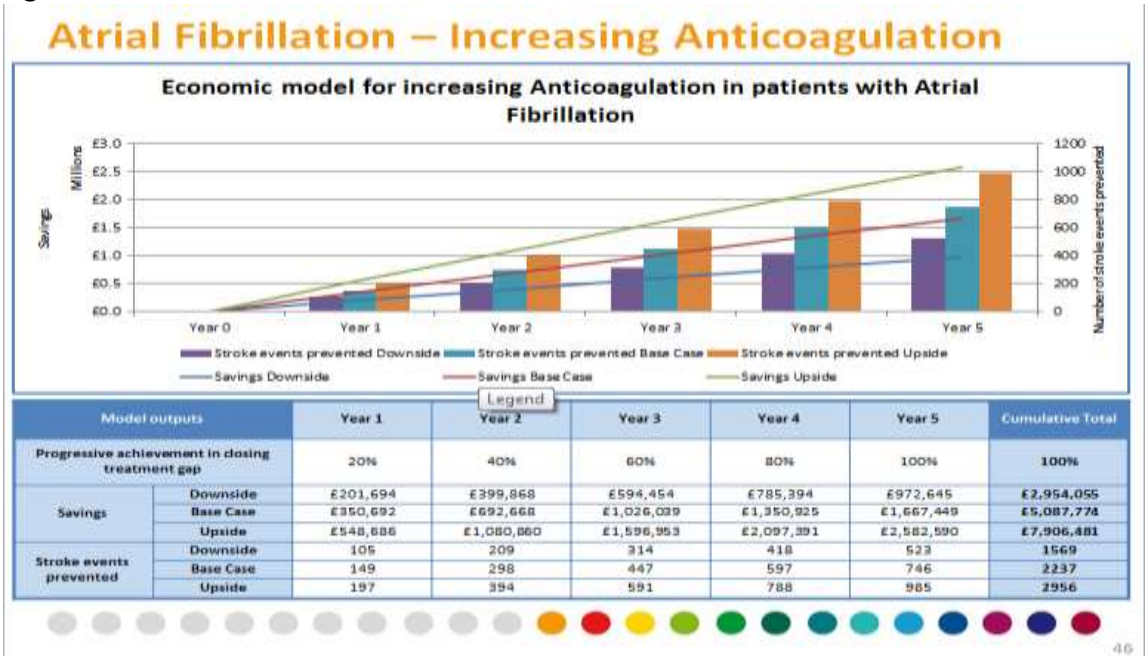
5.4 Case for Change Stroke Prevention

In line with the agreed West Yorkshire and Harrogate vision outlined in Section 1.1 of this document the Health Futures Programme also developed a *Case for Change for Stroke Prevention* This proposed a unified approach across West Yorkshire which would include:

- Development and implementation of a strategy for the initiation and management of anticoagulation for known patients with atrial fibrillation (prescribing, management and monitoring);
- A single voice with Health and Well Being Boards in relation to the stroke prevention agenda and influencing population level interventions; and
- Improved management of patients with hypertension in primary care e.g. increasing public awareness, increasing self-care, providing support and guidance to primary care and maximising technology enablers.

The Case for Change also included economic modelling for increasing anti-coagulation in patients with atrial fibrillation and the progressive achievement in closing treatment gaps, stroke events prevented and potential impact on costs (Figure 4 below refers.)

Figure 4



Model outputs		Year 1	Year 2	Year 3	Year 4	Year 5	Cumulative Total
Progressive achievement in closing treatment gap		20%	40%	60%	80%	100%	100%
Savings	Downside	£201,694	£399,868	£594,454	£785,394	£972,645	£2,954,055
	Base Case	£350,692	£692,668	£1,026,039	£1,350,925	£1,667,449	£5,087,774
	Upside	£548,686	£1,080,860	£1,596,953	£2,097,391	£2,582,590	£7,906,481
Stroke events prevented	Downside	105	209	314	418	523	1569
	Base Case	149	298	447	597	746	2237
	Upside	197	394	591	788	985	2956

5.5 Q3 2016/17 'desk top review', provider position and technology developments - overview of key findings

As outlined previously during Q3 2016/17 a 'desk top review' was carried to determine whether there were any significant changes to the assumptions and recommendations outlined in the 'Blueprint' assumptions and recommendations. The key findings are included in this section of our Strategic Case for Change and have informed our recommendations.

5.5.1 Provider position – A provider perspective

Provider clinical colleagues presented an overview of services across each of their respective organisations. Following discussion it was noted that comparable issues were highlighted, these being:

- **Workforce: Medical staffing** - Consultant recruitment remains a concern with a number of Trusts reporting vacancies, difficulty recruiting to Consultant posts, difficulty filling rotas and ensuring skills and resource are aligned e.g. to deliver thrombolysis. Trusts also reported a wide range of network and telemedicine arrangements in place to support 'out of hours' services;
- **Workforce: Nursing –** Two out of five Trusts reported nursing vacancies. All Provider clinical leads highlighted the impact wider changes to nursing roles and responsibilities were having on the capacity of their Hyper Acute Service nurse workforce e.g. development of more generic nursing roles and facilitating timely discharge of medical outliers to support improved throughput across their Trusts. Trusts also highlighted the introduction of new pathways intended to further improve earlier assessment.

Direct admission to the Hyper Acute Service has further changed the way their stroke nurses work, with nurses spending more time on the front end of the pathway;

- **Workforce: Therapists** – a number of Trusts reported Speech Therapy vacancies and variable access to psychological therapy. Occupational Therapy and Physiotherapy access was also reported to be under establishment in some Trusts;
- **Workforce recruitment other key points to note**: Colleagues highlighted concerns in relation to their ability to attract new workforce into the West Yorkshire and Harrogate footprint. Colleagues noted recruitment is often resulting in transfers of workforce between existing Trusts within the footprint. A number of Trusts also reported the impact of training staff who subsequently transfer to other posts. Provider colleagues have also highlighted the importance of understanding inter-dependencies between Hyper Acute Stroke and Acute Stroke Units from a workforce recruitment, retention and resilience perspective. Opportunities to develop new roles and 'train up' staff so they can step up to fill new roles that become vacant was also highlighted training Band 5 nurses ready to step up to Band 6 roles as these become available;
- **Pathways:** Clinical leads highlighted the importance of ensuring Health and Social Care repatriation pathways, policies and procedures are in place to ensure pathways are working effectively to avoid delays. Early Supported Discharge (ESD) processes were reported to be variable and Clinical colleagues highlighted the importance of ensuring patients are able to access appropriate local health, social and voluntary care services at the appropriate time in order to reduce discharge delays;
- **Demand pressures:** Trusts reported continued demand pressures both 'in hours' and 'out of hours.' The importance of understanding the impact of other changes to acute hospital and community services on existing and future stroke workforce and improving efficiency, throughput and outcomes was also highlighted e.g. changes to the roles of Early Supported Discharge Teams and Vanguard developments;
- **SSNAP performance:** All Trusts confirmed the data quality of information submitted and reported via SSNAP had improved however some Trusts have identified further work is taking place to further improve SSNAP data quality. Some Trusts reported they were continuing to improve performance against some of the SSNAP metrics/indicators but highlighted that sustaining improvement is a significant challenge; and
- **Sustainability and Resilience:** In summary clinical colleagues agreed that from a provider perspective in view of the requirement to meet new quality standards e.g. *National clinical guidelines for stroke (Fifth Edition 2016)* and *7 day standards*, improve access to specialist skills, imaging and new technology and ongoing workforce challenges, further work is required to maximise opportunities to further improve quality and outcomes for patients, make more effective use of our skilled workforce and technology and equipment and ensure our services are resilient and 'fit for the future'.

5.5.2 Stroke – Activity levels

As part of the 'desk top review' the latest data (to July 2016) for the West Yorkshire and Harrogate stroke units was obtained from the SSNAP information. On an ongoing basis this programme captures a comprehensive picture of stroke services across England, Wales and Northern Ireland.

The table below (Figure 5) shows the number of strokes recorded through the SSNAP programme for the 3 years 2013/14 to 2015/16, with a pro rata estimate for the current financial year based on the first 4 months of the year.

Please note the data in Figure 5 for 2013/14 is incomplete.

Figure 5 - SSNAP Stroke numbers summary – July 2016

	13/14	*14/15*	*15/16*	*4 months Apr - Jul 16*	*Estimated FY 16/17 (i.e. 4m * 3)*
Airedale NHS Foundation Trust	337	302	-	-	-
Bradford Teaching Hospitals	356	466	787	245	735
Calderdale and Huddersfield	407	479	569	231	693
Harrogate and District NHS	304	343	354	110	330
Leeds Teaching Hospitals NHS	952	987	1,022	318	954
Mid Yorkshire Hospitals NHS	534	822	901	297	891
West Yorkshire Total	**2,890**	**3,399**	**3,633**	**1,201**	**3,603**

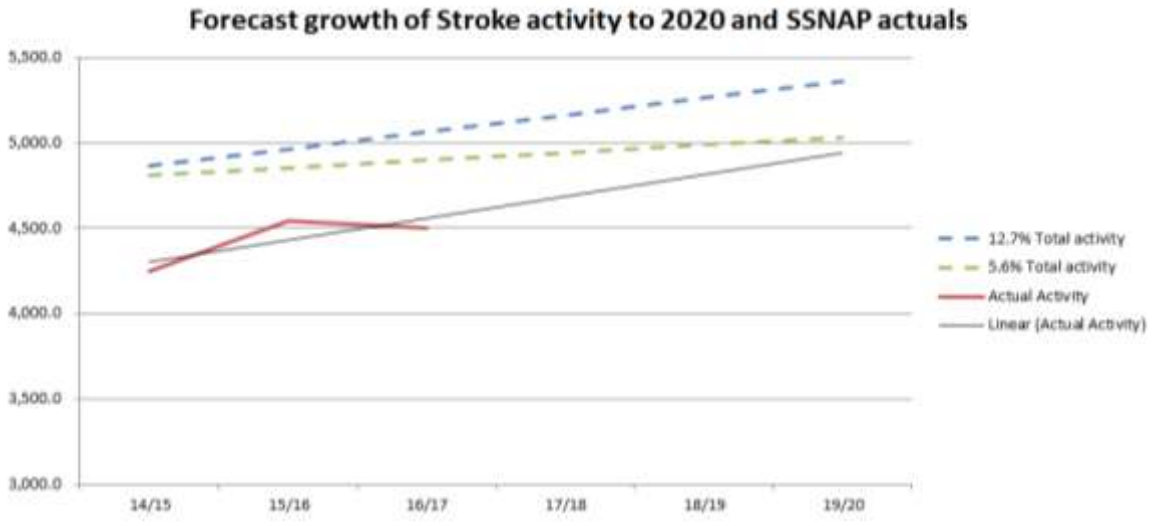
Notes: Table includes proxy figure for LTHT who submitted one quarter of data in 2013/14.
Proxy value calculated by applying 2014/15 - 2015/16 growth of 3.5% to derive 2013/14 total.
Bradford figure incorporates Airedale patients from 2015/16 onwards.

The *Current State Assessment* document modelled various scenarios (based on 2013/14 baseline of 4,855 strokes including mimics). This indicated demographic changes alone would drive activity and cost growth of 12.7%.

Improved conditions management (primarily relating to atrial fibrillation and hypertension interventions) were predicted to mitigate this growth to a rate of 5.6%. Modelling assumptions also included a stable stroke mimic rate of 25%.

Applying these assumptions to the latest SSNAP data and comparing a linear trend based on the actuals to the scenario modelling results from the *Current State Assessment* document shows actual growth in stroke volumes in line with the upper estimates of the generated scenarios – see the below graph (Figure 6 refers.)

Figure 6



5.5.3 Workforce

The *Current State Assessment* document scenario modelled the workforce surplus or deficit for key staff groups. Current SSNAP data illustrates the actual size of the stroke workforce across the West Yorkshire area (Figure 7 below refers.)

Figure 7 - Current Stroke Workforce – SSNAP Organisational Audit July 2016

	ANHST	BTHT	CHFT	HDFT	LTHT	MYHT	West Yorks Total
Number of consultant stroke physicians 2016	2	4	5	4	9	6	**30**
Total number of Programmed Activities 2016	21	31	50	23	51	44.5	**220.0**
Number of Direct Clinical Care Programmed Activities 2016	18	25	42	21	44	35.5	**184.5**
Junior Doctor (FY/Core/ST1/ST2) Programmed Activities 2016	14	20	7	10	35	35	**121.0**
Junior Doctor (ST3/Registrar grade or above) Programmed Activities	0	0	1	0	8	7	**16.0**

Comparing these numbers with the 2014 data included on page 24 of the *Current State Assessment* document shows the size of the workforce has changed as outlined in Figure 8 below.

Figure 8 - Net change in workforce between 2014 and 2016

	ANHST	BTHT	CHFT	HDFT	LTHT	MYHT	West Yorks Total
Net change in number of consultant stroke physicians 2014-16	0	1	1	0	2	-2	**2**
Net change in total number of Programmed Activities	0	6	6	0	3	9.5	**24.5**
Net change in total number of DCC Programmed Activities	1	6	4	0	2	6.9	**19.4**
Net change in Junior Doctor (FY/Core/ST1/ST2) Programmed Activities	-6	0	3	0	1	10	**8.0**
Net change in Junior Doctor (ST3/Reg grade +) Programmed Activities	0	0	-1	0	0	3	**2.0**

Whilst there have been slight increases in reported workforce numbers, there is little indication that the current configuration of workforce is more sustainable than when the current state assessment document was produced in February 2015. Note – CHFT data subject to further validation.

T&F members have agreed that further work will be required as part of the next phase of work to gain a more comprehensive view on workforce to inform our future proposals

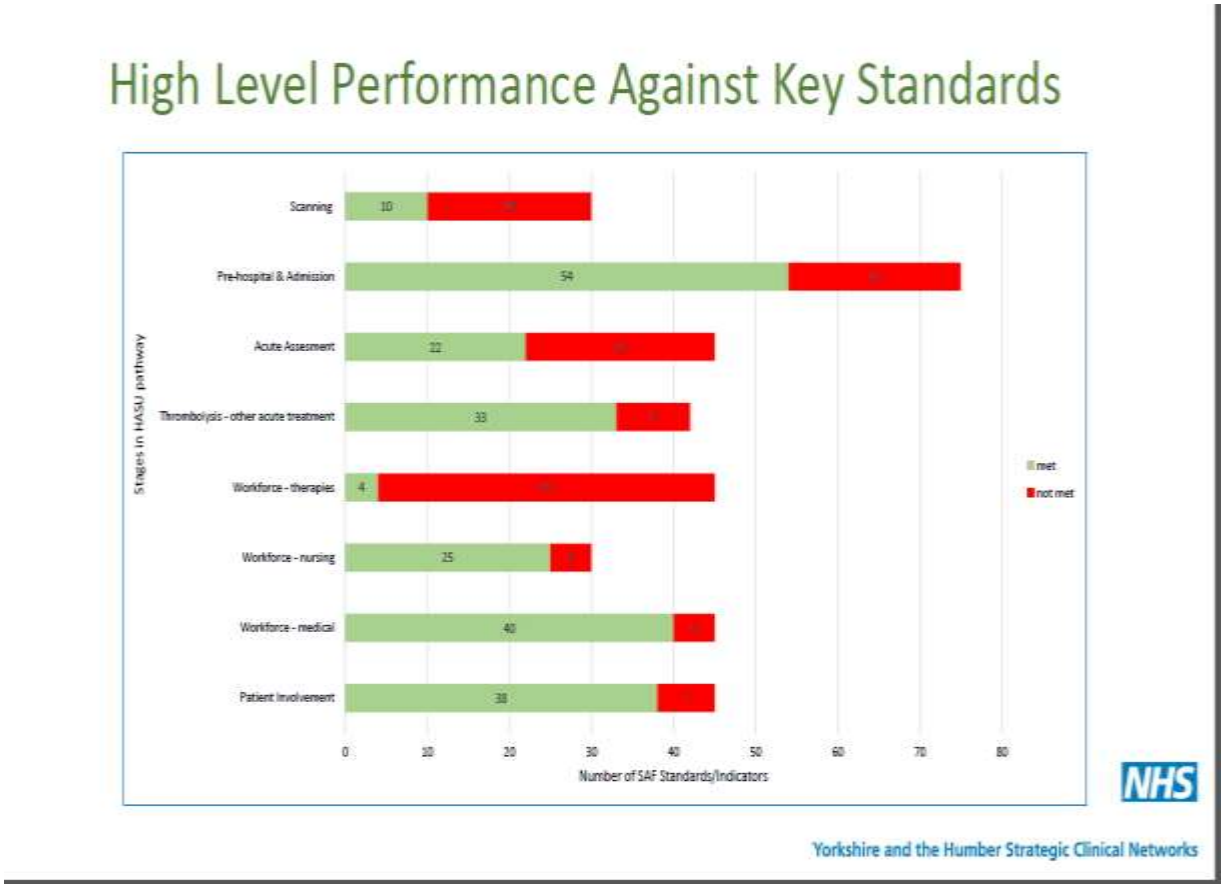
(subject to NHS England approval to proceed to next stage) for example, there was agreement that going forward information on the 'in hours' and 'out of hours' workforce position needs to be captured.

5.5.4 Quality – Stroke Sentinel National Audit Programme (SSNAP) analysis

Both the Strategic Clinical Network Hyper Acute Stroke Blueprint and the Current State Assessment highlighted variation in performance against a range of SSNAP metrics for example:

- Proportion of patients directly admitted to stroke unit within 4 hours;
- Proportion of patients scanned within 12 hours; and
- Thrombolysis within 1 hour;

Figure 9 - High level performance against key standards at Strategic Clinical Network Launch Event April 2016.



(Information source: Yorkshire and Humber Strategic Clinical Network 'Blueprint' launch event - SSNAP data Oct – Dec 2015)

T&F Clinical colleagues agreed for the purposes of the 'desk top review' the SSNAP measures should also be used to inform discussions regarding the quality of services. The following tables (Figure 10, 11 and 12 provide an overview of performance against key indicators).

Figure 10

Key indicators – Nov 2014

Acute Organisational Audit November 2014 Performance Table	Total stroke unit beds	Overall band	D1*	D2	D3	D4	D5	D6
Yorkshire and the Humber SCN								
Airedale NHS Foundation Trust	21	C	C	D	D	C	B	B
Bradford Teaching Hospitals NHS Foundation Trust	13	C	A	E	D	B	C	B
Calderdale and Huddersfield NHS Foundation Trust	55	C	A	D	D	A	D	C
Harrogate and District NHS Foundation Trust	15	C	A	B	D	B	C	B
Leeds Teaching Hospitals NHS Trust	41	D	A	B	B	E	E	E
Mid Yorkshire Hospitals NHS Trust	63	D	D	B	D	B	E	A

*16 sites that do not treat during the first 72-hours after stroke have been allocated the Domain 1 score of the site where their patients are treated during this initial phase - please see the summary report for more details

Key
D1 Acute care
D2 Specialist roles
D3 Interdisciplinary services
D4 TIA/ Neurovascular clinic
D5 Quality improvement, training and research
D6 Planning & access to specialist support

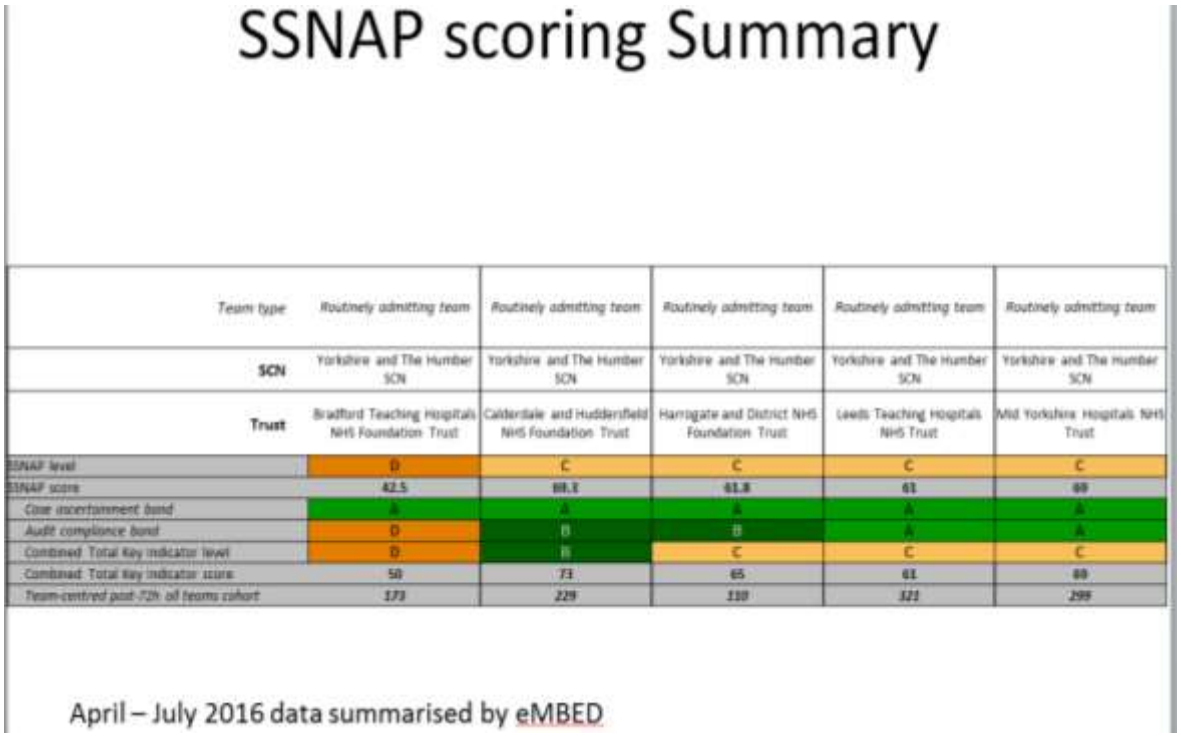
Figure 11

Key indicators – July 2016

Key indicator		Airedale NHS Foundation Trust	Bradford Teaching Hospitals NHS Foundation Trust	Calderdale and Huddersfield NHS Foundation Trust	Harrogate and District NHS Foundation Trust	Leeds Teaching Hospitals NHS Trust	Mid Yorkshire Hospitals NHS Trust
Staffing/Workforce	National results*						
1. Establishment of band 6 and band 7 nurses per 10 SU beds	51% (90/178) of sites meet KI	No	No	No	Yes	No	Yes
2. Presence of a clinical psychologist (qualified)	6% (10/178) of sites meet KI	No	No	No	Yes	No	No
7-day working							
3. Stroke consultant led ward rounds**	72% (112/156) of sites meet KI	Yes	Yes	Yes	Yes	Yes	Yes
4. Nurses on duty at 10am weekends***	20% (31/156) of sites meet KI	Yes	Yes	No	Yes	No	Yes
5. At least two types of therapy available 7 days a week	31% (55/178) of sites meet KI	No	No	Yes	Yes	No	No
Access to specialist treatment and support							
6. Patients can access intra-arterial (thrombectomy) treatment	67% (105/156) of sites meet KI	No	No	No	No	Yes	No
7. IPC used as first line prevention of venous thromboembolism	80% (143/178) of sites meet KI	Yes	Yes	Yes	Yes	Yes	Yes
8. Access to a specialist (stroke/neurological specific) Early Supported Discharge (ESD) team	81% (145/178) of sites meet KI	Yes	No	Yes	Yes	No	Yes
9. Timescale to see, investigate and initiate treatment for both high risk and low risk patients	73% (130/178) of sites meet KI	No	No	Yes	Yes	No	No
Patient and carer engagement							
10. Formal survey undertaken seeking patient/carer views on stroke services	61% (108/178) of sites meet KI	Yes	No	No	No	Yes	No
Total number of key indicators achieved (Maximum = 10)	1: 2% (3/178) 2: 2% (4/178) 3: 12% (21/178) 4: 13% (24/178) 5: 19% (33/178) 6: 21% (37/178) 7: 15% (27/178) 8: 11% (19/178) 9: 4% (8/178) 10: 1% (2/178)	5	3	5	8	4	5

(Information supplied by EmBED)

Figure 12



SSNAP scoring Summary

Team type	Routinely admitting team	Routinely admitting team	Routinely admitting team	Routinely admitting team	Routinely admitting team
SCN	Yorkshire and The Humber SCN	Yorkshire and The Humber SCN	Yorkshire and The Humber SCN	Yorkshire and The Humber SCN	Yorkshire and The Humber SCN
Trust	Bradford Teaching Hospitals NHS Foundation Trust	Calderdale and Huddersfield NHS Foundation Trust	Harrogate and District NHS Foundation Trust	Leeds Teaching Hospitals NHS Trust	Mid Yorkshire Hospitals NHS Trust
SSNAP level	D	C	C	C	C
SSNAP score	42.5	69.1	61.8	61	69
Clot ascertainment band	A	A	A	A	A
Audit compliance band	D	B	B	A	A
Combined Total Key Indicator level	D	B	C	C	C
Combined Total Key Indicator score	50	73	65	61	69
Team-centred post-72h all teams cohort	173	229	110	321	299

April – July 2016 data summarised by eMBED

T&F clinical members noted the quality of SSNAP data submitted by Trusts as part of the SSNAP had improved during the period covered by the *Current State Assessment* and *'Blueprint'* and agreed the information presented in the above graphs reflected their understanding of the current position for each of their respective organisations.

It was agreed Clinical Colleagues would submit Trust specific MIMIC information to inform future modelling. It was also agreed that further work will be required to capture and validate further quality, activity, cost and workforce information to inform our next steps.

5.5.5 Quality – Patient experience

The 'desk top review' highlighted that further work is required to capture patient experience to inform a wider view on quality to inform our future proposals.

Reference to patient satisfaction is included within our Integrated Quality Impact Assessment (which also includes the Equality Impact Assessment) and this is informing our communication and engagement activities. Information about patient experience will also be captured as part of the engagement phase which commenced with staff (mid-January 2017) and our population across the West Yorkshire and Harrogate STP footprint (1 February 2017 for a period of 6 weeks). These outputs will inform our proposals (subject to approval to proceed to Stage 2 Assurance process.)

A review of previous patient information collated as part of the Communication and Engagement Toolkit also includes reference to the engagement work that has already taken place, for example in Airedale, Wharfedale and Craven (AWC) and Bradford in 2015. That

engagement exercise identified five key themes in relation to people's concerns and ideas for improvement.

These were as follows:

- Discharge and aftercare focused on both physical and mental health support;
- Travel and parking costs with people having to travel further distances to see their loved ones;
- Treatment and outcomes for patients;
- Staffing; and
- Communication;

As a result of this feedback a patient information leaflet for ambulance staff to give to family and friends was produced highlighting what would happen to their relative and where they would be taken along with maps and telephone numbers. Visiting times to hyper acute stroke units were 'flexed' for people who travel across AWC; a community stroke rehabilitation service was commissioned in AWC (Bradford already had this) and providers established a joint focus group with patients and carers.

Further information will be captured as part of the post engagement, pre-consultation, consultation and post consultation phases (as appropriate) and mechanisms will be put in place to capture and evaluate any changes to services or care pathways from a patient perspective.

Members also considered preliminary transfer time analysis and agreed that further work is required to look at the complete pathway e.g. Ambulance call to the patient's door and Hospital door to needle time data.

5.5.6 Total Activity and Costs - Secondary Uses Service (SUS) data summary

The latest Secondary Uses Service (SUS) data was obtained from eMBED. This has captured costs and volumes for all primary spells based on the ICD-10 codes I61, I63 and I64. This data is showing an average annual growth in volumes over the last 3 years of 2.4%, along with commensurate annual average cost growth of 4.8%.

Figure 13 SUS Volume – 2013/14 to 2016/17

13/14 Totals	14/15 Totals	15/16 Totals	16/17 Totals (Annualised)	Grand Total
3,654	3,598	3,862	3,914	13,397

These growths are based on an annualised figure for the current financial year based on the first 7 months of actuals.

Figure 14 SUS Costs – 2013/14 to 2016/17

13/14 Total Costs	14/15 Total Costs	15/16 Total Costs	16/17 Total Costs (Annualised)	Grand Total
£13,176,864	£13,366,489	£14,788,890	£15,091,884	£50,135,842

Further work is required to further validate the activity and costs profiles outlined above and to complete a more detailed activity and cost profile by CCG and by Provider. It is our intention to utilise the Greater Manchester Stroke Operational Delivery templates as a starting point to inform discussions with our Provider and CCG colleagues on the data capture, validation and ownership of this information which will be a core part of the Business Intelligence and Finance work stream.

5.5.7 Impact of New Technology – Intra Arterial Thrombectomy (mechanical clot retrieval)

The literature review outlined in Section 6 of this document outlines the Intercollegiate Working Party conclusions in relation the mechanical thrombectomy, concluding that it is an effective treatment for selected patients. It also highlights there will be significant challenges to the implementation of this treatment in the UK. Section 3.5.3 of the *National Guidelines for stroke Fifth Edition 2016* also notes there will be significant implications for the organisation of acute stroke services and referrals into tertiary neurosurgical and interventional neuroradiology services.

As part of the 'desk top review' process the Clinical Director, Yorkshire and the Humber Clinical Networks also prepared a report for consideration by T&F members (which included the NHS England Lead representative for this work). The key points to note are as follows:

Epidemiology and demand - There are 80,000 stroke admissions in England per year, 12% of whom receive intravenous thrombolysis. Patients eligible for thrombectomy include:

- Those with proximal occlusion of the internal carotid or middle cerebral arteries presenting early after stroke would be considered for thrombectomy. They have extensive thrombus, are much less likely to respond to intravenous thrombolysis and have large strokes, severe disability and long lengths of stay;
- Those who do not respond to intravenous thrombolysis; and
- Those for whom thrombolysis is contraindicated e.g. pregnant women or those on anticoagulants.

The number needed to treat for one good outcome (NNT) lies between 2.6 and 8 i.e. between 1000 and 3,000 people each year lives would be transformed by the intervention.

- 8,000 patients per year will be suitable for treatment;
- 495 patients were treated during 2015 – 16; and
- 2% stroke patients will be treated in year one arising to 8% over five years.

Selection criteria

Those presenting with within 4.5 hours of onset of symptoms **AND** either:

a. Where there has been an inadequate response to intravenous thrombolysis OR
b. Those who are unable to receive intravenous thrombolysis (on anticoagulants, pregnant or recent surgery).

AND have proximal occlusion in the anterior cerebral circulation on imaging
AND have a National Institute of Health Stroke Score (NIHSS) >5
AND were previously independent in activities of daily living (Rankin score < 3)
AND can have thrombectomy within six hours of the onset of symptoms.

A final decision as to whether mechanical thrombectomy for acute ischaemic stroke will be routinely commissioned is planned to be made by NHS England at some time in 2017 following a recommendation from the Clinical Priorities Advisory Group.

Subject to the outcome of the recommendations of the Clinical Priorities Advisory Group there is recognition that any future proposals across the West Yorkshire and Harrogate footprint will need to take account of NHS England's commissioner developments and timelines associated with this technology advance.

5.5.8 'Desk top review' summary

The outcome of 'desk top review' process has shown the following:

- No significant changes to the assumptions based on the data outlined in the Strategic Clinical Network 'Blueprint' are required;
- Although some Trusts have improved their performance against some of the *Stroke Sentinel National Audit Programme (SSNAP)* metrics, variation in the quality of our specialist hyper acute services and pathways continues to exist. Further work is therefore required to reduce this variation;
- In order to ensure all our patients are able to access high quality services no matter where they live and no matter what time of day/night they are admitted, further changes may be required to ensure our future specialist hyper acute and acute service delivery models of care are as safe and resilient as possible, deliver consistent quality services over 7 days (including early supported discharge at weekends), improved access to imaging and new technologies;
- Across the Yorkshire and Humber footprint a number of hyper acute services have experienced resilience issues which have required emergency commissioning and provider arrangements to be put in place. We want to determine the optimal service delivery models that will further improve the resilience of our specialist hyper acute and acute stroke services so they are 'fit for the future' and we minimise the risks of our services experiencing resilience issues;
- It is important that work continues to further improve care across the whole care pathway (prevention, primary care, hyper acute and acute care, community services through to stroke after care) in order to further improve outcomes and ensure

services and care pathways are working effectively to further improve patient experience and outcomes and avoid delays;

The 'desk top review' process has re-inforced the view of our clinical colleagues and other key stakeholders that we need to progress our case for change with a view to gaining NHS England approval to proceed to the next phase so that we can develop our proposals with our population and key stakeholders in line with the NHS England Assurance Process and key requirements.

6. Literature Review

During Q3 2016/17 as part of their literature review the Stroke/HAS T&F Group made reference to the latest available evidence in the public domain to inform the development of this Strategic Case for Change. These include the following:

- ***The National clinical guidelines for stroke: Fifth Edition 2016;*** [27]
- ***NHS Stroke Services: Configuration Decision Support Guide;***[28]
- ***Greater Manchester Stroke Operational Delivery Network Annual Report: July 2015 – 2016***[29]***;*** *and*
- ***East Midlands Clinical Senate and East Midlands Clinical Network programme.***[30]

In addition to the above it is important to note that, as outlined earlier, the *Current State Assessment 2015* included a comprehensive literature review which also appraised the evidence available in the public domain about the effectiveness of hyper-acute and acute stroke care.

The information and recommendations referenced in this literature review have informed the development of our Strategic Case for Change and subject to approval of the Strategic Case for Change (as part of the NHS England Stage 1 Assurance process) will also be subject to further review by the T&F Group and other key stakeholders to inform the development of our future proposals as part of our evidence based approach to transformation.

The foreword of the *National Clinical Guideline for Stroke: Fifth Edition 2016* states the guideline is the most comprehensive and up to date document on how stroke care should be provided, covering the whole pathway from pre-hospital to long-term management. It is designed not just for clinicians but also for patients and their families and carers, and those with responsibilities for commissioning stroke services.

It highlights the available evidence for the treatment of stroke continues to grow steeply and includes significant updates from the 2012 edition. The preface of the guideline summarises what's new in 2016 as follows:

---

[27] Royal College of Physicians. Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fifth Edition, 2016.

[28] NHS England. Stroke Services: Configuration Decision Support Guide. Available from http://emsenate.nhs.uk/downloads/documents/End_of_Life/Stroke/Stroke_Services_Configuration_Support_Guide.pdf

[29] Greater Manchester Stroke Operational Delivery Network. Annual Report, July 2015 – July 2016.

[30] East Midlands Clinical Senate and East Midlands Clinical Network programme. Available from http://emsenate.nhs.uk/cardiovascular/work-programmes/stroke

- Mechanical Thrombectomy for acute ischaemic stroke (section 3.5 of the guidelines);
- Urgent brain imaging within 1 hour of hospital arrival for suspected stroke (section 3.4 of the guidelines);
- Acute blood pressure management in intracerebral haemorrhage (section 3.6 of the guidelines);
- Urgent management of suspected minor stroke and TIA irrespective of risk stratification (section 3.2 of the guidelines);
- Incorporation of clinical psychology/clinical neuropsychology, dietetics and orthoptics expertise into the multi-disciplinary stroke rehabilitation team (section 2.4 of the guidelines);
- Changes in the practice of early mobilisation after acute stroke (section 3.12 of the guidelines);
- Pragmatic management of swallowing difficulties in end-of-life stroke care (section 2.15);
- Mechanically-assisted methods for gait training in people who are unable to walk after stroke (section 4.9.4); and
- Lower blood pressure targets for secondary stroke prevention compared with previous NICE guidelines (section 5.4).

It is important to note that the *Fifth Edition 2016 guideline*, evidence, recommendations and bibliography are set out over 147 pages and therefore the information referenced in this part of the literature review are not exhaustive. They have been referenced at this stage as examples that have informed the whole pathway discussions that have been taking place with wider stakeholders.

The NHS Stroke Services: Configuration Decision Support Guide[31] was developed using best practice guidelines and narrative already available to avoid replicating work and to ensure consistency. In particular the guide made reference to the following documents and service reviews that shaped their core narrative:

- Planning and delivering service changes for patient: A good practice guide for commissioner and the development of proposals for major service changes and reconfiguration (NHS England)
- Effective Service Change: A support and guidance toolkit (NHS England);
- Healthcare for London acute stroke review documentation;
- The NHS Midlands and East stroke service review documentation;
- NHS London reconfiguration guide 2011;
- Improving Stroke Services: A guide for commissioners (Department of Health, 2006); and
- Birmingham, Solihull and Black Country stroke services review documentation.

6.1 Commissioning approaches and overall structure of stroke services

The *Fifth Edition 2016* guidelines include a number of key recommendations to commissioning organisations in relation to the overall structure of stroke services. Key messages are as follows:

[31] NHS England. Stroke Services: Configuration Decision Support Guide. Available from http://emsenate.nhs.uk/downloads/documents/End_of_Life/Stroke/Stroke_Services_Configuration_Support_Guide.pdf footnote (footnotes 99, 100,

- **Commissioning whole pathways -** commissioners should ensure their commissioning portfolio includes the whole stroke pathway from prevention (including neurovascular services) through acute care, early rehabilitation, secondary prevention, early supported discharge, community rehabilitation, systematic follow up, palliative care and long-term support (section 6.1.1 A);

- **Organisational Structures -** effective stroke care will only occur if the organisational structure facilitates the delivery of the best effective treatments at the optimal time; for example, intravenous thrombylisis (a recommended treatment) can only be given within 4.5 hours of stroke onset if people arrive the appropriate setting within that time (section 2.2);

- **Acute medical services implications/inter-dependencies -** recommendations related to hyper acute care have significant implications for the organisation of acute medical services within any 'health economy' (section 2.3); and

- **Commissioning at regional or sub regional level** - those who commission and provide stroke services are required to configure these services to achieve the maximum benefit to the population from the delivery of time-sensitive treatments, and to consider issues relating to the co-location of other emergency services beyond the scope of the guideline (section 2.2.3)

6.2 Improving outcomes through integrated commissioning of stroke care

Section 3.2 of the *NHS Stroke Services: Configuration Decision Support Guide* highlights that there is considerable scope to improve patient outcomes through integrated commissioning of stroke. It states many strokes are preventable and the impact of stroke can be minimised if specialist treatment and care is available and people have a better chance of making a good recovery. This approach can mean a more effective use of resources across the whole health and social care system through strokes avoided shorter length of hospital stays and reduced disability costs.

The guide also highlights the key elements of good practice within high quality stroke care (section 3.3 refers). It states:

'High performing stroke services are well integrated across primary, emergency, acute and social care, delivered by stroke-skilled and specialist staff, and treat stroke as a medical emergency.'

Specifically they are likely to provide the following:

- **Prevention** – maximising the opportunities for preventing stroke through effective targeted access to the highest quality advice or prevention in primary and secondary risk management (section 3.3)
- **Acute care** – treat transient ischaemic attack (TIA) as a warning comparable to chest pain. People seen by ambulance staff outside hospital are screened for suspected stroke or TIA. Admission to a specialist stroke unit for assessment and treatment by a multi-disciplinary team (section 3.3)
- **Rehabilitation** – patients who need ongoing inpatient rehabilitation should be treated in a specialist stroke rehabilitation unit and offered a minimum of 45 minutes of active therapy required for a minimum of 5 days per week. All patients should be screened within six weeks to identify mood disturbance and cognitive impairment. Provide early rehabilitation and mobilisation supported by transfer of care to home as soon as possible, patients with residual stroke related problems followed up within 72hrs by specialist stroke rehabilitation services (section 3.3); an
- **Longer term care** – carers should be provided with a named point of contact for stroke information and information about the patient's diagnosis and management plan and practical training to help them provide care. Provide psychological and emotional support for patients and carers (section 3.3).

Section 3.2 of the *NHS Stroke Services: Configuration Decision Support Guide* describes the key elements of a high quality stroke service which maximise opportunities to further improve outcomes and have informed our Strategic Case for Change recommendations. The key messages are as follows:

- **Prompt admission to a specialist stroke unit** - the most important care for people with any form of stroke is prompt admission to a specialist stroke unit (section 3.2);
- **The quality of the stroke unit** - is the single biggest factor that can improve a person's outcome following a stroke (section 3.2); and
- **Hyper acute stroke services** - enable patients to have rapid access to staff with the right skills and equipment to be treated 24/7 on a dedicated stroke unit staffed by specialist teams where they will receive expert care, including assessment, access to a CT scan and clot-busting drugs (if appropriate) within 30 minutes of arrival at the hospital (section 3.2).

6.3 High quality care – hyper acute stroke services

Section 3.4 of *The National Clinical Guideline for Stroke: Fifth Edition 2016* states stroke is a medical emergency and if outcomes are to be optimised there should be no time delays in diagnosis and treatment with any patient with acute onset of a neurological syndrome with persisting symptoms and signs of suspected stroke need urgent diagnostic assessment to differentiate between acute stroke and other causes. The key recommendations outlined in section 3.4.1 are as follows:

- **Direct admission to a hyper acute stroke unit –** to be assessed for emergency stroke treatments by a specialist physician without delay (section 3.4.1 A);
- **Brain imaging –** Patients with suspected acute stroke should receive brain imaging urgently and at most within 1 hour of arrival at hospital (section 3.4.1 B);
- **Thrombolysis –** interpretation of acute stroke imaging for thrombolysis decisions should only be made by healthcare professionals who have received appropriate training (section 3.4.1 C);
- **Endovascular therapy –** Patients with ischaemic stroke who are eligible for endovascular therapy should have a CT angiogram from aortic arch to skull vertex immediately. This should not delay the administration of intravenous thrombolysis (section 3.4.1 D); and
- **MRI –** MRI with stroke-specific sequences (diffusion-weighted imaging, T2*) should be performed in patients with suspected acute stroke when there is diagnostic uncertainty (section 3.4.1 E).

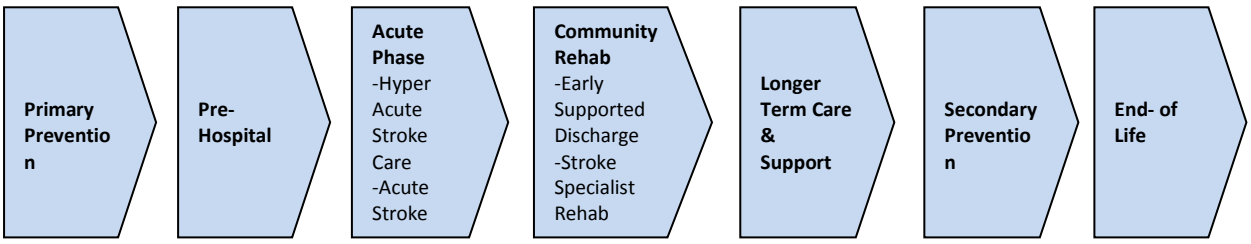
The guidelines also makes reference to the major reorganisations of stroke services that have taken place in some parts of the UK to improve hyper acute stroke care. It states recent evidence from Manchester and London suggest that such care should be available in 24 hours a day, 7 days a week hyper acute stroke centres and should be for all people with acute stroke, not just those suitable for intravenous thrombolysis[32].

Section 2.2.3 of this guidance states the health and societal cost consequences should be positive because more effective stroke care will reduce long-term rehabilitation and care costs.

6.4 Comprehensive stroke services and pathways

The literature review has highlighted the importance of taking a 'whole system' and 'whole pathway approach' to improving stroke care for our population. The *NHS Stroke Services: Configuration Decision Support Guide* sets out the criteria different parts of the stroke pathway need to meet the deliver high quality care to patients and achieve the step change improvement (section 3.4.)

It highlights that adopting a whole pathway approach to the provision of stroke services is crucial to maximising the clinical outcomes. It describes the objectives of a comprehensive stroke pathway and services framework that covers the following:



NB: The size shapes outlined above are not indicative of time

6.5 Community rehabilitation and early supported discharge

Section 6.4 of *The NHS Stroke Services: Configuration Decision Support Guide* states Rehabilitation services should be commissioned to reduce limitation in activities, increase participation and improve the quality of life of people with stroke using therapeutic and adaptive strategies. With stroke being the third largest cause of disability in the UK (*Newton et al, 2015)*, providing rehabilitation is cost-effective in reducing long-term disability and the costs of domiciliary and institutional care.

[32] Royal College of Physicians. Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fifth Edition, 2016. (Ramsey et al, 2015.) pg 13

With regard to rehabilitation the guidelines state that comparative studies suggest that in the UK face-face therapist-patient contact time is lower than in other European countries *(Putman et al, 2006, Putman et al 2007.)* Recommendations include:

- People with stroke should accumulate at least 45 minutes of appropriate therapy every day, at a frequency that meets their goals for as long as they are willing and capable of participating and showing measureable benefit; and
- In the first two weeks after following stroke, therapy targeted at the recovery of mobility should consist of frequent, short interventions every day, typically beginning between 24 hours and 48 hours after stroke onset.

The guidelines highlight that one in 12 people with stroke in the UK have to move to a care home because of their stroke *(Intercollegiate Stroke Working Party, 2016 pg 32),* and conversely, about a quarter of care home residents have had a stroke, often in association with other co-morbidities. It makes reference to the current position in relation to rehabilitation and makes a number of recommendations intended to reduce dependency and as far as possible improve the quality of life for people with stroke who live in care homes.

6.6 End-of-life care (palliative care)

Section 2.15 of the *National Clinical Guideline for Stroke: Fifth Edition 2016* highlights that about one in 20 people with acute stroke will be receiving end-of-life care within 72 hours of onset, and one in seven people will die in hospital (*Intercollegiate Stroke Working Party, 2016*), making stroke one of the most lethal acute conditions in modern medicine. The guidelines highlight that this means that providing high quality end-of-life care is a core activity for any multi-disciplinary stroke team.

6.7 Technology

From a telemedicine perspective section 2.4 of the *Fifth Edition Guidelines* state observational evidence suggests that telemedicine is associated with more protocol violations and longer treatment times *(Meyer et al, 2008, Dutta et al, 2015.)* Furthermore, unless telemedicine is used as part of an otherwise well-developed acute stroke service, outcomes may suffer *(Heffner et al, 2015.)*

The literature review concludes mechanical thrombectomy is an effective treatment for selected patients. It also highlights there will be significant challenges to the implementation of this treatment in the UK. Section 3.5.3 of the *National Guidelines for Stroke Fifth Edition 2016* also notes there will be significant implications for the organisation of acute stroke services and referrals into tertiary neurosurgical and interventional neuroradiology services.

6.8 Support to carers

The guidelines note that the *2014 Care Act*[33] enshrines the legal duty of a Local Authority to assess any carer who requests an assessment and appears to require support and includes a number of recommendations related to this.

[33] http://www.legislation.gov.uk/ukpga/2014/23/contents/enacted

6.9 Stroke services for younger adults

The *Fifth Edition 2016 guidelines* highlight that stroke occurs at all ages and about a quarter of people with stroke are aged under 65 years and observes that some younger adults feel that general stroke services do not meet their needs and outline a number of recommendations specific to younger adults.

6.10 Access to psychological care

The *Fifth Edition 2016 guidelines* state that psychological care should be provided by stroke services across acute and community settings and highlight that national audits continue to highlight inadequate service provision. It also provides recommendations related to self-management.

6.11 Length of stay in a hospital or institution

Studies show a significant variation in the length of stay in a hospital or institution between organised Stroke Units (comprehensive, rehabilitation, and mixed rehabilitation stroke wards) compared with alternative care, favouring organised Stroke Units (Ma et al, 2004, Garraway et al, 1980, Svensson et al, 2012, Solling et al, 2009, Fagerberg et al, 2000, Cabral et al, 2003, Hankey et al, 1997, von Arbin et al, 1980, Laursen et al, 1995, Indredavik et al, 1991, Stroke Unit Trialists' Collaboration, Cochrane Database, 2007, Strand et al, 1985, Livingstone and Bunn, 2014; Fitzpatrick 2013; Hunter et al, 2013; Sun et al, 2013).

6.12 Cost effectiveness

Studies included in this review suggest that Stroke Units and specifically ASU and HASU are cost effective. However, Quinn (2011) highlights that there are multiple challenges to conducting a proper economic evaluation of stroke care and caution must be taken when considering the findings.

Fuentes and Diez-Tejedor (2009) and Guzauskas et al (2012) found in their review evidence that specialist Stroke Units are the most cost effective and efficient way to deliver care when compared to stroke teams or general wards.

The *National Audit Office (2010)*[34] concluded that ASU and HASU are cost effective as they improve health outcomes and reduce mortality (though they draw attention to the limitations in the modelling used). The cost saving made by ASU and HASU may be related to the prompt delivery of specialist care. NICE (2010) suggest that a higher number of patients receiving essential brain imaging within 1 hour of arrival at hospital may result in some marginal additional costs in provision of out of hours' services, but would result in savings due to increased number of patients being identified as eligible for thrombolysis.

Penaloza-Ramos et al (2014) and Switzer et al (2012) also suggest that an increased rate of thrombolysis improves the cost effectiveness of ASU and HASUs. NICE (2010) also state that increasing the proportion of patients who have a swallowing assessment in specialist units would incur minimal additional costs but increase cost savings by avoiding complications from dehydration or malnutrition.

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

6.13 Governance and quality improvement

The *Fifth Edition guidelines* emphasise the importance of governance and quality improvement which includes collecting appropriate data in a timely manner, analysing the data and acting upon the findings. It recommends Clinicians should participate in the national stroke audit, keeping a quality register for people admitted, regular review of service provision, multi-disciplinary leadership to the process of clinical audit and participating in clinical networks.

It states General Practitioners should regularly audit the primary and secondary prevention of stroke within their practice and maintains a register of people with stroke or TIA.

6.14 Network approaches

Both East Midlands and Manchester have adopted a Network approach highlighting the benefits of working as a Network and the value that Networks can bring.

The East Midlands Clinical Network support the administration of a stroke clinical advisory group in order to oversee and provide directional guidance for the clinical area. Included in their terms of reference are the following:

- Clinically and managerially oversee the development and delivery of stroke specific network strategies focusing on achieving maximum health gain/benefit for the East Midlands' population;
- Facilitate the delivery of consistent, high quality care in line with national guidance with an emphasis on ensuring equitable provision of services and a seamless transition in care across the whole patient journey;
- Ensure the network's activities focus on quality and productivity;
- Oversee the development of clinical pathways and models of care for recommendation to commissioners (NHS Commissioning Board and Clinical Commissioning Groups), for implementation at local level;
- Recommend clinical policies and procedures for endorsement for use across the East Midlands;
- Promote and ensure consistency of participation with and data entry to the Sentinel Stroke National Audit Programme (SSNAP);
- Review SSNAP results and local work plans for continuous quality improvement across all domains of care;
- Advise the network area's health community on clinical issues relating to stroke care; and
- Foster a culture of clinical leadership and patient/public engagement in the development and assurance of stroke service provision.

The Greater Manchester Stroke Operational Delivery Network are provider funded and their *Annual Report July 2015 – July 2016* describes how they add value to local stroke care by:

- Being a focal point for stroke in Greater Manchester;
- Providing a voice for patients, carers and voluntary sector organisations;
- Facilitating a strategic approach to improving local stroke outcomes across the whole pathway;

- Providing a governance structure through which organisations can hold each other to account with mechanisms to identify and address issues and risks;
- Involving key stakeholders e.g. networking, peer support and sharing of best practice; and
- Providing forums for discussion and resolution of issues and facilitating service improvements.

7. Conclusions, recommendations and next steps

7.1 Conclusion

There is strong evidence that outcomes following stroke are better if people are treated in specialised centres, even if this increases travelling time following the event, and this is likely to be the case in West Yorkshire & Harrogate. Ongoing rehabilitation should, however, be provided at locations closer to where people live, and they should be transferred to these as soon as possible after initial treatment.

The importance of taking a 'whole system' and 'whole pathway approach' to improving stroke care has also been highlighted through discussions with our local clinicians and other key stakeholders (reflecting our agreed vision for stroke care) and is in line with work taking place elsewhere e.g. Manchester and our literature review findings.

Across West Yorkshire and Harrogate, significant work has already taken place in our Hospitals and our Ambulance Service to improve the quality of care and outcomes for stroke. Work has also taken place across our place based footprints to further reduce the risk of stroke through the implementation of a range of initiatives e.g. atrial fibrillation and hypertension pathway developments and implementation of prevention strategies.

The outcome of our work, to date, suggests that in order to further improve quality and stroke outcomes for our patients further work is now required to determine the optimal service delivery models across the West Yorkshire and Harrogate footprint so that our services are 'fit for the future'.

Our work to date has been supported by the Strategic Clinical Network, which included consultants and doctors and other clinical and non-clinical stakeholders across the West Yorkshire and Harrogate STP footprint.

The recommendations made are in line with new models of care described in the *NHS 5 Year Forward View*. Work taking place in other areas such as Manchester and London, and our strategic vision and priorities set out in the public summary of the *West Yorkshire and Harrogate Draft Sustainability and Transformation Plan* published November 2016.

7.2 Recommendations

As a result of the work we have done to date, we believe the information outlined in this Strategic Case for Change demonstrates that if we are to further improve the quality of our specialist stroke services, outcomes and experience for our patients further work is required to ensure that our services are resilient and 'fit for the future'

In view of this we recommend that we begin the work to develop our proposals to determine the optimal service delivery models and pathways that need to be in place across the West Yorkshire and Harrogate footprint set in the context of ensuring that we are maximising the opportunities to further improve care and outcomes for our population along the whole stroke care pathway.

7.3 Next steps

The Strategic Case for Change (V6.0) reflects comments from the following stakeholders:

- West Yorkshire Healthy Futures Stroke/HAS Task and Finish (T&F) Group members (includes Trust and Ambulance service clinical representatives and CCG commissioner clinical chair and Chief Officer representatives);
- West Yorkshire Association of Acute Trust (WYAAT) colleagues (including Medical Directors and Chief Officers);
- Urgent and Emergency Care Network colleagues (representation includes clinical and non clinical representatives from acute, non acute and primary care providers, commissioners, Healthwatch and Local Authorities);
- Healthy Futures Clinical Forum members (includes CCG and Acute and Ambulance Provider clinical representatives); and
- Healthy Futures Collaborative Forum (11 CCG's and NHS England.)

Subject to the approval of the Healthy Futures Collaborative Forum (HFCF) on 7 March 2017 the Strategic Case for Change will be submitted to NHS England as part of the Stage 1 NHS England Assurance process.

The Clinical Senate will also be asked to review the Strategic Case for Change to determine whether they support our recommendations to commence further work to develop proposals to determine the optimal service delivery models for the population of West Yorkshire and Harrogate. Subject to the outcome of our discussions with NHS England we will also be seeking the Clinical Senate's views on the key areas that we should focus on in order to strengthen our discussions with key stakeholders to inform the development of our proposals.

Subject to approval of the Strategic Case for Change we will produce a public summary/easy read version at the earliest opportunity and this will be avaialable on the website.

We have developed a communications and engagement toolkit to inform discussion with our staff, Overview and Scrutiny Committees, Health and Well Being Boards, Governing Boards, Voluntary Sector, MPs, Media and other key stakeholders. On the 1 February 2017 we began a 6 week period of engagement with our population across the West Yorkshire and Harrogate STP footprint (led by Healthwatch) to gain their views on stroke care (prevention, primary care, 72hrs and rehabilitation through to after care). A mid point engagement review meeting is also scheduled.

A post engagement report will be prepared for consideration by key stakeholders and will inform the development of the next phase of our work (subject to NHS England approval to proceed to the Stage 2 Assurance process.)

Both the work that has taken place to date and the literature review highlight the importance of ensuring the whole stroke pathway is working effectively (from pre-hospital

to long-term management) in order to support timely repatriation from specialist hyper acute stroke services to acute stroke or community stroke services, avoid delays along the

whole care pathway and to maximise the opportunities to prevent stroke and improve outcomes and quality for our population.

In view of this, further discussions with the Yorkshire and Humber Academic Health Science Network (AHSN), the Primary and Community Care STP work stream lead, Public Health, place based stroke leads and other key stakeholders will take place to determine the current position in relation to these important elements of the care pathway to inform the next phase of our work particularly in relation to the following:

- Gaining an improved understanding of the current position in relation to place based prevention work;
- Establishing whether the atrial fibrillation and hypertension interventions are delivering the intended benefits in line with projections; and
- Timely access and availability of early supported discharge (ESD), community rehabilitation, end of life, longer term care and voluntary care sector provision .

It is our intention to expand the core membership of the T&F Group to include a member of the Patient and Involvement Regional Lay member Reference Group, a public health representative and a community services representative.

Subject to NHS England approval to proceed to Stage 2 Assurance process, work will commence on the next phase of the project plan which will include, modelling and discussion with key stakeholders in the following areas:

- Workforce e.g. in hours and out of hours, inter-dependencies between specialist and acute stroke care;
- Business Intelligence e.g. travel times, impact of cross boundary flows and 7 day standards;
- Finance (validation of CCG and Provider costs and financial modelling approach, assumptions and principles);
- Further Equality Impact Analysis (which includes Joint Strategic Needs Analysis across each of the place based footprints) to further inform our communication and engagement activities;
- Communications and engagement e.g. review of engagement outputs, Equality Impact Assessment update and review, preparatory work for the pre-consultation engagement (subject to approval to proceed) and ongoing dialogue with key stakeholders, e.g. our population, our staff and STP partners; and
- Further discussion with NHS England specialised commissioners regarding Intra-Arterial Thrombectomy developments e.g. timelines, capacity and demand assumptions, impact on pathways and repatriation policies.

GLOSSARY and abbreviations **APPENDIX A**

Anticoagulants – A group of drugs used to reduce the risk of clots by thinning the blood.

Atrial Fibrillation (AF) - Irregular, chaotic heart rhythm.

Care Pathway – A tool used by healthcare professionals to define the sequence and timings of a set of tasks or interventions that should be performed on a patient who enters a healthcare setting (e.g. a hospital) with a specific problem.

Commissioner (health services) – Person or organisation that decides how to allocate the health budget for the service.

Computed tomography (CT) – An X-ray technique used to examine the brain.

Early Supported Discharge (ESD) – A team offering rehabilation in the community that replicates the stroke unit care; this enables earlier home discharge than would be possible if the team was not available.

Hyperacute Stroke Unit (HASU) – A stroke unit that treats patients in the first few days of symptom onset.

Hypertension - High blood pressure.

Intra-arterial Thrombectomy (IAT) – Mechanical clot retrieval.

National Institute for Health and Clinical Excellence (NICE) – A special health authority set up within the NHS to develop appropriate and consistent advice on healthcare technologies, and to commission evidence based guidelines.

Palliative Care – Care that relieves rather than treats symptoms.

Primary Prevention - Methods to avoid occurrence of disease.

Secondary Prevention - Methods to diagnose and treat existent disease in early stages before it causes significant morbidity.

Specialist – A clinician who's practice is limited to a particular branch of medicine or surgery, especially one who is certified by a higher educational organisation.

Stroke - The damaging or killing of brain cells starved of oxygen as a result of the blood supply to part of the brain being cut off. Types of stroke include Ischaemic stroke caused by blood clots to the brain or haemorrhagic stroke caused by bleeding into/of the brain.

Telemedicine – The use of telecommunication and information technologies in order to provider clinical healthcare at a distance.

Thrombolysis - The breaking up of a blood clot (in strokes via the use of drugs). An example of a thrombolysis drug is alteplase, also sometimes called tPA.

Transient ischaemic attack (TIA) - A stroke which recovers within 24 hours of onset of symptoms.

APPENDIX B

Literature Review References

Academic Health Science Network. Stroke Prevention in atrial fibrillation. Available from: http://www.yhahsn.org.uk/service/population-health-service/atrial-fibrillation/ (accessed 3 October 2016)

East Midlands Clinical Senate and East Midlands Clinical Network programme. Available from http://emsenate.nhs.uk/cardiovascular/work-programmes/stroke (accessed 31 January 2017

The Government's mandate to NHS England for 2016-17, Department of Health, January 2016, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/494485/NHSE_mandate_16-17_22_Jan.pdf

Greater Manchester Stroke Operational Delivery Network. Annual Report, July 2015 – July 2016.

Healthy Futures Stroke Programme. Hyper-Acute Stroke Services Review: Current State Assessment V1.0 Final, 25 February 2015.

Healthy Futures Stroke Programme. Hyper-Acute Stroke Services Review: Options Appraisal, Version: Final for approval, 7 July 2015.

Healthy Futures Programme. Legacy document: final for issue (cites the reference taken from the atrial fibrillation website referencing Jorgensen HS, Nakayama H, Reith J et al. Acute stroke with atrial fibrillation. The Copenhagen Stroke Study, 1996:27 1765-9.

http://www.legislation.gov.uk/ukpga/2010/15/contents

http://www.legislation.gov.uk/ukpga/2014/23/contents/enacted

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

https://www.strokeaudit.org/

http://www.yhscn.nhs.uk/index.php

http://www.yhahsn.org.uk/

Hunter, R.Davie, C.Rudd, A.Thompson, A.Walker, H.Thomson, N.Mountford, J.Schwamm, L.Deanfield, J.Thompson, K.Dewan, B.Mistry, M.Qouraishi, S and Morris, S. (2013). Impact on Clinical and Cost Outcomes of a Centralized Approach to Acute Stroke Care in London: A Comparative Effectiveness before and after model. Plos One.8,8.

Department of Health, National Stroke Strategy. 2007, London.

NHS England (2016) Business Plan 2016/17. Available from https://www.england.nhs.uk/wp-content/uploads/2016/03/bus-plan-16.pdf (accessed 14 November 2016)

NHS England (2016) Effective Service Change: A support and guidance toolkit v.2 2016. Publications Gateway Reference 00814

NHS England (2014) Five Year Forward View. Available from https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf (Accessed 3 Nov 2016)

NHS England. Stroke Services: Configuration Decision Support Guide. Available from http://emsenate.nhs.uk/downloads/documents/End_of_Life/Stroke/Stroke_Services_Configuration_Support_Guide.pdf (Accessed 27 October 2016)

NHS England. Planning and delivering service changes for patient: A good practice guide for commissioner and the development of proposals for major service changes and reconfiguration. Available from http://www.england.nhs.uk/wp-content/uploads/2013/12/plan-del-serv-chge1.pdf

NHS Operational Planning and Contracting Guidance 2017 – 2019, NHS England and NHS Improvement, September 2016, https://www.england.nhs.uk/wp-content/uploads/2016/09/NHS-operational-planning-guidance-201617-201819.pdf

NHS Services, Seven Days a Week Forum, Summary of Initial Findings, December 2013, https://www.england.nhs.uk/wp-content/uploads/2013/12/forum-summary-report.pdf

Royal College of Physicians. Intercollegiate Stroke Working Party. National clinical guideline for stroke. Fifth Edition, 2016.

Royal College of Physicians Sentinel Stroke National Audit Programme. 2016, https://www.strokeaudit.org/results.aspx (accessed via Embed)

Urgent Network Specialist Services and 7 day hospital services baseline position November 2016

West and South Yorkshire and Bassetlaw Commissioning Support Unit (2014). Healthy Futures Programme: Case for Change Stroke Prevention.

West Yorkshire and Harrogate. Sustainability and Transformation Plan draft proposals, October 2016.

West Yorkshire and Harrogate. Draft Sustainability and Transformation Plan Public Summary, November 2016.

Yorkshire and Humber Strategic Clinical Networks. Hyper Acute Stroke Services, Yorkshire and Humber 'Blueprint' for Yorkshire and Humber Clinical Commissioning Groups V1.1, June 2016.