Nottingham and Nottinghamshire ICS

CVD to Stroke Clinical and Community Services Strategy

March 2020

This information has been placed in the public domain in order to benefit patients across the country as we believe the experience and approach may be useful for others, however we request that acknowledgement to the work in Nottinghamshire is made and referenced in all materials. This helps us to understand the wider impact benefits of our programme. Please cite 'this work has been informed by the Nottingham and Nottinghamshire ICS' when referencing.

Contents

1. Executive Summary

The Integrated Care System (ICS) ambition across Nottinghamshire is to both increase the duration of people's lives and to improve the quality of those additional years, allowing people to live longer, happier, healthier and more independently into their old age. The aim of the Clinical and Community Services Strategy (CCSS) is to support the system to achieve this by shifting the focus of our health and care delivery from reactive, hospital based treatment models to a pro-active approach of prevention and early intervention, delivered in people's homes or in community locations where this is appropriate with a long term view of beyond 5 years.

Stroke is a leading cause of death and disability in the UK, with approximately 152,000 strokes every year and over 1.2 million stroke survivors. Stroke consumes approximately 5% of NHS resources, with a large amount of this being due to inpatient care or disabled stroke patients. Recovery can continue for many years after a stroke and consequently a seamless transfer of care and access to services over the long term is important for positive patient outcomes.

The National Health Service (NHS) Long Term Plan (LTP) suggests that the number of stroke survivors living with disability will increase by a third by 2035.

This cardio-vascular disease (CVD) to Stroke service review has been undertaken as part of the ICS CCSS work stream. This has been supported by clinical experts and stakeholders in the development of place based service models for the future to support the long term needs of our existing citizens and embedding prevention in our population over the next 5-10 years by shifting our culture from one of illness to one of healthier lifestyles and self-care.

The strategy identifies major stages in the stroke patient's journey and stresses a need to reorganise the way in which stroke services are delivered, from prevention through to longer term support for those who have experienced a stroke.

A whole pathway approach in the provision of stroke services is crucial in order to maximise the clinical outcome for patients, their quality of life and experience of stroke services. The first 72 hours of care are vital to ensure the optimum clinical outcome for stroke survivors. This needs to be underpinned by an effective whole system pathway from hyper-acute stroke unit admission to subsequent rehabilitation and longer term support if applicable.

Key themes have been identified along with key transformational opportunities and potential impacts have been developed which include: prevention strategies to promote healthy ageing and independence and reduce avoidable admissions; improved access & shared communication about patients past medical history by paramedics attending as an emergency, acute care settings to community settings; appropriate levels of workforce skill mix 24/7 across the ICS; standardise the Early Supported Discharge (ESD) offer across the ICS; standardise based on best evidence model of rehabilitation; provide an improved long term condition support network across the ICS (includes vocational rehabilitation).

A transformation Bridge to the Future highlights current service offers across the ICS and identifies some potential long term next steps that can be taken to achieve the identified opportunities with proposed timelines and the expected outcome for our citizens of Nottinghamshire.

The recommended next steps are vital in keeping the momentum of change in the future offer of improved prevention and better health for our citizens; providing the right tools for our population to support their wellbeing; providing strong communication links for our staff is vital to enable them to provide the best care for our citizens; the most appropriate models of care in acute settings, neighbourhood and home need to be provided equitably across the ICS and be provided using best evidenced, flexibility and in a patient centred way for them to fulfil their maximum potential throughout their lifetime.

2. Introduction

Background and Purpose	In Nottinghamshire we have made great progress in improving people's health and wellbeing. Today, we can treat diseases and conditions we once thought untreatable. However, our health and care system faces change and this will impact on our services, for example, the growing prevalence of long-term health conditions places new strains on our system. There is inequality evident in both the location of challenges and in access to services. In some areas, it is easier to access a GP than in others, or to find things to do to enable citizens to stay active and fit. The ICS ambition across Nottinghamshire is to both increase the duration of people's lives and to improve those additional years, allowing people to live longer, happier, healthier and more independently into their old age. The requirement for a CCSS came from the recognition that to achieve this ambition the system has to change as a whole, rather than just in its individual acute, primary care, community and social care elements. It is recognised that only by working together to describe changes in how care is provided across the system, rather than through individual organisations, will we deliver the scale of change required.
The ICS Clinical and Community Services Strategy	The aim of the CCSS is to support the system to achieve this by shifting the focus of our health and care delivery from reactive, hospital based treatment models to a pro-active approach of prevention and early intervention. This should be delivered closer to people's homes or in community locations where this enables better prevention, more supported self-care and earlier intervention to support citizens. The Strategy recognises that achieving this change is a long term programme that will be delivered over the next 5 years and beyond. This is also necessary to enable a necessary long term investment in the health and care buildings and infrastructure in the system. An overall CCSS whole life model framework has been developed to focus on the need to support people through their lives from living healthy, supporting people with illness and urgent and emergency care through to end of life care. Citizens can experience different parts of the system at different stages in their lives. With the development of the overall Strategy framework the next phase of work is to review the 20 areas of service across the ICS that collectively form approximately 80% of the volume of clinical work in the ICS. This will ensure that overall the Strategy is described as a coherent whole and generates a programme of change for the whole ICS. This review of CVD-Stroke is one such review and is part of the first phase of work.
NHS Long Term Plan	The NHS LTP is clear that to meet the challenges that face the NHS it will increasingly need to be: more joined up and coordinated in its care; More proactive in the services it provides; More differentiated in its support offer to its individuals. The ICS has focused on describing 5 areas of focus for the delivery of the NHS LTP. These requirements are reflected in each of the service reviews that collectively will describe the CCSS **1. Prevention and the wider determinants of health -** More action on and improvements in the upstream prevention of avoidable illness and its exacerbations **2. Proactive care, self management and personalisation -** Improve support to people at risk of and living with single and multiple long term conditions and disabilities through greater proactive care, self-management and personalisation **3. Urgent and emergency care -** Redesign the urgent and emergency care system, including integrated primary care models, to ensure timely care in the most appropriate setting **4. Mental health** - Re-shape and transform services and other interventions so they better respond to the mental health and care needs of our population **5. Value, resilience and sustainability -** Deliver increased value, resilience and sustainability across the system (including estates)

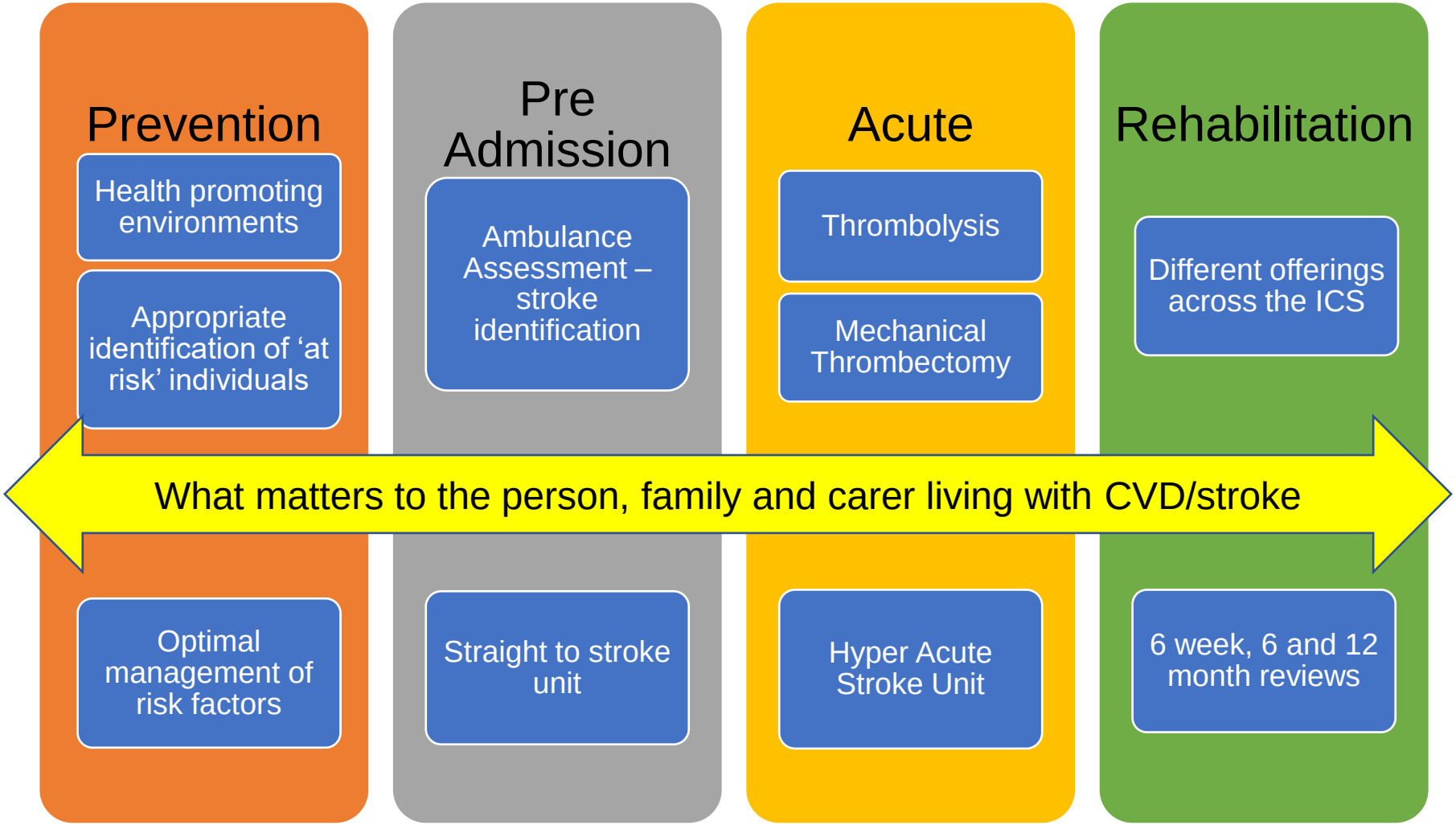
3. Approach and Scope

Approach	This strategy has been developed through an open and inclusive process which weaves together the expertise of clinicians and care experts with commissioners and citizens in determining the future shape of services across the system. There have been a variety of stakeholder and service user events to develop a clinical and community services model. An extensive system wide piece of work is taking place across a minimum of 20 services. The CCSS Programme Board have reviewed these services against a range of quantitative and qualitative criteria and agreed the prioritisation of five service reviews. These include; Cardiovascular Disease (CVD) to Stroke ; Respiratory – Asthma and COPD; Frailty; Children and Young People (CYP); Maternity and Neonates. This document discusses the approach, scope, the key issues and potential transformational opportunities within CVD/Stroke services across the ICS health, social care, public health, and the voluntary sectors identified by reviewing the current service offer across the ICS. The service review was taken over approximately 24 weeks and there were three workshops held with stakeholders across the ICS. An Evidence Review document has also been developed which considered national and local best practice. This has been used to inform the development of the future vision and long term Transformation Proposal for CVD to Stroke services in the ICS.
Scope	**In scope:** all citizens in Nottingham and Nottinghamshire ICS whose CVD risk could be reduced and those that subsequently have experienced a TIA or stroke and their rehabilitation. There is a defined evidence based pathway which include the following: • Prevention will be embedded throughout the whole of the patient journey, with a particular emphasis on a healthier lifestyle. • Pre- hospital – includes emergency/urgent contact to assessment in emergency facilities within 1 hour. • Hyper-acute care – includes initial thrombolysis within 1 hour of being admitted to the emergency facilities or thrombectomy treatment within 4-24 hours. It also includes the first 0-72 hours of care for a person who has suffered a stoke. • Acute care – is defined from care provided from 3-7 days (includes early supported discharge). • Community Rehabilitation – offered when a person has been assessed as medically fit (includes access to acute/community beds, early supportive discharge, specialist stroke community rehabilitation and vocational rehabilitation). • Long term care – includes complex disabilities, long term support, enablement and vocational rehabilitation. **Not in scope:** A review of all risk factors or conditions that can contribute to people developing CVD or experiencing a trans-ischaemic attack (TIA) or stroke.
Engagement	The CVD to Stroke services review has been supported by an overarching Clinical Design Group of clinical professionals and social care representative in the ICS and a tailored CVD to Stroke steering group comprising of stakeholders and clinical experts from across the ICS. They have provided expert advice, guided, confirmed and challenged assumptions throughout the period of review and connected to other workstreams. These two groups have formed part of the development process along with the ICS Clinical and Community Services Strategy Programme Board consisting of senior leaders in the ICS who oversee the work. Three workshops have been held which enabled a wide breadth of stakeholders (Patients, Clinicians, AHP, Nurses, Stroke Association, Heads of Service, Social Care, Public Health, Commissioners, Academic Health Science Network and others) to be proactively involved in re-evaluating current service offers across the ICS in developing potential themes and agreeing transformational change for the future clinical and community services strategy. In addition two patient focus groups have been held in collaboration with the Stroke Association to enable them to confirm and challenge assumptions and play an active part in the co-design of any future service changes across the ICS .

4. Content

Strategy Development	This Strategy Document consists of five key elements. These have been developed through a process of design and iteration at the three workshops and steering groups. The strategy has been developed with reference to the Evidence Review and the patient focus groups that have been held.
Priorities for Change	The work of the Steering Group and the first workshop identified four key areas of focus that need to change in the ICS for CVD-Stroke care. These were based on a review of the current issues facing the ICS and the views of the Steering Group and workshop 1 attendees.
Proposed Future Care System	Following the Evidence Review at workshop 2 attendees started to develop the future Care System for CVD-Stroke to address the Priorities for Change. The future care system is described against two dimensions • **Location** split between - Home (usual place of residence) – Acute Hospital with 24/7 medical presence – Neighbourhood representing all community/primary care and ambulatory care settings. • **Urgency** split between - **Emergency/Crisis** requiring a service provided 24/7 to avoid crisis or risk to life – **Urgent** requiring a service 7/7 but not 24/7 to meet urgent care needs – **Scheduled** reflecting any arrangement where an appointment is agreed between a professional and a citizen. The intention of the system model is to focus future care delivery closer to home and also with greater levels of scheduled care to best use the available resources and reduce demand on urgent and emergency care services. The new system to address the Priorities for Change is presented for each location and then summarised overall for the ICS.
Transformation Proposal	The Transformation proposal described the key initiatives or programmes that are required to deliver this new model. It shows • **Priority** – What is the priority of the initiative in the view of the steering group and workshop attendees. • **Alignment** – At what level of the system should we aim to deliver each initiative. In most instances this is ICP level but there are some where the recommendation is for delivery to be at ICS level where the greater value is perceived to be in an overall approach. For some it is PCN level where differential delivery would be of benefit to meet the needs of very local populations. • **Enabling Requirements** – This indicates what is required from a range of enablers to support each Programme to deliver. This includes workforce, technology, estate or service configuration. There are also requirements of culture or finance and commissioning where a key change required is for the system to work together differently. • **Benefits and Costs** – Where available the key benefits of the initiative at system level are summarised.
Bridge to the Future	The 'Bridge to the Future' was generated at Workshop 3 and with the Steering Group. It summarises the current challenges for the CVD-Stroke system in the ICS now (Priorities for Change), where we would like to be and how we plan to get there. Progress with the 'Bridge to the Future' and the partnering Vision can be returned to with Stakeholders as the work develops to ensure that it stays on track.

CVD to Stroke Key Themes



CVD to Stroke in the Nottingham and Nottinghamshire ICS

National Picture: Stroke is a leading cause of death and disability in the UK

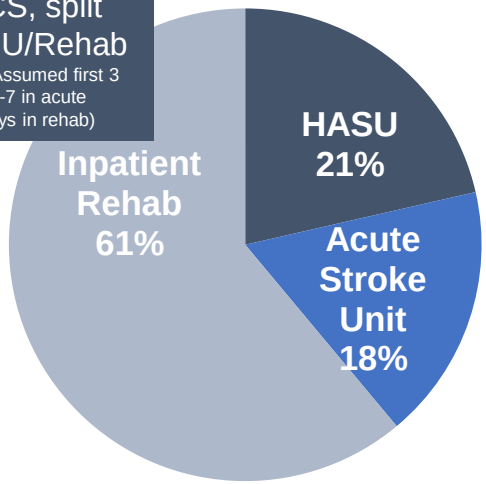
- 152,000 strokes per annum
- 1.2 million stroke survivors
- 5% of NHS resources (largely due to inpatient care/disabled stroke patients). Recovery can take many years.

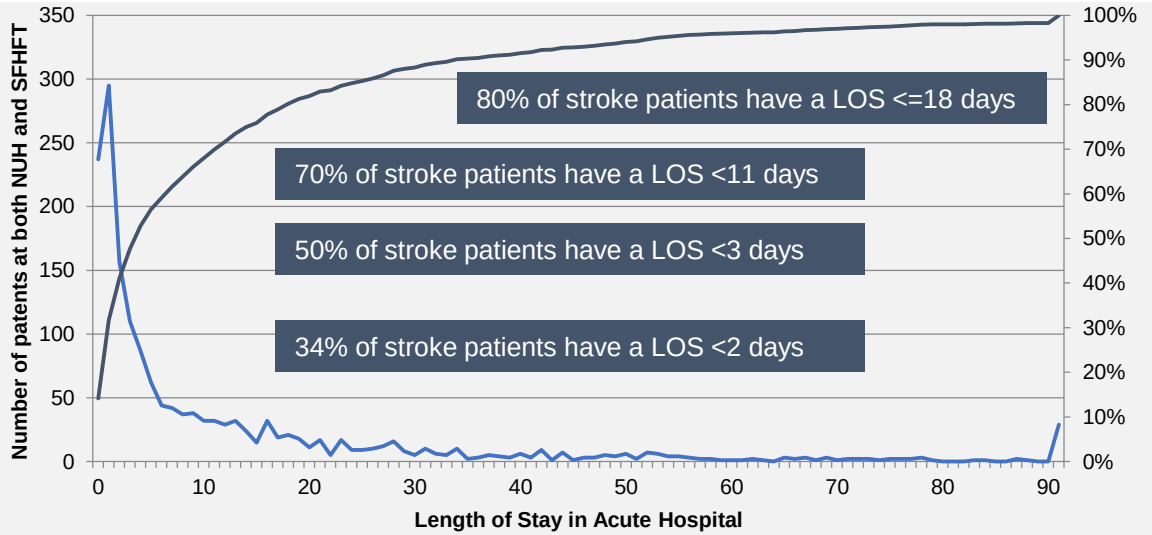
	Notts ICS
1st Stroke	1,528
Subsequent Strokes	106

	Inpatient Stroke 2018-19				Outpatient Stroke 2018-19				Inpatient Transient Ischaemic Attack			
	NUH City	NUH QMC	SFH Kings Mill	Other	NUH City	NUH QMC	SFH Kings Mill	Other	NUH City	NUH QMC	SFH Kings	Other
Activity	856	185	509	84	1675	0	488	83	194	67	109	18
Bed Days	11,297	2,994	6,090	1,174					239	154	220	57
Cost	£4,770,403	£1,312,182	£2,900,608	£419,352					£190,899	£89,903	£137,544	£14,916

The largest proportion of the acute stroke bed days are for inpatient rehabilitation.

Acute bed days across the ICS, split by HASU/ASU/Rehab
(Calculated by LOS. Assumed first 3 days in HASU, days 4-7 in acute stroke unit, over 7 days in rehab)





Of the 2,320 patients passing through at least one NUH stroke ward **50%** were confirmed to have had a stroke.

At Kings Mill **66%** of patients that have been on a stroke ward are confirmed to have had a stroke.

Average cost of stroke per person

Societal cost £45,409 for first year (incident stroke) + £24,778pa (prevalent stroke).
NHS & Personal Social Services (PSS) care first year severe stroke £24,003 & minor stroke £12,869.

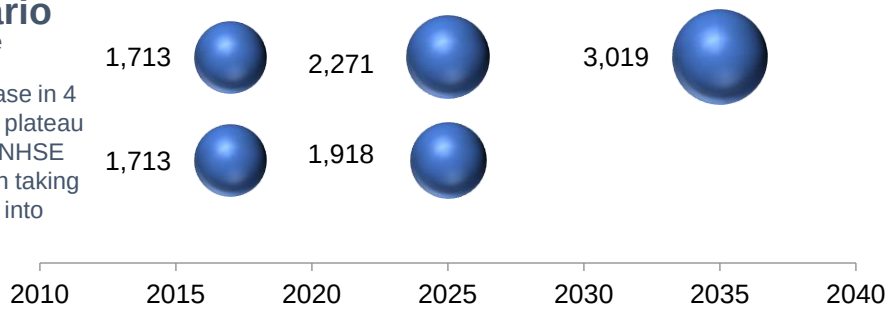
With no step change in prevention the number of strokes will increase in the next 20 years by 84%. NHSE expect taking prevention into account there will be a 12% increase in Strokes in the next 4 years then it will plateau.

ICP	Population Under 65	Population 65+	Under 65 with history of stroke	65+ with history of stroke	% 65+ with stroke history	History of stroke + active care package (County)
Mid Nottinghamshire	266,392	66,683	1,162	3,390	5%	462
Nottingham City	337,285	42,464	1,180	2,448	6%	57
South Nottinghamshire	298,136	79,273	1,114	4,083	5%	467
ICS	**901,813**	**188,420**	**3,456**	**9,921**	**5%**	**986**

Scenario

No change

12% increase in 4 years then plateau inline with NHSE expectation taking prevention into account.



There are currently 13,377 stroke survivors in our ICS, of which 26% are under 65.

Care package data is only available for County patients in GPRCC.

Of those citizens in Mid-Notts and South Notts 10% have an active care package (excluding those that have private care packages which we would not have visibility of).

Adult Social Care and the Long Term

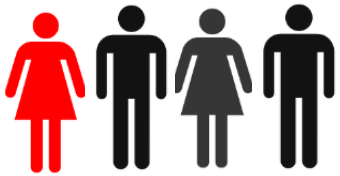
Long Term Community:
Ageing Well (65+)- Average of Weekly cost **£213**
Living Well (18-64)- Average of Weekly cost **£310**
Long Term Resi/nursing:
Ageing Well (65+)- Average of Weekly cost **£627**
Living Well (18-64) - Average of Weekly cost **£1,432**

These figures represent the average weekly cost of a social care package (County patients) for those patients currently in our system **who are eligible for social care, irrespective of their health condition.**

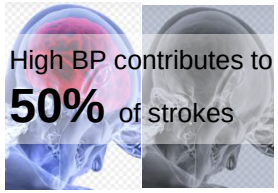
	NUH Stroke Rehabilitation 2018-19
Activity (bed days)	7,360
Cost	£2,451,800

5. Priorities for Change

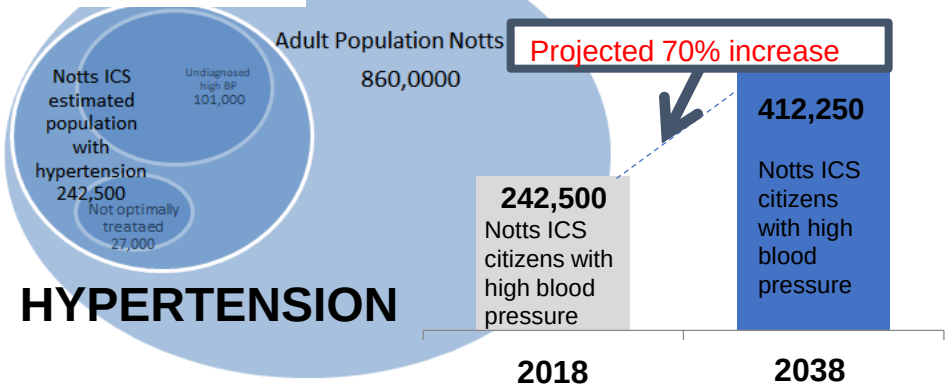
FIND MORE DETECT | TREAT MORE PROTECT | TREAT BETTER PERFECT



1 in 4 adults have high blood pressure

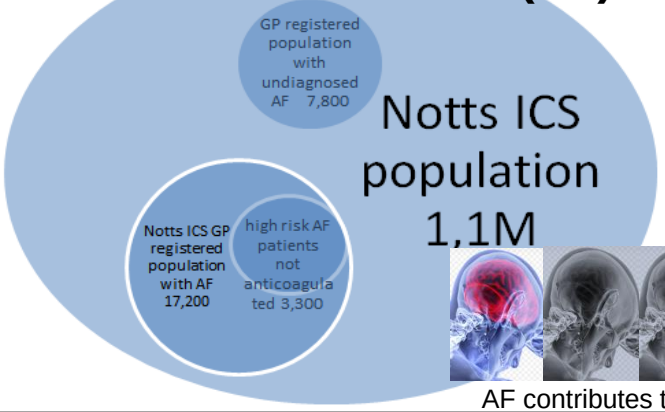


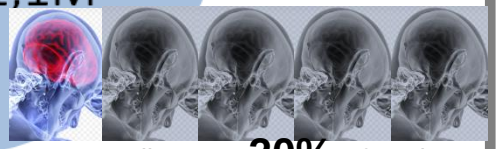
High BP contributes to **50%** of strokes



HYPERTENSION

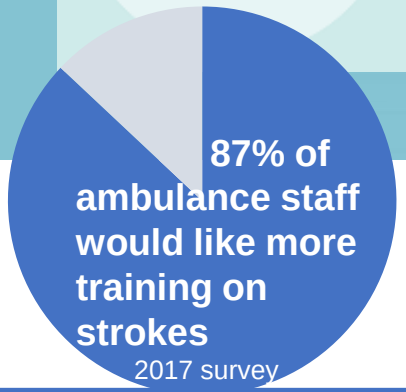
ATRIAL FIBRILLATION (AF)



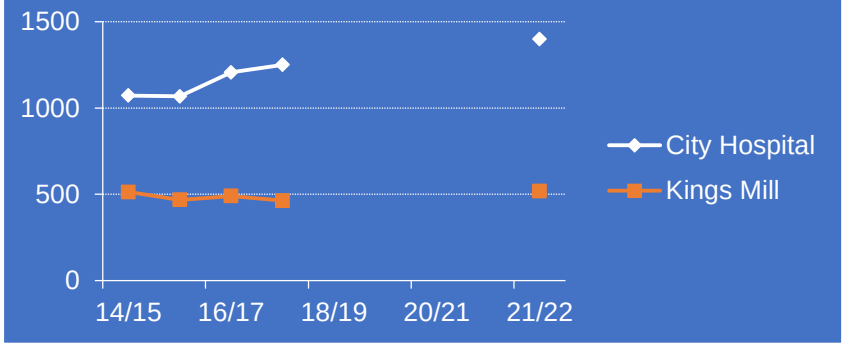


AF contributes to **20%** of strokes

18% of NUH's stroke patients are taken to QMC ED by ambulance instead of the City Hospital Stroke Unit



Stroke Patients Treated in a Stroke Unit – Nottingham and Nottinghamshire ICS



The current draft of the NHS England Stroke Review document recommends a maximum of 1,500 stroke patients per year per HASU, so NUH and SFH HASUs would be too large to combine into one HASU.

5. Priorities for Change

The workshops identified 4 key themes and potential areas of change which include: prevention (detect, protect, perfect and review of citizens); pre-admission (ambulance assessment and emergency care facilities); acute (treatment and access to specialist stroke units); rehabilitation (different service provision across the ICS) (Slide 6). While prevention is embedded through the overarching clinical services strategy, specific prevention focus within the new CVD/Stroke services model will concentrate on the following high blood pressure (BP), abnormal heart beat called Atrial Fibrillation (AF) and high cholesterol.

Prevention	**Health promoting environments:** Prevention of cardiovascular disease begins with our environment. It is important that we ensure the environment and places people (of all ages) live, work, learn and play in enables to help people live healthy lives. This includes but is not limited to supporting people in having an active life with family and friends around; financial security; feeling safe in their neighbourhoods; access to health food and opportunities for active travel; and an increased health literacy. **Detection and optimal management of risk factors:** Large volumes of patients are unaware they have high BP or an irregular heart beat known as AF and those that are aware aren't always receiving the optimal treatment. PHE estimate the societal return on investment is £2.30 for every £1 spent on ensuring those individuals known to have AF receive optimal treatment. In the next 3 years optimising AF treatment in our ICS could prevent 260 strokes saving up to £4.6M. Inequalities in high blood pressure exist with those in deprived areas 30% more likely to have high blood pressure. Reductions in blood pressure within our ICS could avert a further 240 strokes saving £3.3M. Smoking cessation services and weight management services are available across the ICS but differ in their offer and delivery. For example, Nottingham City's service is provided via GP referral only which may limit access. Another example includes health checks across the ICS, while health checks are offered to the majority of eligible individuals (though not 100%), take-up is low; particularly in Nottingham City.

Pre-Admission	The majority of suspected stroke patients arrive at hospital by ambulance. Ensuring ambulance clinicians recognise stroke symptoms and take patients to the correct hospital for their needs is paramount. Nottinghamshire ICS has two Hyper Acute Services Units (HASU) at Kings Mill and Nottingham City Hospital. At SFHFT the HASU and the A&E department are located on the same site. In Nottingham the HASU and A&E are on different sites (City and QMC respectively). In addition Mechanical Thrombectomy is only available at QMC in Nottingham and provides a regional service for all patients that have suffered a stroke and require this treatment. The required services for stroke patients being split across sites in Nottingham creates challenges for effective service delivery. Mechanical Thrombectomy is only suitable for large artery occlusion strokes. These patients will first visit a HASU for a CT angiography before being transferred. When patients are at the QMC for thrombectomy treatment they require access to specialists such as neuro-surgeons and there is no dedicated stroke ward at the QMC. As such patients are admitted to a neurosurgery ward after they have had their Thrombectomy procedure. When deemed fit after treatment has been provided all patients are transferred by ambulance to the City or Kings Mill HASU. Evidence suggests that there are better outcomes for these patients if they receive their next stage of care in a HASU. 18% of NUH patients who have suffered a stroke are not diagnosed by ambulance staff and are taken to A&E at the QMC instead of the Stroke Unit at the City Hospital causing delays to treatment and ongoing care in a HASU as it can take some time for the patient to transfer to the City Hospital. A further challenge to pre-admission care is access to patient records by the ambulance crew, as they have no awareness of previous medical history, recent admissions to A&E and are not made aware if actions are followed up when they refer patients onto GP practices as the ‘task allocated’ on the IT system feeds one way to the GP practices only. In a 2017 survey 87% of ambulance staff wished to have additional stroke training and anecdotal evidence suggests that the assessment using FAST does not identify all patients who are later diagnosed as having experienced a stroke. It is thought that the use of another tool would identify more patients called BEFAST.

Acute	There are significant shortages of consultant stroke physicians across the UK. NUH and SFHFT currently have a joint rota to ensure cover across both HASU's (includes out of hours). SFHFT are established for four Consultant posts due to the size of the HASU, three of which are currently covered by long term bank Consultants. There is a tight correlation between high nurse levels and decreased mortality. There should be a minimum of 3 nurses per 10 beds at all times on HASU, this is not always available within the two HASU's. The ambition in the NHS LTP is that thrombolysis rates should reach 20%, currently this is not possible as 13.8% of Kings Mills patients who have suffered a stroke are being thrombolysed, which is 98.8% of all eligible patients. Similarly at the City Hospital 13.2% of patients who have suffered a stroke are thrombolysed which is 98.4% of all their eligible patients (2018-2019). The NHS Long Term Plan states by 2022 10% of stroke patients will receive mechanical thrombectomy, currently this is 1% in Nottinghamshire. Currently Mechanical Thrombectomy treatment is provided at the QMC and is available 5 days a week until 8-4pm, while the national recommendations are that this service should be provided 24 hours, over 7 days. TIA services are offered 7/7 at NUH for high risk and 5/7 for low risk patients and at SFHT 5/7. High risk patients from SFHT at a weekend are directed to NUH. Speech and language therapy services are offered 6 days and it is recommended that this should be offered 7 days per week.
Rehabilitation	There are different models of early supported discharge (ESD) as well as different stroke specialist community rehabilitation services provided across Nottingham and Nottinghamshire. There are pockets of good practice in the provision of information and support for stroke survivors, carers and families, but this is not consistent across the patient journey. There needs to be greater understanding the needs of complex patients for bed based and community rehabilitation that is outside of the evidence of ESD. The provision of community stroke services are offered across Nottingham and south of the county but there is a gap in provision in Mid-Nottinghamshire as there is currently no service available. There are rehabilitation beds available across the system. Within Nottingham some beds are located in the acute hospital at Nottingham City Hospital and some in a nursing home. There is a difference in service offer in each setting due to the access of appropriate staff to undertake MDT assessments and ongoing rehabilitation. There is also often pressure on the City Hospital beds to meet the needs of the acute phase of care. At SFHFT a different level and length of rehabilitation is provided within the stroke unit, patients who do not meet the ESD criteria they are discharged to a care home for long term placement or back home with support if required. There are different service offers and different grades of staff offering rehabilitation support dependent upon whether a service is provided and the different needs of patients in an acute hospital or in the community. Overall there is inconsistency of provision and offer of stroke rehabilitation across the ICS. There needs to be greater understanding as to whether community rehabilitation can support all the needs of a patient or if there is a requirement for outpatient provision of service too. Patient focus groups have stated that there is a need for a personalised plan of rehabilitation required which can be flexible. There needs to be greater access to longer term support for stroke survivors and their families/carers. Vocational support is a particular requirement that needs to be reviewed across the ICS as greater links with employers across the ICS need to be developed. Within social care stroke survivors can be referred into social care for enablement and reablement and vocational training to get back to work ,it is important that a consistent approach and flow needs to be maintained through the community health services. Regular reviews at 6 months and annually along with needs assessments are not undertaken in a systematic way across the ICS, Nottingham and south of the county provide these but there is a particular shortage of provision in Mid-Nottinghamshire.

6. Proposed Future Care System

Home

NOTE: In further developing and implementing the proposals set out above as part of our focus, each partner organisation within the ICS will continue to ensure that they comply with their statutory duties and system/organisational governance processes, particularly (but not limited to) those relating to patient and public involvement; equality and inequality analysis

Planned/Scheduled

Rehabilitation

- Access to 45 minutes for each therapy 5 days per week (Occupational therapy, physiotherapy and speech and language therapy) over 7 days?
- One to one therapy
- Regular review of personal goals
- Health and social care review at 6 week, 6 months and annually
- Access to Early Supported Discharge teams Personalised care plans and individual planned goals
- Access to voluntary sector support
- Carer support
- Access to Community Stroke Support services

Prevention

- Telemedicine advice links and access to tele care
- Assistive technology investment
- Carer support
- Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place
- Making it normal to know your pulse and blood pressure as it is for your height and weight

Urgent – 24 hours

Urgent Care

Access to urgent care contacts to exacerbate concerns by carer or patient (call for care, 111, urgent care centres).

Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place.

Use of RESPECT and provision of end of life support

Rehabilitation

All standard ESD and community stroke rehabilitation teams to provide 7 day service provision

Emergency/Crisis – 4 hours

Emergency Care

Access to 999, or crisis care numbers via one central contact line

Rehabilitation

Access by ambulance crew to book TIA OPA when assessing a patient at home and the patient not requiring admission to hospital.

Prevention

Access to information about symptoms of a stroke and post recovery of a TIA (provided by ambulance personnel)

KEY to information source: Steering Group/ Workshop s Evidence Document/ Guideline Patient Focus Groups

6. Proposed Future Care System

Neighbourhood

NOTE: In further developing and implementing the proposals set out above as part of our focus, each partner organisation within the ICS will continue to ensure that they comply with their statutory duties and system/organisational governance processes, particularly (but not limited to) those relating to patient and public involvement; equality and inequality analysis

Planned/Scheduled

Rehabilitation

Access to 45 minutes for each therapy 5 days per week (Occupational therapy, physiotherapy and speech and language therapy)

One to one or group therapy
Early Supported Discharge teams
Personalised care plans
Access to specialist stroke community rehabilitation beds
Access to vocational training and support
Social care assessment
Psychological support to meet individual needs
Access to voluntary services
Peer support
Access to specialist community teams

Annual review by GP (to include full assessment of personal health, social and psychological needs and medication review)

Patients wish for flexible access and self-referral to services after their stroke

Carer support and access to transport to enable access to respite care and day centres. Digital advice and training to carers remotely available.

Direct access or Telemedicine for GPs and rehabilitation teams; this would allow contact with a designated stroke physician

6 weeks before patients leave the ESD service; it is recommended that where there is a clinical need, patients should then enter Community Stroke Team (CST) without any delay

Following discharge from rehabilitation services stroke patients should have the opportunity for regular review, advice and support with the option of re-referral to stroke specific therapy if clinically appropriate; this could be provided by a range of NHS or third sector providers.

Whilst under the care of a stroke specific team or stroke rehabilitation team patients should be re-assessed in the community on a regular basis as per their clinical need by a stroke specialist, have therapeutic care plans and access to therapists.

Urgent – 24 hours

Rehabilitation

Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place.

Prevention

Access to information about their risk factors, surviving after a stroke and vocational support

Shared assessment tools to optimise detection, enable improved treatment and influence lifestyle choices

Emergency/Crisis – 4 hours

KEY to information source: Steering Group/ Workshop s Evidence Document/ Guideline Patient Focus Groups

6. Proposed Future Care System

Acute Hospital

NOTE: In further developing and implementing the proposals set out above as part of our focus, each partner organisation within the ICS will continue to ensure that they comply with their statutory duties and system/organisational governance processes, particularly (but not limited to) those relating to patient and public involvement; equality and inequality analysis

Planned/Scheduled

Pre-admission/ acute care

Emergency access to 999 or crisis care teams

Prevention

- Risk assessment of health, social and psychological needs and providing advice/signposting
- Carer support
- Optimal treatment for health risks e.g. hypertensive, anticoagulation medication

Rehabilitation

- Access to 45 minutes for each therapy 7 days per week (Occupational therapy, physiotherapy and speech and language therapy)
- One to one or group therapy
- MDT support and decision making
- Early supported discharge transition
- Personalised goal setting and care plans
- Risk assessment of health, social and psychological needs and providing advice/signposting
- 6 Week review post stroke
- Availability of TIA appointments 7/7 across the ICS (particularly those assessed as high risk)
- In reach teams to support early supported discharge transition

Urgent – 24 hours

Pre-admission/ acute care

Availability of TIA appointments 7/7 across the ICS (particularly those assessed as high risk)

Use of RESPECT and provision of required end of life support

Prevention

Provision of support for carers

Rehabilitation

90% of a patients stay as an inpatient should be within a stroke unit with experts caring for them.

If initial swallowing assessment indicates problems a further assessment with a specialist Speech & Language Therapist should be provided within 24 hours (no longer than 72 hours) from admission.

MDT support and decision making

Carer and family support

Emergency/Crisis – 4 hours

Acute Care

Access to CT scanning within 1 hour
Access to thrombolysis within 4.5 hours of onset of symptoms
Access to Mechanical thrombectomy 24/7
Admission to a stroke unit within 4hours (to be consistently available 24/7
Centralised hyper-acute services where patients are assessed immediately by an expert in strokes (LTP)
End of life support

Prevention

Provision of support for carers

Rehabilitation

Swallowing assessment within 4 hours of admission to hospital by appropriately trained staff

Carer and family support

KEY to information source: Steering Group/ Workshop s Evidence Document/ Guideline Patient Focus Groups

6. Proposed Future Care System

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CVD/Stroke Services

Availability

Level of Care

Availability	Acute Hospital	Neighbourhood	Home
4 hours or less / 24/7	• Access to CT scanning within 1 hour • Access to thrombolysis within 4 - 5 hours of onset of symptoms • Access to Mechanical Thrombectomy 24/7 • Admission to a stroke unit within 4hours (to be consistently available 24/7) • Centralised hyper-acute services where patients are assessed immediately by an expert in strokes (LTP) • End of life support	• Access to urgent care contacts to exacerbate concerns by carer or patient (call for care, 111, urgent care centres). • Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place.	• Emergency access to 999 or crisis care teams
24 hours/Walk up and wait / 7 days	• Availability of TIA appointments 7/7 across the ICS (particularly those assessed as high risk) • End of life support • Provision of support for carers • 90% of a patients stay as an inpatient should be within a stroke unit with experts caring for them. • If initial swallowing assessment indicates problems a further assessment with a specialist SLT should be provided within 24 hours (no longer than 72 hours) from admission. • MDT support and decision making • Carer and family support	• Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place	• Access to urgent care contacts to exacerbate concerns by carer or patient (call for care, 111, urgent care centres). • Provision of required respite/support at home within 24 hours to operate as a bridge to scheduled plan in place.
Scheduled / Appt based	• Risk assessment of health, social and psychological needs and providing advice/signposting • Optimal treatment for health risks e.g. hypertensive, anticoagulation medication • Access to 45 minutes for each therapy 5 days per week (Occupational therapy, physiotherapy and speech and language therapy) • One to one or group therapy • MDT support and decision making • Early supported discharge transition • Personalised goal setting and care plans • Access to community stroke teams	• Access to 45 minutes for each therapy 5 days per week (Occupational therapy, physiotherapy and speech and language therapy) • One to one or group therapy • Early Supported Discharge teams • Personalised care plans • Access to community rehabilitation beds • Access to vocational training and support • Social care assessment • Psychological support to meet individual needs • Access to voluntary services • Peer support • Annual review by GP (to include full assessment of personal health, social and psychological needs and medication review) • Patients wish for flexible access and self-referral to services after their stroke • Carer support and access to transport to enable access to respite care and day centres. Digital advice and training to carers remotely available. • Access to community stroke teams	• Access to 45 minutes for each therapy 5 days per week (Occupational therapy, physiotherapy and speech and language therapy) • One to one therapy • Regular review of personal goals • Health and social care review at 6 week, 6 months and annually • Access to Early Supported Discharge teams personalised care plans and individual planned goals • Access to voluntary sector support • Carer support

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Undertake a consistent programme of prevention work to promote healthy lifestyles and reduce avoidable serious health conditions and admissions focused on high blood pressure, high cholesterol and AF. **High Priority**	Within the Nottingham and Nottinghamshire ICS data demonstrates that there are 101,000 undiagnosed citizens with hypertension and of those diagnosed 27,000 are not treated to the national target. It is estimated that 17,200 have AF including, 7,800 are undiagnosed and of those diagnosed 3,300 high risk AF patients are not anti-coagulated. It is estimated that 71,000 adults have a CVD risk >20%, but only 49% of these are treated with statins. It is with these risks that the CVD/Stroke services review proposes that prevention should focus on reducing the risk of high blood pressure, atrial fibrillation and high cholesterol as other service reviews and workstreams within the ICS will focus on other risk factors. Optimising detection, treating more and treating better patients at risk of developing the three risks mentioned above which could lead them to develop CVD or suffer a stroke by: - Using a consistent recognised assessment tools across the ICS and target interventions. - For monitoring and signposting to be provided at a variety of settings e.g. GP, pharmacies, workplace, leisure centres, local authority, opticians etc. - Normalising routine testing and supporting patients to know their blood pressure, weight and height. - Maximising uptake of the NHS Health Check. - Roll out the NHS Rightcare CVD prevention programme. **Impact & Benefit –** Good health starts from early years and is a life course journey, where flexible approaches need to be provided with ongoing support in maintaining a healthy lifestyle amongst our citizens. Modelling work suggests that as well as significant health benefits that interventions will reduce the risk of our citizens developing CVD and substantially reduce the level of predicted heart attacks and strokes in the future. **Alignment -** Future models of care for CVD / Stroke prevention services will be driven by population health management analysis and it will be the responsibility of the Primary Care Networks (PCNs) to deliver these programmes reflecting local need within a consistent ICS framework.
Identify more at risk patients by improved access & shared communication about patients past medical history by paramedics attending as an emergency **Medium Priority**	Most people with acute stroke (95%) have their first symptoms outside of hospital. Currently when attending a patient emergency paramedic teams are unable to access the patients past medical history or recent health concerns e.g. previous ambulance attendance on the same day or previous day. It would make a significant difference to the ability of paramedics to transfer patients to the correct HASU or indicate other treatment options if they had easy access to the medical history of the patient. **Impact & Benefit** - Optimise the detection and treatment of newly diagnosed patients with AF and high blood pressure. - Inform and improve support for patients with known TIA concerns. - Allow for brief prevention interventions and signposting if other health risks are identified at assessment (particularly if not admitted into hospital). - Reduces delays in transfer from a hyper acute hospital to a treatment area offering mechanical thrombectomy and more patients are treated. **Alignment** – for paramedics to access individual patient records would require the ICS to lead on the implementation across the system as it will require the support of an integrated approach using the expertise of the ICS IT services for inter-connectivity across the system.

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24/7 access to specialist treatment (in particular thrombectomy) **High Priority**	The **NHS Long Term Plan** aims to expand mechanical thrombectomy treatments from 1% to 10% of stroke patients, which will allow 1,600 more people to be independent after their stroke each year. During 2019 the plan commits to working with royal colleges to pilot a new programme for hospital consultants to be trained to provide mechanical thrombectomy. The procedure currently should only be carried out by appropriately trained specialists with regular experience in intracranial endovascular interventions, with appropriate facilities and neuroscience support. Currently across the ICS this service is offered at the QMC and is a regional service across the East Midlands. Due to a shortage in expert staff groups the service is available 5 days per week from 08.00am to 4.00pm. SFHFT and NUH (City Hospital) send patients for this treatment if the patient is assessed to require it after having a CT scan as an emergency transfer and patients are repatriated within 3 days (1 day for NUH, City patients) of having the treatment. It is recognised that there is a need to develop and provide this treatment 24/7. With the development and projected growth of Mechanical Thrombectomy an indicative direction of travel for stroke services in Nottinghamshire is emerging, to move the Nottingham Hyper Acute Stroke Unit (HASU) from City Hospital to Nottingham QMC to align with A&E and develop 24/7 Mechanical Thrombectomy services. Under this emerging thinking HASU services would continue to operate at Kings Mill Hospital. This will impact on the stroke service provision at SFHFT with potential increase in patient numbers and the level of care that may be required. These recommendations would require further evaluation at the planning / implementation stage and be in line with the development of Integrated Stroke Delivery Networks (ISDNs) and the delivery commitments set out in the NHS Long Term Plan (LTP). **Impact & Benefit** - Increased availability to treat patients at anytime. - Equitable offer of service. - Meet expected target of 10% of patients who experience a stroke. - Reduce length of stay for patients in hospital. - Improve the quality of life for patients and their families after suffering a stroke with reduced risk of more severe disability. - Greater access to scaling technology: CT perfusion scans, improved access to MRI scans, artificial intelligence interpretation of scans. **Alignment –** This will be aligned at the ICS level as it will require additional input from specialised commissioning.
Develop appropriate levels of workforce skill mix 24/7 across the ICS **High Priority**	Stroke care should be provided by an MDT in line with national best practice with a number of professionals as part of this team. Locally we know there are shortfalls in staff groups across health and social care that are available to support stroke survivors, particularly specialist stroke consultants (currently a shared Consultant rota covers both NUH and SFHFT services), nursing staff (mainly at NUH), physiotherapists, speech and language therapists, psychologists and occupational therapists. Within community services there are different levels of staff who support the stroke survivor and carers, which includes assistant practitioners and healthcare support workers. Within the service review it was recognised that the acute and community services could potentially look at new roles and possible integration of skills and staff groups across the service boundaries. This would require: • Workforce mapping across the system focusing on stroke & TIA services and embedding the prevention agenda into roles. • Coordination of a collaborative programme of work to address skill gaps across the system. • Workforce development plans linked to education and skills. **Benefits:** Enables all staff groups to gain a level of knowledge and skills that will provide the best evidence practice within the constraints of limited resources. **Alignment:** Implementation should be led at an ICS level as it will require the support of National and Local workforce strategies, funding and adopting an integrated and sustainable long term approach across the system.

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Standardise the Early supported discharge offer across the ICS **High Priority**	Early supported discharge (ESD) is an intervention that allows people's care to be transferred from a hospital environment to a community setting. It enables people to continue their rehabilitation therapy at home, with the same intensity and expertise that they would receive in hospital. Evidence based models of Early Supported Discharge (ESD) services have resulted in equivalent or better outcomes for mild to moderate stroke patients and their carers', and a significant reduction in hospital length of stay; that ESD accelerated the recovery of mild to moderate stroke survivors and those patients obtained a sharper recovery trajectory compared to non-ESD patients. Within the ICS there are currently two different models being provided, one is provided in an acute setting and one is provided by a community provider. The service review has identified the need for there to be an equitable ESD service provision across the ICS for patients assessed by the MDT as mild/moderate and moderate/severe strokes, currently Nottingham city and county provide a level of service and there is a gap in Mid-Nottinghamshire. **Impact and Benefits -** To provide rehabilitation in the patient's home environment at an intensity equivalent to national standards (45 minutes of each required therapy per day) where the patient can tolerate this. - To reduce the risk of re-admission into hospital for stroke related problems. - To increase patient independence - To improve quality of life for the patient. - To support the patient, carers and family Some research nationally and locally have identified that patients who have been identified with a moderate to severe stroke would benefit from Enhanced Early Supported Discharge (EESD). NHFT see some moderate to severe patients at home across the County and there is some evidence of effectiveness but there needs to be some further future research to agree an evidence based model of care across the ICS for patients who have been identified with a moderate to severe stroke. There is a potential for some stroke survivors if assessed as appropriate to have intensive rehabilitation at the new proposed Defence Medical Rehabilitation Centre at Stanford Hall for non-military patients. **Impact and Benefits -** The predicted benefits of Enhanced Early Supported Discharge are: - Patients with higher levels of dependency could be discharged from the acute hospital setting sooner, avoiding the potential complications of a long hospital stay. - Patients would not necessarily achieve a discharge as early as those on an ESD pathway, but would potentially achieve a shorter length of stay than in current practice. Local data supports these assumptions. - Reduce pressure on in-patient rehabilitation beds, improving patient flow and increased bed capacity - Improve performance against key measures in SSNAP - Clinical outcomes could be equal to or better than hospital based care due to provision of rehabilitation in the patient's familiar environment, but further research is required to support these assumptions. **Alignment** - this will be the responsibility of the Integrated Care Partnerships (ICP) within the ICS.
Implement an evidence based best practice model of rehabilitation across the ICS **High Priority**	National standards state that following 6 weeks of ESD or EESD, patients requiring on-going stroke support should be discharged into Community Stroke Teams (CST) with no delay. Those patients who do not meet the criteria for ESD/EESD should have immediate access to specialist Community Stroke Teams (CST) on their discharge from hospital based rehabilitation. Currently there is a different offer across the ICS. The service review has identified the need for there to be an equitable CST service provision across the ICS for patients and carers. **Impact and Benefits -** To reduce the risk of re-admission into hospital for stroke related problems; to increase patient independence; to improve quality of life for the patient; to support the patient, carers and family. **Alignment -** this will be the responsibility of the Integrated Care Partnerships (ICP) within the ICS.

Provide an improved long term condition support network across the ICS (includes vocational rehabilitation) **Medium Priority**	There are some patients not suitable for ESD, but who require access to rehabilitation beds, remain in hospital or may be referred to a care home without therapy, specialist home or their own home at risk. Patients with highly complex needs after stroke require access to stroke specific but highly specialist services. Within the ICS it is unclear if there is an equitable offer of service provision. It is the recommendation of the service review that this is mapped out further and this may be a potential area for future collaborative research as there appears to be no national model for this group of patients. Patient focus groups were held with stroke survivors and their families and carers as part of the service review process and they describe 'feeling abandoned' in areas where community service are not commissioned for greater than six weeks and many of them access additional support by privately funding themselves. They describe wishing for longer periods of rehabilitation, improved reviews and personalised goal setting. They would like this to have a flexible approach accessing support services based on self-referral as their circumstances often change and disability caused by suffering a stroke is a life time experience with differing challenges. Across the ICS there is inconsistency in the recommended level of personal reviews which should be at 6 weeks (consultant review), 6 months (community review) and then annually (normally GP). The process needs to be agreed across the ICS. Adults may have significant disabilities that prevent them from returning to work and where they would benefit from vocational rehabilitation after a stroke. Working can contribute to a person's identity and perceived status, has financial benefits, and can improve their quality of life and reduce ill health. NICE recommends that adults who have had a stroke are offered active management to return to work if they wish to do so. Within the ICS there is a level of inconsistency in the support provided for stroke survivors entering back into employment. In Nottingham there is a four year LINK research trial that is taking place to look at whether extra rehabilitation may help people return to work earlier after a stroke. Ongoing provision of care and stroke survivor support requirements could be addressed by the third sector specialist charities. Information and support provided to enable return to community life including returning to work and peer support options such as support groups and digital online support via apps. **Impact & Benefits** – equitable support for stroke survivors and their families/carers; return of a level of independence through appropriate support; review and resetting of personal health, social and psychological health needs by specialists. **Alignment** - this will be the responsibility of the Integrated Care Partnerships (ICP) and Primary Care Networks (PCN's) within the ICS.

7. Transformation Proposal

	Priority (High/ Med/ Low)	Alignment (ICS/ ICP/ PCN)	Workforce	Technology	Estate/ Configuration	Culture	Finance/ Commissioning	Benefits	Costs
Detect, treat and perfect those at risk of developing CVD or suffering a stroke by: - Maximising uptake of the NHS Health Check - Using assessment tools - Target interventions - Monitoring & signposting in a variety of settings - Normalising routine testing & patients knowing their blood pressure, weight and height. - NHS Rightcare CVD prevention programme is utilised by GP's - Citizens access current available services i.e. workplace	High	PCN	Review of skill mix and integrated workforce planning Upskilling the wider NHS workforce to support the roll out i.e. Health Care Assistants, pharmacists, Practice Nurses, AHP etc. Review and upskilling of homecare workers	- Integrated IT system - Better profiling of patients using technology - Making available more portable technologies - Expand home auto BP monitoring	Access to diagnostics in primary care e.g. ECG's and interpretation possibly in community hubs	Integrated social care, health and PHM Model Developing trust programme across different neighbourhoods and roles Younger people to be thread in any prevention strategies Greater ownership at patient level Changing attitudes in industry Reduce competition between providers Greater collaboration across providers Offering equal access to services across the ICS	- Combined ICS stroke funding allocation to reduce inequality in provision - More cross agency working - More patient education - Financial incentives for GP practices - Flexible budgets that follow the patient - Develop a ICS strategy to combine budgets	Diagnose and optimise high blood pressure treatment over 3 years: 240 strokes prevented Up to £3.3M saved (includes care for patient over their lifetime had they had a stroke) Diagnose and optimally treat AF patients over 3 years: 260 strokes prevented Up to £4.6M saved	
Improved access & sharing of patient information for paramedics attending an emergency : - Individual patient records (past medical history & medication) - Two – way access to GP & other services e.g. AF - Multi-skilled workforce	Medium	ICS	Review of skill mix across services Improved training	Integrated IT system Ability to use IT systems to communicate directly with all teams	N/A		Investment in IT equipment and structures across the whole system		
24/7 access to specialist treatment (in particular thrombectomy) : - Increased service provision at the QMC - HASU at SFHFT to remain and NUH stroke services delivered with developed Thrombectomy services at the QMC. - Agreed transfer & repatriation pathways for patients requiring treatment at the QMC regionally.	High	ICS	Specialist staff to support expansion of treatment service e.g. theatre staff/interventional radiologist) Review of skill mix to provide 7/7 and 24 hour service requirements	Technology to support clinical decision making (EMRAD) CT angiogram at SFHFT Identified separate scanner for stroke at QMC Increased CT availability Dedicated scanner	Space at QMC Re-organisation of theatre space, CT time, impact on trauma service More ITU beds Scanner power supply		Cost impacts of developing the required workforce	Thrombolysis saves NHS £4,100 per stroke over 5 years through improved outcomes resulting in patient requiring less ongoing care.	

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7. Transformation Proposal

	Priority (High/ Med/ Low)	Alignment (ICS/ ICP/ PCN)	Workforce	Technology	Estate/ Configuration	Culture	Finance/ Commissioning	Benefits	Costs
Appropriate levels of workforce skill mix 24/7 across the ICS which includes: - Safe levels of Consultant cover as currently there is a shared rota across the two Acute Trusts - Increased nursing levels at weekends - Increased levels of AHP 7/7 - Integrated workforce across the ICS - Community MDT teams - Use of voluntary sector - Access to psychological support & joint pathways with SLT team and patients with Aphasia	High	ICS	- More specialist staff - Assessment based decisions - Social care cover at weekends - Not to spread more thinly - Increased workforce - Shared workforce - Review and upskilling of homecare workers	Social care & NHS record sharing Better technology re information sharing Shared IT systems	N/A	Integrated social care, health and PHM Model Developing trust programme across different neighbourhoods and roles Younger people to be thread in any prevention strategies Greater ownership at patient level Changing attitudes in industry Reduce competition between providers Greater collaboration across providers Offering equal access to services across the ICS	Too many 'signposting' services instead of face to face support Better use of voluntary sectors Current change in the way commissioned		
Standardise the Early Supported Discharge offer across the ICS to include: - Provide best evidence based ESD for patients who fit the criteria - Appropriate and standardised access to community beds for those who need further supportive care - Standardised MDT assessment wherever the patients care needs are being met.	High	ICP	- Increased social care staff - Specialist staff for community beds with full rehabilitation focus - Mobile workforce to increase coverage - Review & upskilling of homecare staff	Technology to support sharing standardised MDT advice information Stroke passport Shared IT communication systems	Suitable facilities for rehabilitation complex patients in the community i.e. patients who are not yet mobile. Community beds in one place		- Same commissioning for whole of Nottinghamshire - Recognised commissioning for complex stroke/moderate/ severe patients - ESDT is needed for ALL patients even those with limited ability - Community beds need to be appropriately resourced	Saving £1,600 per patient over 5 years that receives ESD.	
Standardise based on best evidence model of rehabilitation: - Immediate access to Community Stroke Teams (CST) with no delays - Complex patient integrated support - Carer support - 6 week, 6 months & annual reviews	High	PCN	- Review of skill mix across services - Integrated social care Resource CST - Review of homecare staff	Integrated IT system Single point of access	Integrated acute & community service offer		Integrated commissioning models that do not seek competition but collaboration between providers More collaboration should be rewarded from commissioning	There is no evidence of cost effectiveness beyond ESD. But it is recognised as the correct approach.	
Provide an improved long term condition support network across the ICS (includes vocational rehabilitation): - Longer periods of rehabilitation - Improved reviews and personalised goal setting - Flexible approach & self-referral -Vocational rehabilitation	Medium	ICP	Greater engagement with the voluntary sector Equity to NHS AHP support	Integrated IT system	N/A		Vocational rehab embed into the community stroke part of the specialist service		

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8. Enabling Requirements

Workforce	The following are key areas that need to be considered to enhance the future health and social care CVD / Stroke services: • Workforce mapping across the system focusing on stroke & TIA services and embedding the prevention agenda into roles. • Coordination of a collaborative programme of work to address skill gaps across the system. • Workforce development plans linked to education and skills.
Technology	The following are key enablers to ensure the sustainability of the proposed transformational opportunities and will aid all themes identified, particularly in prevention, identification and management of frailty across the ICS: • One electronic shared care health record that is 'readable' and 'writable' across the system • Shared assessment tools to optimise detection, enable improved treatment and influence lifestyle choices • To have the ability to update assessments and Advanced Care Plans • Telemedicine advice links and access to tele care • Assistive technology investment • Pilot one single point of access for all referrals e.g. stroke hub where GP's and self-referrals can be accepted and co-ordinated with other support services.
Estate	It is recognised that the A&E departments at QMC and KMH are fixed points in the Strategy. There are a number of areas where there may be additional estates required or integration of services using existing estates across the ICS: • There is a requirement to extend the thrombectomy service at the QMC from being 5/7 to 24/7 over the next five years. This requires additional theatre space, access to ITU beds and access to appropriate levels of specialist staff. • QMC to provide a regional thrombectomy service with the expectation that 10% of patients will receive this treatment in the future, which will place greater demand on future service provision. There is also a requirement for specialist services to be accessible such as neuro-surgery for patients requiring thrombectomy. • With the development and projected growth of Mechanical Thrombectomy and the requirement for this to be provided at the location of Interventional Radiology centres and A&E for optimal and timely treatment, it is recommended that the Nottingham HASU moves from City Hospital Nottingham to QMC Hospital Nottingham subject to the required estate development.
Culture	To drive a culture change we need shared and integrated use of workforce across organisations will enable the sharing of resources as there are limited staff groups and expertise, particularly with the introduction of MDT's and care coordinators. Organisational trust and changes in how future services are commissioned will provide the greatest influence on the future of integrated service provision and how best evidence can influence the future Stroke service offer across the ICS.

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9. CVD to Stroke Services Vision

A community in which all people achieve their full potential for health and well-being across their lifespan and reduce the likelihood of them suffering a stroke by providing care that is proactive, flexible and person centred to enable survivors to continue to reach their full potential.

Bridge to the Future

From…	Phase 1 – 1st year	Phase 2 – 2-3 years	Phase 3 – 5 years +	To…
• Reactive service, with reduced levels of preventative strategies • Low offer and take up of health checks • Most patients are unaware of their own BP, Cholesterol or CVD risks • Some services are available for people in the community and citizens are not accessing them e.g. workplace checks	**Prevention** Identify and explore ICS level funding opportunities to pilot health improvement programmes – including those based around workplaces and schools. Identify sustainable funding models for the equitable provision of smoking cessation services across the ICS Explore new methods of supporting and promoting self-management of clinical risk factors e.g. BP, AF and Cholesterol	- Build on current work with policies to make the built environment healthier including active travel &the local food environment - Have a sustainable network of social prescribing providers that meet the needs of the population. - Ensure a database of available resources/services is available to health and social care staff across the ICS. - Greater awareness of AF and optimal treatment of known individuals with AF. - Use learning from pilots of AF screening - Identify cohorts of people where technology can be used to pin prevention - Better use teachable moments by embedding 'Making Every Contact Count' principles across the ICS system. Ensuring a workforce skilled in brief intervention.	Early detection (where appropriate) and increased awareness of risk factors across the life course. - ICS wide communication campaigns to promote healthy lifestyles and increase awareness of stroke signs and symptoms to improve health seeking behaviours. - A whole system approach with health prevention considered as part of all decisions - Agreement on shared responsibility (or pooled budgets) across ICS organisations that allow spending for best value across 'disease' pathways including prevention	- Improved 'Detection' of citizens with risk factors - Improved 'Protection' for our citizens - More citizens are treated (perfection) to reduce their risks. - Improved ownership of individual health and wellness by our citizens - Improved supportive interventions to enable self-care of our citizens.
• 18% of NUH strokes are admitted through A&E via ambulance who could have gone to a HASU • Paramedic crews do not have access to electronic patient records (past medical history or current medication) to assist with diagnosis • Paramedics do not have two-way access to GP practices once a patient concern has been identified by them	**Pre-Admission** - Define the IT needs - In hours access to one page summary of individual patients diseases, drugs from GP database	- Move to new hubs/specialist locations(Infrastructure) - Out of Hours access to GP database - Meeting IG requirements	- Record observations on the same shared database	- Access to SI for paramedics - Enhanced use to link to GPs/acute services - Easy availability of relevant information - One IT system with shared access - Everyone in Nottinghamshire who has a stroke is taken to the right specialist unit in a timely fashion
• HASU at NUH is not co-located near to A&E, thrombectomy service and neuro-surgeons • Thrombectomy service provided five days for limited hours offering Regional support and should be 24/7 • Reduced levels of expert clinicians across the ICS (shared rota across two acute Trusts) • Reduced levels of nurses & AHP • TIA service not available 7/7 at SFHT	- Scope the movement of stroke services to the QMC - Recruitment drive to employ appropriate levels of staff in all areas - Develop a neuro-sciences board - Acute rehabilitation beds to be provided in one place - TIA service at SFHFT 7/7 - Evidence gathering to identify rehabilitation models for complex patients	**Acute** -Identify site for neuro sciences service on a hospital site - Advanced Nurse Practitioner prescribing roles - Integrated neuro/stroke centre/interventional services treatments/AHP/Nursing/medical staff groups at QMC	- Dedicated neurosciences imaging	- Recognised centre of excellence leading research and prioritising innovative ideas and technology - Be an exemplar for carer and family support - 24 hour thrombectomy service is available across the East Midlands Region
• Rehabilitation offer for mild, moderate strokes is different across the ICS • Complex patient pathways are different across the ICS with different access to community beds. • Not all stroke survivors have 6 week, 6 months or annual reviews	- Initiate research into mild, moderate rehabilitation provision - Develop further research opportunities to support complex patients and the rehabilitation offer across the ICS - Consistent offers of stroke rehabilitation and community beds are in place - Align teams in community facilities - Commence evidence gathering on complex stroke rehabilitation - Aligned and agreed service specification - Greater patient and wider involvement	**Rehabilitation** - Define needs via research to be able to allocate resources and identify outcome measures - Evaluation of rehab model pilot - Commissioning new central hub with state of art rehabilitation facilities - Access to NRC	- Develop rehabilitation outcome measures post 6/12 review - Clinical experts / trainees for other regions	- Personalised patient plan- patient centred - Consistent access to community beds across the ICS with specialist stroke rehabilitation available (mirrors the model of an acute rehabilitation unit) - Patient focused treatment – not time limited but a lifelong provision - Central stroke hub - Collaborative working embedded - A needs met equitable service

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10. Conclusions and Next Steps

Conclusions	The review of CVD/Stroke services as part of the development of a Clinical and Community Services Strategy for Nottingham and Nottinghamshire has been undertaken using a co-design model where patients, families, carers, key stakeholders and the Stroke Association have collaboratively worked together to shape a vision for a future care system for CVD and Stroke in Nottingham and Nottinghamshire. The four key themes for improvement identified were: prevention (detect, protect, perfect and review of citizens); pre-admission (ambulance assessment and emergency care facilities); acute (treatment and access to specialist stroke units); and rehabilitation (different service provision across the ICS). The review describes a future care system in different care settings and with care provided at different levels of urgency and envisages 5 high priority and 2 medium priority programmes to transform care • **High** – Undertake a consistent programme of prevention work to promote healthy lifestyles and reduce avoidable serious health conditions and admissions focused on high blood pressure, high cholesterol and AF. • **High** - 24/7 access to specialist treatment (in particular thrombectomy) • **High** – Develop appropriate levels of workforce skill mix 24/7 across the ICS • **High** - Standardise the Early supported discharge offer across the ICS • **High** - Implement an evidence based best practice model of rehabilitation across the ICS • **Med**- Identify more at risk patients by improved access & shared communication about patients past medical history by paramedics attending as an emergency • **Med** - Provide an improved long term condition support network across the ICS (includes vocational rehabilitation) To achieve these there are a range of enabling requirements for the ICS across workforce, estate, technology, culture and financial systems. These include the long term ambition to move Nottingham stroke services from City Hospital to QMC to align with A&E services and the development of 24/7 mechanical thrombectomy at QMC. Collectively these initiatives can transform and provide long term health improvement and sustainability in the areas of CVD and Stroke care in Nottingham and Nottinghamshire.
Next Steps	This strategy sets the future direction of development for CVD-Stroke Care in the ICS and it is proposed it will shape future work of the ICS in a number of ways • The identified priorities and programmes should be used to inform commissioning, ICS, ICP and PCN activity • The enabling activities require development and inclusion in the relevant ICS workstreams to inform their work programmes and areas of focus • The estate and configuration changes proposed require inclusion in a programme of pre-consultation business case development alongside the service changes recommended from other reviews • The aggregate impact of the collective suite of service reviews should be used to shape focus of future service provision in acute and community settings in the ICS.

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11. List of Abbreviations

1°, 2° Care	Primary, Secondary Care	MECC	Make Every Contact Count
A&E	Accident and Emergency	NHFT	Nottinghamshire Healthcare Foundation Trust
AF	Atrial Fibrilation	NHS	National Health Service
ANP	Advanced Nurse Practitioner	NHSE	National Health Service England
BP	Blood Pressure	NHSI	National Health Service Improvement
COPD	Chronic Obstructive Pulmonary Disease	NICE	National Institute for Health and Care Excellence
ECG	Electrocardiogram	NRCP	National Register of Certified Professionals
ESD	Early Supportive Discharge	NRT	Nicotine Replacement Therapy
ESDT	Early Supportive Discharge Teams	NUH	Nottingham University Hospitals
EMRAD	East Midlands Ambulance Radiography	NRC	National Rehabilitation Centre
ED	Emergency Department	PN	Practitioner Nurse
EMAS	East Midlands Ambulance Service	PCN	Primary Care Network
EoL	End of Life	PH	Public Health
eSCR	Electronic Shared Care Record	PHE	Public Health England
GP	General Practitioner	PHM	Population Health Management
HCA	Healthcare Assistant	PID	Project Initiation Document
HCP	Healthcare Professional	QALY	Quality Adjusted Life Years
HES	Hospital Episode Statistics	QIPP	Quality, Innovation, Productivity and Prevention
ICP	Integrated Care Partnership	QMC	Queen's Medical Centre
ICS	Integrated Care System	SALT	Speech and Language Therapy
IT	Information Technology	SEND	Special Educational Needs and Disabilities
LTC	Long Term Conditions	SFH	Sherwood Forest Hospitals
LTP	Long Term Plan	TIA	Trans-Ischaemic Attack
MDT	Multi-Disciplinary Team		

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12. Data Sources

Data Sources	NHS Long Term Plan SSNAP – Sentinel Stroke National Audit Programme Local Data from NUH, SFHFT, CCGs and GPRCC NICE guidelines Public Health England NHS RightCare NHS England Office of National Statistics Poppi – Projecting Older People Population Information System Stroke Association Healthier Lancashire and East Cumbria

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