Springboard for Progress

The Seventh SSNAP Annual Report

Stroke care received for patients admitted to hospital between April 2019 to March 2020

KING'S College LONDON

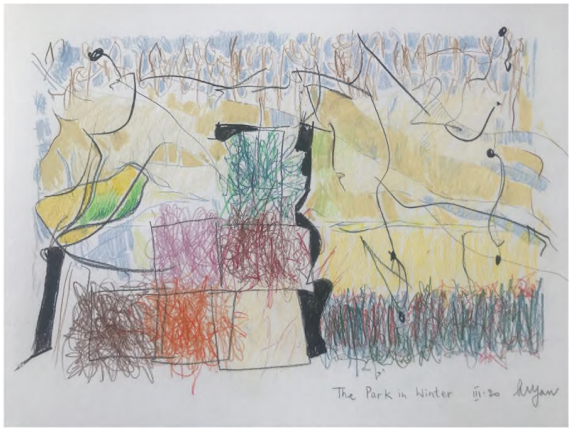
Sentinel Stroke National Audit Programme

HQIP
Healthcare Quality Improvement Partnership

A description of the front cover of this report

The drawings on the cover of this report have been provided by Andrew Marr. Andrew had a major stroke in 2013 with the stroke changing how he paints and draws. The two drawings on the cover are part of a series of 40 drawings made in March 2020 during lockdown.

The first drawing is titled "The Park in Winter"



One of my favourite lockdown drawings, thinking back to the London parks as winter ended. I like its spikiness.

The second drawing is titled "The news in Loudwater"

In order to keep working while protecting the vulnerable members of my family, I had to decamp to a self-catering place near the M40. Hardly anyone was around. It helped my drawing.

Andrew was born in Glasgow in 1959 and educated in Dundee, Edinburgh and Cambridge. He has worked as a political journalist for the Scotsman, the Independent and the Economist, BBC political editor from 2000 to 2005, and most recently host of the Andrew Marr Show since 2005 and Start of the Week since 2001. Andrew is the author of 14 published books of history and fiction. He is married with three children and lives in North London.

https://www.andrewmarrart.uk/

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Foreword

This last year has been a most extraordinary time for all of us, patient and public, professional or policy maker. As the COVID pandemic has stopped us in our tracks in many areas of life it has also given us time to reflect; to reassess priorities and within the crisis, and to see opportunity in how we deliver healthcare. It has led to a significant change in how the NHS delivers its services and has seen an acceleration of polices and an explosion of innovation like never before. Local services have implemented change within national guidelines, doing things differently and at pace to respond to these challenges.

Whilst there have been many enablers, there has also been a spotlight shone on some of the barriers and inequalities within the delivery of stroke care. These have included the fragility of our community services, especially around rehabilitation; shortages in appropriately skilled workforce, but also an opportunity to look at how we up-skill and also work with our amazing voluntary sector. Health inequalities and digital exclusion have come to the forefront, of particular importance in stroke medicine due to the need for a real focus on prevention for our high risk populations that are often also the hardest to reach.

The NHS is all about its people. There is exemplary leadership, commitment, and resilience within our stroke multidisciplinary workforce. For the first time, all four devolved nations have appointed national clinical leads and we have seen much closer working with the British Association of Stroke Physicians and major stroke charities. Acute teams and community teams have come together to form communities of good practice, sharing new ways of working, building confidence amongst patients and clinicians and developing tools and resources to align systems. It is essential that we assess and evaluate these changes to ensure that going forward we continue to develop policy that is evidence-based and benefitting our stroke survivors.

As we focus on the quality improvement agenda to enable us to meet the rising pressures, this has highlighted how important data and high-quality audit is to the NHS. During the many challenges faced over the last 12 months, stroke units have managed to maintain high-quality processes of care across many aspects of acute care delivery and the level of commitment to the importance of the national audit and performance monitoring is to be commended. We have, not unexpectedly, seen a change in public and patient health seeking behaviours, but it is of paramount importance that messaging is clear that stroke remains a life threatening illness that requires urgent and emergency care and a 999 response.

Although we could not have anticipated what 2020 would bring, the pandemic has allowed some acceleration of NHS England's Long Term Plan. This plan, published in January 2019, heralded a commitment in government and policy prioritisation for the delivery of stroke care. The roadmap for how care was delivered over the next 10 years to ensure the success of the NHS being fit for purpose with an ambition to prevent over a 150,000 heart attacks, strokes and dementia cases was clear. This would be delivered by doing things differently with integrated networks, streamlined pathways, better prevention and reduction in health inequalities, supporting our amazing workforce, advances in digital and data usage and better investment with reduction in waste and unwanted variation. The NHS England National Stroke Programme has embraced these ambitions and developed a National Service Model for Stroke Medicine, the current draft of which is available on our FutureNHS site.

A reduction in unwarranted variation has also been the objective of the Getting It Right First Time (GIRFT) National Stroke Programme in England. The comparison of process markers within SSNAP with outcomes, service delivery models, sustainability of staffing and cost of service delivery has been looked at for the first time. All stroke services in England having one to one reviews and individual local and regional quality improvement action reports in 2019-20. This programme has worked closely with SSNAP to look at how we can 'kick start' improvement in stroke care.

Within this report we see that many of the markers of improvement in care have stalled, or deteriorated within SSNAP e.g. thrombolysis rates static at 11-12% with a 2 minute increase in average door to needle times; longer onset to arrival at hospital times and time to stroke unit admission. It is more important than ever that we take stock of how we deliver our services and enable local ownership and challenge. A real focus on delivery of a networked approach to delivering thrombectomy is also essential to increase access to this disability saving intervention. Although there has been a slow improvement in the delivery of thrombectomy up to 1.8%, this is not at the level projected for year three of this development of service programme, and a real focus is being given nationally to support more rapid implementation and extended, equitable access.

Never before have networks been more important and the launch the Integrated Stroke Delivery Networks (ISDN) in England will support the delivery of the GIRFT action plans as well as the implementation of the National Stroke Service Model and subsequent policy. Patient & Public Voice are at the centre of this pathway and must also be embedded in to the ISDN boards regionally.

The Clinical Policy Unit's National Stroke Programme has many objectives but it is clear one of our main priorities is how we tackle the variation in delivery of in-patient and community rehabilitation and life after stroke services. It is very clear from this annual report that although progress has been made, we are not where we need to be in our delivery of care to enable our stroke survivors to return to independent living. The report demonstrates the need for improved access to a needs based, higher intensity in-patient and community rehabilitation pathways accessible over 7 days. Also the need for better structured follow up post discharge to ensure our stroke survivors do not feel abandoned and get the necessary support for the hidden effects of stroke such as fatigue, low mood and cognitive impairments.

It is time to start doing things differently; it is time to challenge the status quo. Working together across the pathway; using local data and regional performance dashboards to drive quality improvements; and embedding network governance structures to ensure ownership and delivery of world class stroke care.

Deborah Lowe

Dr Deb Lowe
National Clinical Director for Stroke Medicine
NHS England and Improvement

Introduction

The bold ambitions for stroke set out in the NHS Long Term Plan first published in February 2019 include delivering better prevention, and providing access to high quality acute care, rehabilitation and long term support.

To a significant extent, these ambitions are reflected in the policy ambitions for stroke in the devolved administrations of the UK (Wales: https://gov.wales/sites/default/files/publications/2018-12/stroke-delivery-plan-2017-to-2020.pdf; NI: https://www.health-ni.gov.uk/reshaping-stroke-care). Measuring performance against evidence-based quality standards across the entire stroke pathway is fundamental to data-driven quality improvement.

Laying the groundwork for performance measurement will ensure that the necessary improvements in stroke care occur from the pre-hospital phase, through to rehabilitation and life after stroke across all parts of the UK. By examining in detail the quality of care that patients receive we gain a better understanding of which aspects of care need to be improved and how they can result in the best possible outcome for patients and their families.

The Sentinel Stroke National Audit Programme

The Sentinel Stroke National Audit Programme (SSNAP) is a national healthcare quality improvement programme based in the School of Population Health and Environmental Studies at King's College London. SSNAP is commissioned by the Healthcare Quality Improvement Partnership (HQIP) on behalf of the NHS in England and Wales, as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP).

Data from more than 89,000 patients were submitted to the audit last year, representing over 90% of all strokes admitted to hospitals in England, Wales and Northern Ireland. Over 7 years, almost 600,000 cases have been recorded in total. This vast amount of data provides a unique resource for quality improvement and supporting the delivery of evidence-based care.

SSNAP measures the process of care (clinical audit) against particular standards referring to the interventions that any patient may expect to receive. These standards are laid out in the latest evidence-based clinical guidelines, including the Royal College of Physicians National Clinical Guideline for Stroke (2016). These standards include whether patients receive clot busting drugs (thrombolysis), interventions for clot retrieval (thrombectomy), how quickly they receive a brain scan or how much therapy is delivered in hospital and at home.

Subsequent data is also collected, including 30-day mortality (reported separately) and disability outcomes at hospital discharge and at six months using validated and standardised assessment scales. By recording this data, we can measure the impact of acute treatments and hospital care on longer term outcomes as well as recording the needs of patients as they continue their journey of recovery from stroke.

SSNAP also measures the infrastructure of stroke services (staffing levels, number of stroke unit beds and access to specialist services) against evidence-based standards using the Acute Organisational Audit and the Post-Acute Organisational Audit.

The most recent round of the acute organisational audit was in 2019, with a report produced that autumn (https://www.strokeaudit.org/Documents/National/AcuteOrg/2019/2019-AOANationalReport.aspx) reflecting the structure of stroke services in 183 acute hospitals across the UK. By combining comprehensive information about the composition and quality of stroke services both at a team/hospital level and at a patient level, SSNAP provides a powerful tool for clinicians, managers, health boards and commissioners and the public to evaluate performance in stroke care, identify further needs and drive the process of continuous quality improvement.

Purpose of this report

This is the 7th Annual SSNAP report. The purpose of this report is to provide a baseline summary of the principal ambitions of stroke care in the 2019 NHS Long Term Plan. This identifies five key areas for progress including high quality specialist stroke care, seven day priority clinical standards, expanding reperfusion treatment, providing higher intensity models of rehabilitation and improved long-term outcomes.

This report provides detailed and comprehensive information on the clinical standard for each ambition, presents the current position including national trends, the future trajectory over the next 5 years and recommendations on what additional measures may need to be implemented in order to achieve the ambitions. Data has been collected from both the patient-level clinical audit for the period April 2019-March 2020, as well as incorporating data from the Acute Organisational Audit (2019).

The current COVID-19 disease pandemic remains an enormous public health challenge and this report will also provide an early indication of how the emergence of the disease in February and March has affected access to stroke care. However, most of the longer term impact of the pandemic thus far has fallen within the year beginning April 2020. Much of the learning regarding the quality of stroke care during the major part of the pandemic will have to await subsequent reports.

This year we have also introduced several new visualisations to improve the accessibility of the data. As much as possible we have adopted a colour scheme better suited for deuteranomaly (colour blindness), except for where we have used the familiar colour scheme for the SSNAP scoring bands from A (a first-class service) to E (a service in need of substantial improvement).

For several key indicators, SSNAP band scoring colours have been used in the background of line graphs to help readers appreciate where we are in terms of performance. More about SSNAP scoring can be found at https://ssnap.zendesk.com/hc/en-us/articles/360008670314-How-are-SSNAP-scores-calculated-.

To demonstrate the likelihood of receiving care for a given 'clockstart' (the time of first arrival at hospital, or, for stroke occurring in hospital, the time of onset of stroke), we have created heatmaps of the day of the week vs. time of day. In these plots, the ranges are relative to maximum and minimum, with blue hues representing a higher likelihood of receiving that particular aspect of quality care.

The data summarised in this report is publicly available and can be accessed on the SSNAP website (https://www.strokeaudit.org/results.aspx) so that anyone can appreciate how stroke

care is being implemented regionally and nationally both in hospital and in the community. It is hoped that this data is used constructively to help health care providers in stroke improve outcomes and the quality of care delivered to patients.

A long term overview of SSNAP

Since its inception in 2013, the results of the SSNAP audit have been accessible to the general public at www.strokeaudit.org.uk along with guidance regarding what people can expect from high quality stroke services.

Changes in SSNAP scores over time (2013-2020)

Proportion of teams

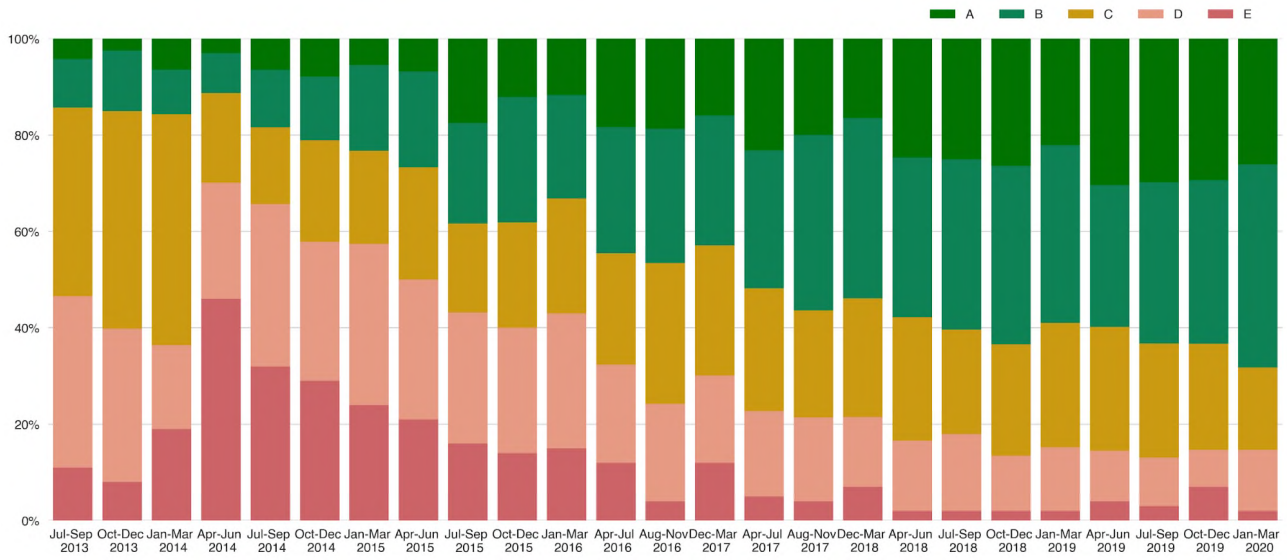


Figure 1: This graph demonstrates continuous improvements achieved by stroke services between July 2013 and March 2020. Teams are rated A-E based on performance.

At the inception of SSNAP in 2013, teams were expected to set out the ambition to achieve an overall A or B SSNAP rating. Such scores are indicative of 'first class quality of care' and a 'good or excellent service in many aspects' respectively. A SSNAP rating of a C or less would suggest that 'some or several areas of care require improvement', whilst a SSNAP rating of D or E would indicate that several areas are in need of significant improvement.

Improvement in hospital ratings from 2013 to 2020

	Jul-Sep 2013		Jan-Mar 2020
E rating	43%	-42% ↓	1%
A rating	0%	+26% ↑	26%

Over the last seven years of SSNAP, these improvements represent a remarkable effort by many stroke teams to improve the quality of their stroke service through implementation of data-driven quality improvement and evidence-based practice. This provides an important platform to implement the vision of stroke care embedded within the NHS Long Term Plan.

Mortality

The crude in-hospital mortality rate for 2017-19 is 13.4%. SSNAP also reports on 30-day mortality which is adjusted for various factors which predict mortality. These include age, type of stroke, atrial fibrillation (irregular heart beat) and severity of stroke. This provides both the team's actual and expected number of deaths expressed as a standardised mortality ratio (SMR). The SMR for 2017-19 was 1.05. Mortality is reported to hospitals annually, and results are made publicly available at www.strokeaudit.org.uk. Mortality should not be interpreted in isolation as a measure of clinical quality but in the context of other important SSNAP data.

In-hospital crude mortality rate has decreased from 15.1% to 13.4% from 2013 to 2020

Percentage of patients

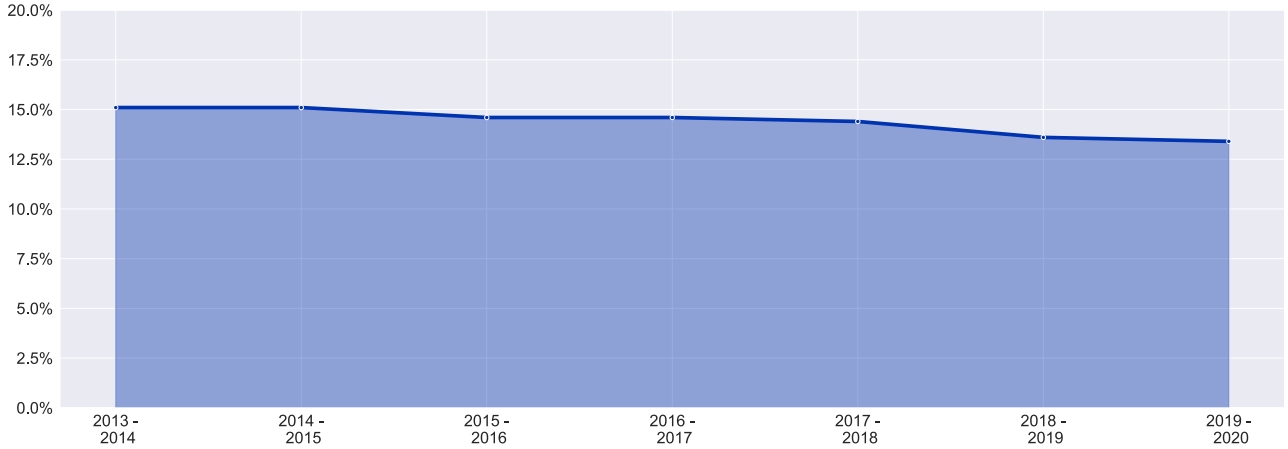


Figure 2: Trend of crude in-hospital mortality rate from 2013 to 2020.

The reduction in proportion of stroke survivors entering care homes may be explained by a number of factors. These may include changes in demographics, stroke severity and improvements in the quality of acute stroke care. It may also reflect changes in the availability of care home placements. Improvements in the provision of community rehabilitation and additional support may also reduce the need for care home provision.

Discharge to a care home from inpatient care has decreased from 10.9% to 7.8% from 2013 to 2020

Percentage of patients

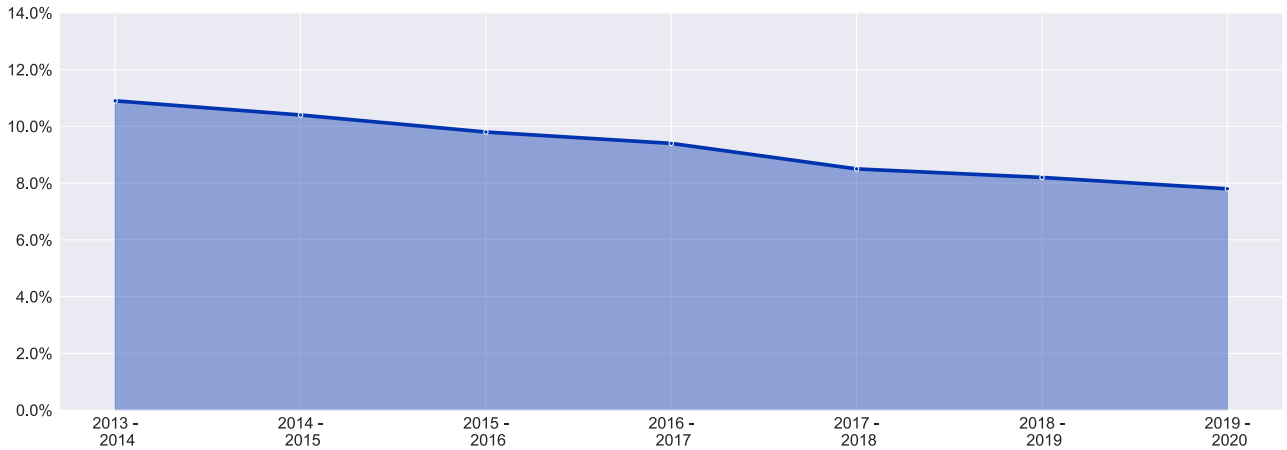


Figure 3: Trend of discharged to a care home from inpatient care from 2013 to 2020

QUALITY OF STROKE CARE

Apr 2019 - Mar 2020

It is important to measure outcomes in order to understand how well stroke interventions are working and to what aspects of stroke care need to be improved.

High Quality Specialist Stroke Care

Stroke Unit

84%
of patients spent at least 90% of hospital stay on a specialist stroke unit.

91%
of patients received stroke specialist nursing assessment in less than 24 hours after admission.

75%
of applicable patients received swallow screening in less than 4 hours after admission.

Therapist Assessment

93%
of applicable patients were assessed by an Occupational Therapist within 72 hours after admission.

95%
of applicable patients were assessed by a Physiotherapist within 72 hours after admission.

90%
of applicable patients were assessed by a Speech and Language Therapist within 72 hours after admission.

Seven Day Priority Clinical Standards of Stroke Care

55%
of patients directly admitted to a stroke unit in less than 4 hours after admission.

58%
of patients assessed by a stroke specialist consultant physician (in person or via video telemedicine) in less than 14 hours after admission.

55%
of patients received brain imaging in less than 1 hour after admission.

38%
of sites providing at least 2 types of therapy seven days a week

QUALITY OF STROKE CARE

Apr 2019 - Mar 2020

Expanding Reperfusion Treatment

53 minutes
median time from arrival at hospital to thrombolysis treatment.

11.7%
of all stroke patients were given thrombolysis.

1.8%
of all stroke patients underwent a thrombectomy.

Models of Rehabilitation

34%
of applicable patients received the equivalent of 45 minutes of Physiotherapy per day 5 days a week.

37%
of applicable patients received the equivalent of 45 minutes of Occupational Therapy per day 5 days a week.

19%
of applicable patients received the equivalent of 45 minutes of Speech & Language Therapy per day 5 days a week.

41%
of patients were treated by a stroke skilled Early Supported Discharge Team

Longer Term Outcome

41%
of applicable patients received a 6 month follow-up.

85%
of patients in atrial fibrillation at six months taking anti-coagulants.

3%
of patients had a recurrent stroke at six months recorded.

56%
of sites undertaking a formal survey seeking patient/carer views on stroke services

1. The impact of COVID on stroke

The COVID-19 pandemic has incurred major challenges across healthcare services in terms of access and delivery of specialist care to stroke patients across the pathway. Describing the impact of the pandemic on the characteristics of stroke patients admitted to hospital and access to specialist care will help to re-examine how care can be delivered more effectively and safely in the future.

During the months of February and March 2020, when COVID-19 transmission was taking hold across the UK, health care systems and in particular emergency services were under increasing pressure due to increasing demand. Redeployment of stroke-skilled staff to other emergency services resulted in challenges in contributing data to the full SSNAP dataset. As a result, the national programme of audits run by HQIP was suspended, and a minimum COVID dataset was implemented after March 2020 to record key patient characteristics and service delivery data. From 1 April 2020, 93% of sites continued with the SSNAP data entry whereas 7% of sites submitted less than 10% of cases in the Apr-Jun 2020 quarter.

Reduced stroke admissions to hospital February-March 2020

Number of stroke admissions per month

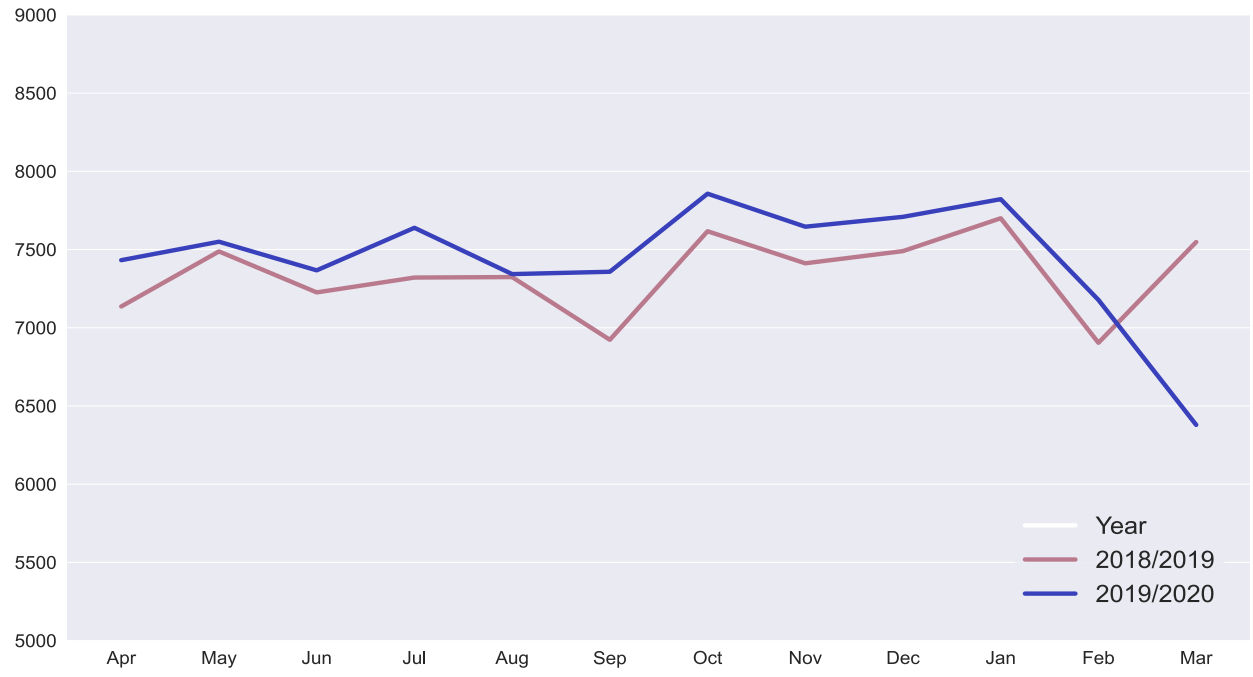


Figure 4: Pattern of stroke admissions to hospital in 2019-20 compared to 2018-19

Admissions remained stable until there was a steep decline in admissions in the second week of February, which predates the nationwide lockdown from 23 March 2020. There was an 11% reduction in stroke admissions to hospital during February and March 2020 compared to an 8.5% increase in the same period in 2019. This was particularly evident for patients with mild stroke, older patients and patients with greater disability prior to their stroke.

Overall decline in stroke admissions in March 2020

Number of stroke admissions per month by severity

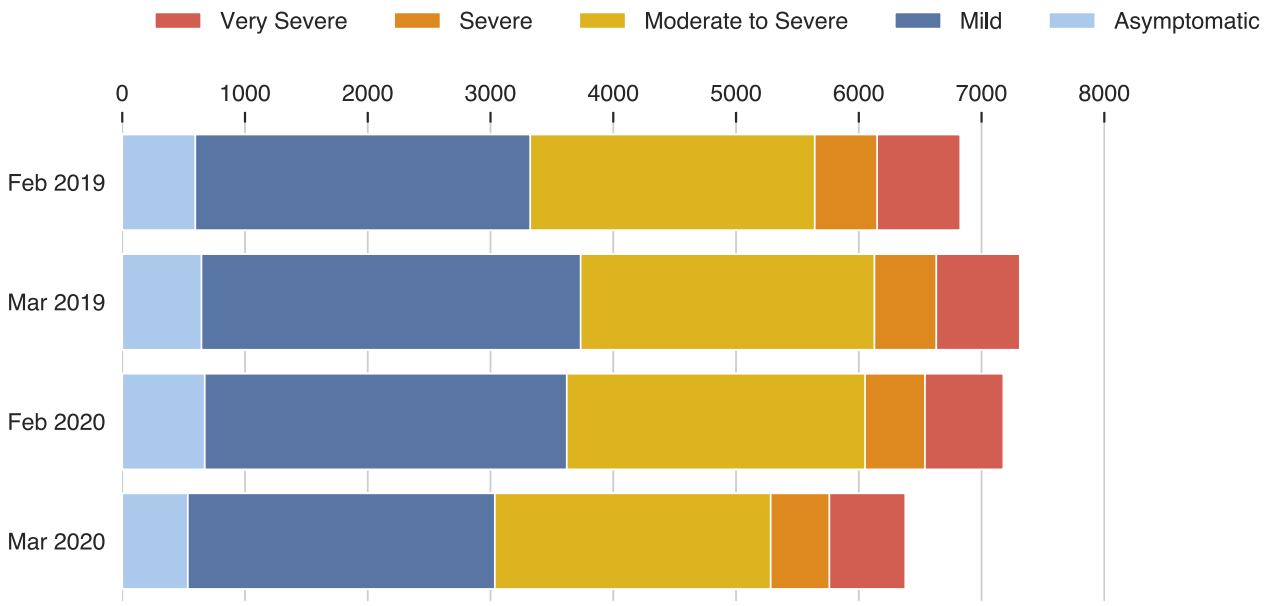


Figure 5: Pattern of stroke admissions to hospital by stroke severity in February and March 2020 compared to February and March 2019

Despite these challenges, access to vital aspects of specialist stroke care such as acute brain imaging, access to hyper-acute units within 4 hours, thrombolysis and initiating therapy in a timely fashion were maintained throughout the initial lockdown period (23 March - 30 April).

In March 2020, 59% of patients were scanned within 1 hours whereas 55% of patients were scanned within 1 hour from January to March in 2019. Small but significant rises were seen in other key quality indicators, such as spending at least 90% of a patient's hospital stay on a specialist unit.

These findings are encouraging in that they strongly suggest that clinical quality for stroke admissions was maintained at a time of severe stress on the NHS as a whole. It demonstrates the perseverance of stroke specialist staff during a time of severe challenge on acute hospital services.

These findings also show the importance of providing resilient, flexible, high quality care services for stroke patients. Stroke services in the future will have to adapt effectively in order to respond to the changing landscape of the COVID-19 pandemic for some time to come.

2. High quality specialist care

NHSE Long Term Plan Ambition
An increase in the number of patients receiving high quality specialist care. 90% of stroke patients should receive their care on a specialist stroke unit.

2016 National Clinical Guideline for Stroke
People with stroke should be treated on a specialist stroke unit throughout their hospital stay unless their stroke is not the predominant clinical problem.

Stroke Units

Stroke unit care remains the most effective intervention for patients from a population perspective, as patients of all stroke types and severity are less likely to die or be forced to move into institutional care when given specialist care on a stroke unit.

Care on a stroke unit ensures the delivery of timely multidisciplinary specialist assessments and treatments throughout the patient's hospital stay. These assessments include specialist nursing, swallow screening, multidisciplinary assessments and hyper-acute interventions.

A recent publication based on 143 578 patients with acute stroke admitted to 154 hospitals in SSNAP has shown that the key intervention to reduce mortality on a specialist stroke unit is the availability of nurses skilled in the management of swallowing problems post-stroke (https://www.ahajournals.org/doi/full/10.1161/STROKEAHA.118.021518).

Swallow screen trained nurses per 10 hyper acute-unit beds

	Median number of nurses (IQR)
Weekdays	2.5 (2 - 4.3)
Saturdays	2.5 (2 - 4)
Sundays	2.5 (2 - 4)

National performance has changed little for patients spending at least 90% of stay on stroke unit

Percentage of patients

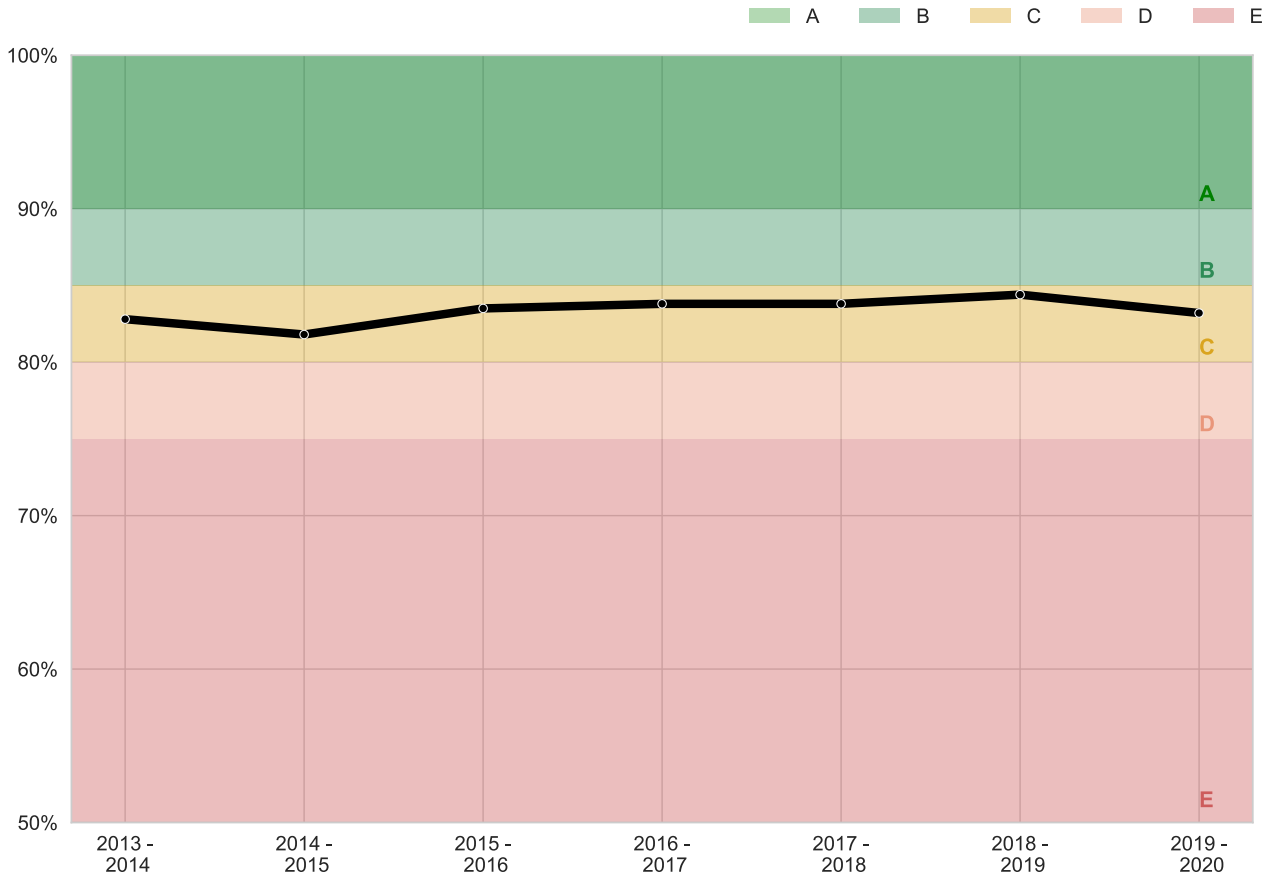


Figure 6: Percentage of patients who spent at least 90% of their stay on stroke unit between 2013 and 2020

The percentage of patients spending 90% of their length of stay on a stroke unit has remained unchanged between 2013-14 (83.8%) and 2019-/20 (84.1%).

Specialist Nursing

Specialist nurse assessment within 24 hours is high

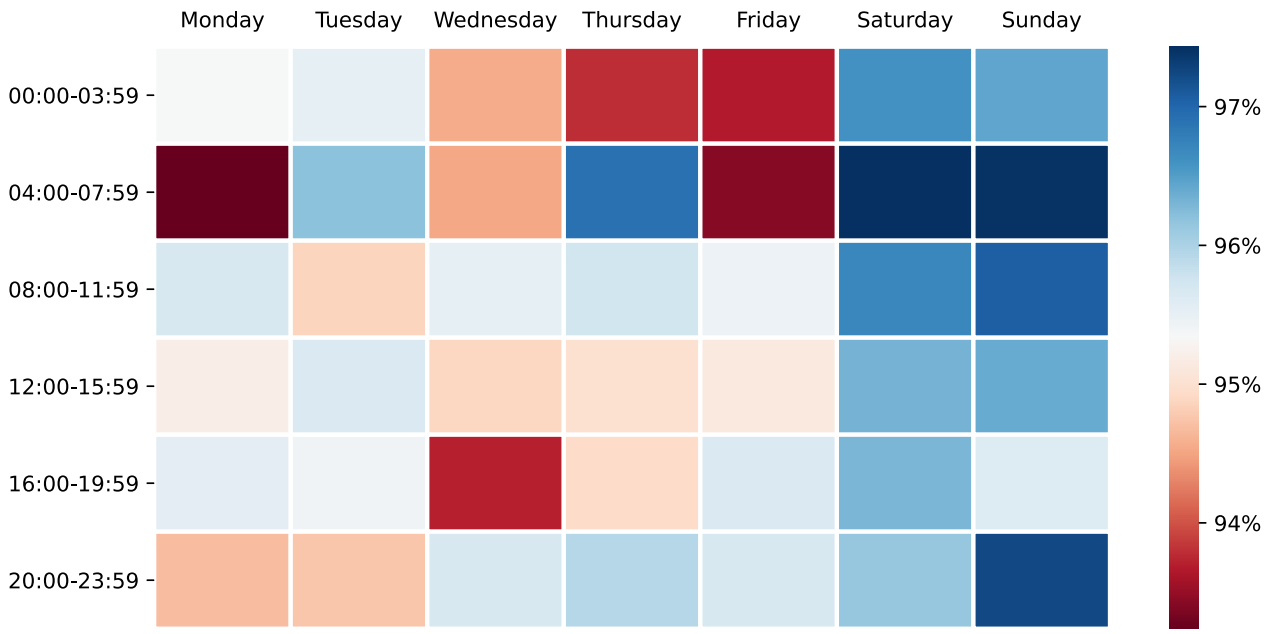


Figure 7: Daily and hourly variation in the likelihood of being assessed by a nurse trained in stroke management within 24 hours of arrival at hospital.

Figure 7 provides a breakdown of the likelihood of whether patients are reviewed by a nurse trained in stroke management within 24 hours of arrival to hospital according to the time and day of admission. Although the percentages are high, this is less likely to occur in patients who are admitted between midnight and 4 AM, Monday to Friday. Nursing assessments are being carried out more readily over the weekend and may be a reflection that admission to a stroke unit is more likely during this time period.

Stroke nursing assessments within 24 hours have improved from 86.2% (2013-14) to 91.3% (2019-20), thus reflecting improved organisation of specialist staff to assess patients as quickly as possible.

The median time to first nursing assessment was 56 minutes, which has improved by 58% from 2013.

Swallowing Screening

National performance has steadily improved for patients receiving swallow screening within 4 hours

Percentage of patients

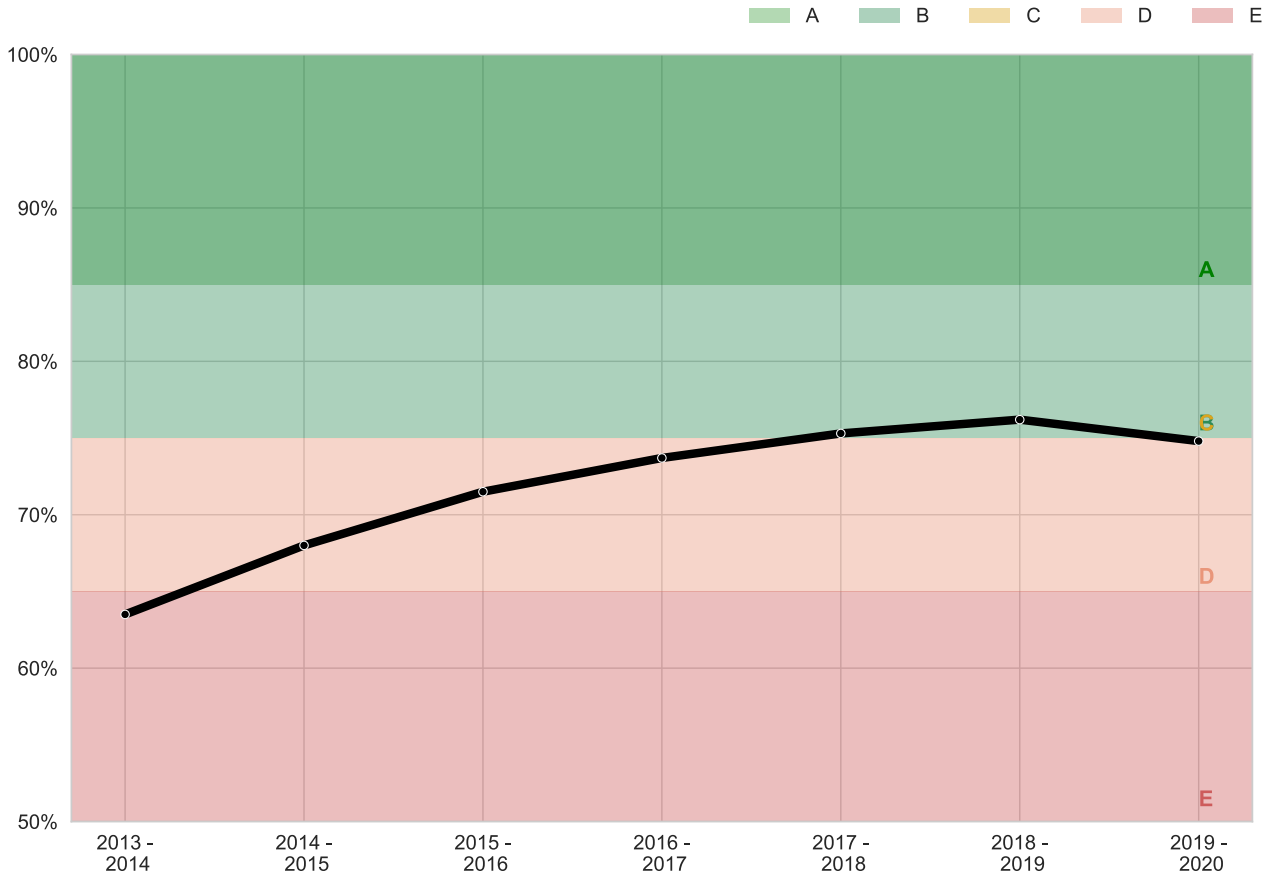


Figure 8: Percentage of patients given a swallow screening assessment within four hours of arrival at hospital between 2013 and 2020. N.B B and C ratings have the same threshold.

The percentage of swallow screening within 4 hours has increased over recent years from 63.5% (2013-14) to 74.8% (2019-20). This still leaves significant room for improvement. Early swallow screening has been shown to reduce the risk of stroke-associated aspiration pneumonia, a leading cause of stroke death and therefore swallow screening and assessment for all patients is vital to that they are safely hydrated and nourished.

Hyperacute Haemorrhage Management

Hyper-acute management of intracerebral haemorrhage continues to be a focus given that between 12.5% of strokes are caused by bleeding in the brain (caused by a ruptured blood vessel).

Recent research has shown that acute blood pressure lowering in patients who present within the first six hours improves patient-reported outcomes. Acute blood pressure lowering is supported by expert guidelines in Europe and the US.

There are also benefits from reversing the blood thinning effects of anticoagulants (blood thinners), which may be relevant to bleeding in the brain. The effects of these interventions are time related and therefore need to be delivered rapidly for maximal effect.

Since 2017-18, SSNAP has been measuring these interventions to understand how effectively they are being implemented.

Data from December 2017 to September 2019 highlight that time from arrival to the initiation of blood pressure lowering treatment reduced slightly from 83 minutes to 74 minutes. 62% of eligible patients had their blood pressure target of 140 mmHg achieved within 24 hours of admission. Treatment time to target (140 mmHg) declined from 114 minutes to 107 minutes over time as shown in figure 10.

Research evidence would recommend that this BP lowering target is achieved within an hour of initiating treatment which suggests that further gains are possible.

Variation of time from arrival to anticoagulation reversal

Median, interquartile range

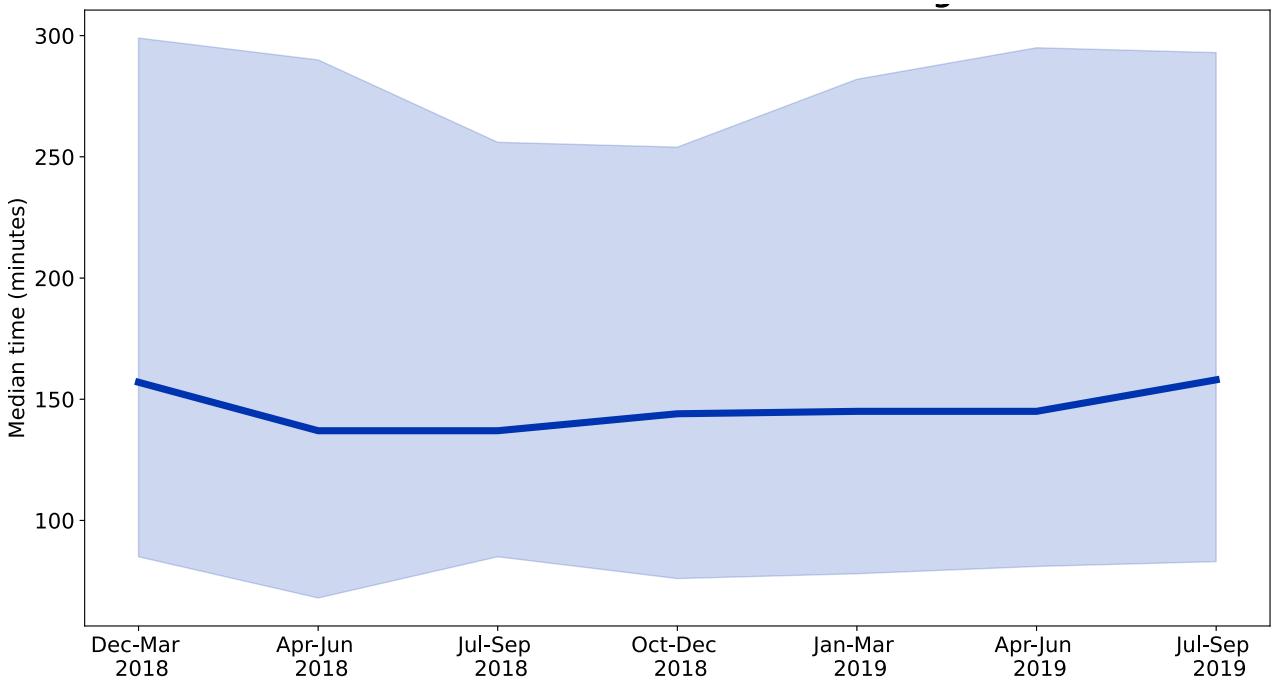


Figure 9: Changes in variation of time to anticoagulation reversal from December 2018 to September 2019.

The time from arrival to blood thinning reversal treatment had not changed over the same time period (156 minutes to 157 minutes; Figure 9).

Variation of time from treatment to blood pressure lowering
Median, interquartile range

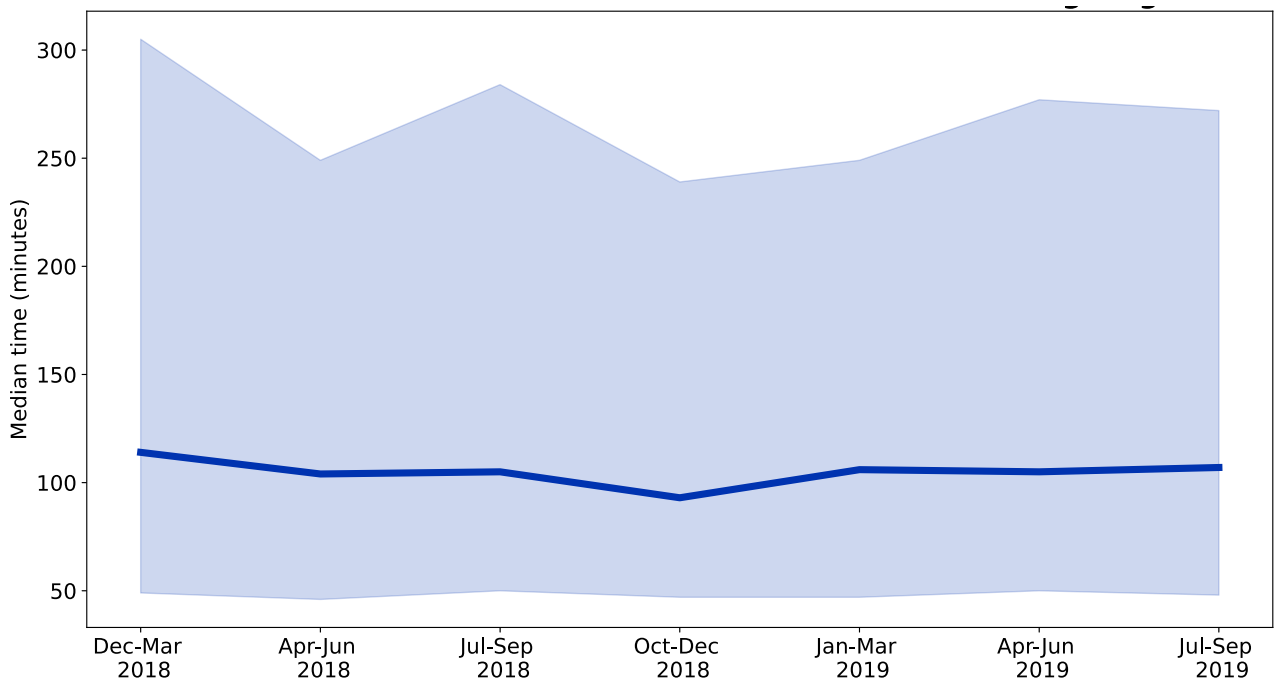


Figure 10: Changes in variation of time to blood pressure lowering from December 2018 to September 2019.

These are the first UK national audit data to identify the scope for improvement in delivery of evidence-based acute treatments for intracerebral haemorrhage. This is a substantial opportunity to focus on quality improvement for a group of patients for whom evidence-based interventions have been in short supply compared to advances made in ischaemic stroke treatment.

Multidisciplinary Assessments

It is vital that multidisciplinary assessments and treatments are delivered in a timely fashion and there is evidence that skilled therapy provided at the optimal intensity improves outcomes.

The percentage of applicable patients assessed by physiotherapy was 95%, occupational therapy 93%, speech and language therapy 90% within 72 hours of arrival in 2019-20.

Between 2013-14 and 2019-20, the proportion of patients who were applicable for OT increased from 80% to 84.5%, for PT this remained static at 84.9% (84.8% in 2013-14) and for SALT, this increased from 48.3% to 51.6%. This may be a reflection of the complexity of impairments as a result of stroke that have emerged over time requiring expert multidisciplinary assessment.

Future Trajectory and Recommendations

It will be challenging to achieve the ambition of 90% of stroke patients managed consistently on a stroke unit, and this indicator has changed very little in recent years.

In order to achieve this improvement, it will be important to ensure that there are enough stroke unit beds for the population served, and that they are staffed by clinicians with the appropriate training and capabilities. Creating additional capacity in stroke units by supporting early discharge with high quality community services will be crucial.

3. Meeting the 7 day Priority Clinical Standards for Stroke Care

NHSE Long Term Plan Ambition
Integrated Stroke Delivery Networks (ISDNs) involving relevant agencies including ambulance services through to early supported discharge will ensure that all stroke units will, over the next five years, meet the NHS seven-day standards for stroke care and the National Clinical Guidelines for Stroke.

NHS Services, Seven Days a week, 2018
All patients with suspected acute stroke should be admitted directly to an acute stroke unit and be assessed by a suitable stroke skilled consultant within 14 hours.

Significant decline in proportion of patients admitted to a specialist stroke unit from 2018-19 to 2019-20

Percentage of patients

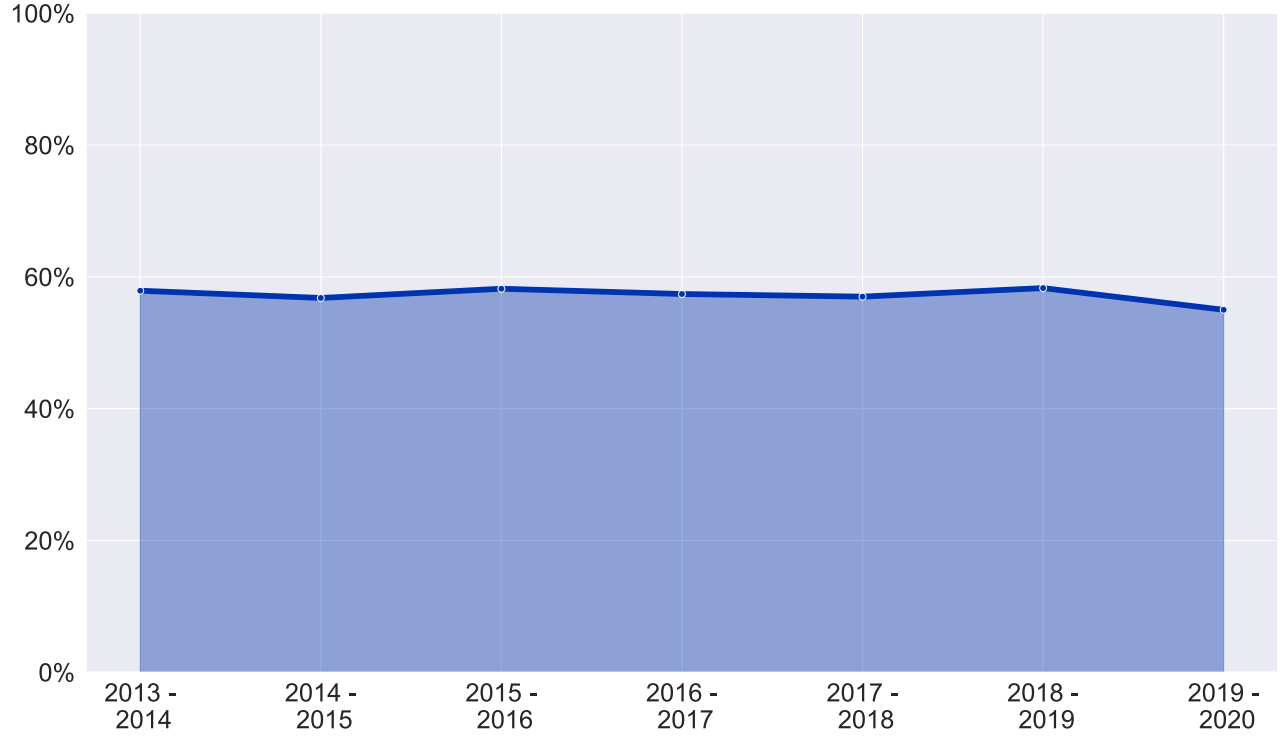


Figure 11: Percentage of patients admitted to a stroke unit within 4 hours of arrival at hospital between 2013 and 2020.

This year saw a small but significant decline in the proportion of patients admitted to a specialist stroke unit, with 55.0% patients admitted within 4 hours in 2019-20 compared with 58.3% in 2018-19.

Rapid admission to a stroke unit (as soon as possible within 4 hours) is vital so that the necessary assessments to prevent complications and acute interventions can be delivered effectively. The percentage of patients admitted has deteriorated which may be driven by increasing demands on emergency admissions for other conditions apart from stroke and associated bed capacity pressures within hospitals.

Bed capacity is particularly challenging at the beginning of the week due to the inability to create capacity and flow through weekend discharges. 12.1% of stroke patients are still admitted to a medical assessment unit rather than an acute stroke unit.

Less than 55% likelihood of admission to stroke unit in less than 4 hours in the first half of the week

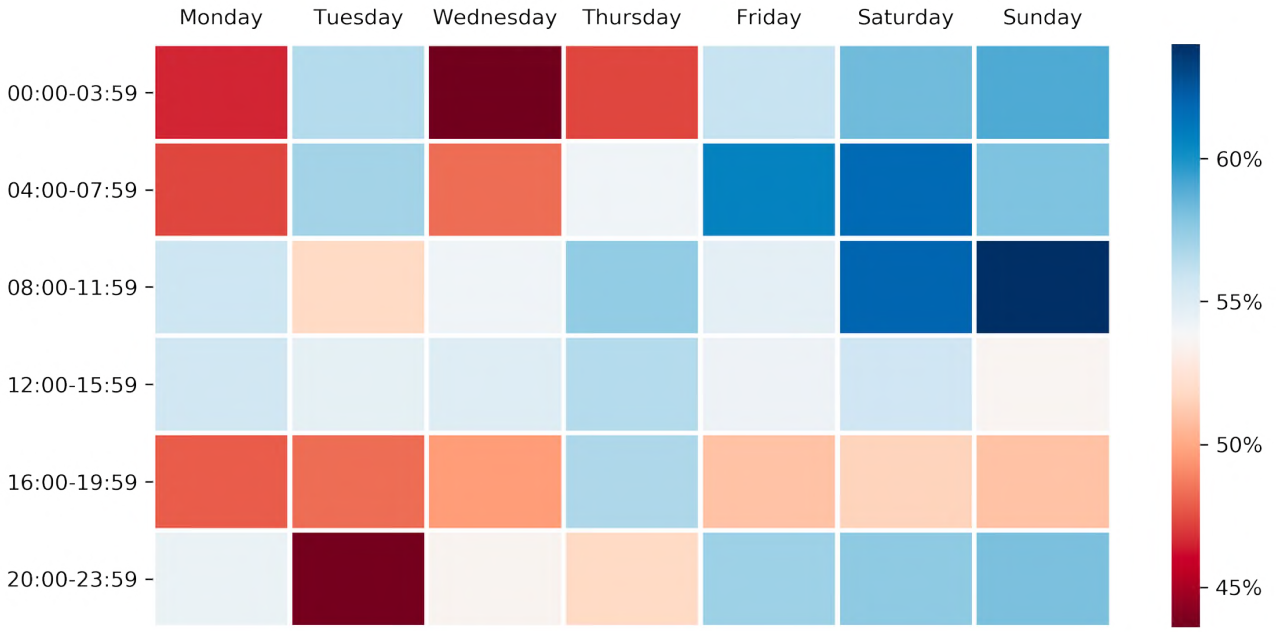


Figure 12: Daily and hourly variation in the likelihood of being admitted to a stroke unit in less than 4 hours of arrival at hospital.

The challenges of weekend discharges, which may be a reflection of a lack of weekend therapy provision may have an adverse impact on bed availability on acute stroke units. This is particularly evident in the challenges faced by fewer patients accessing acute stroke unit admission on Monday mornings.

Less than 50% likelihood of stroke specialist assessment within 14hours when admitted from 12pm-8pm

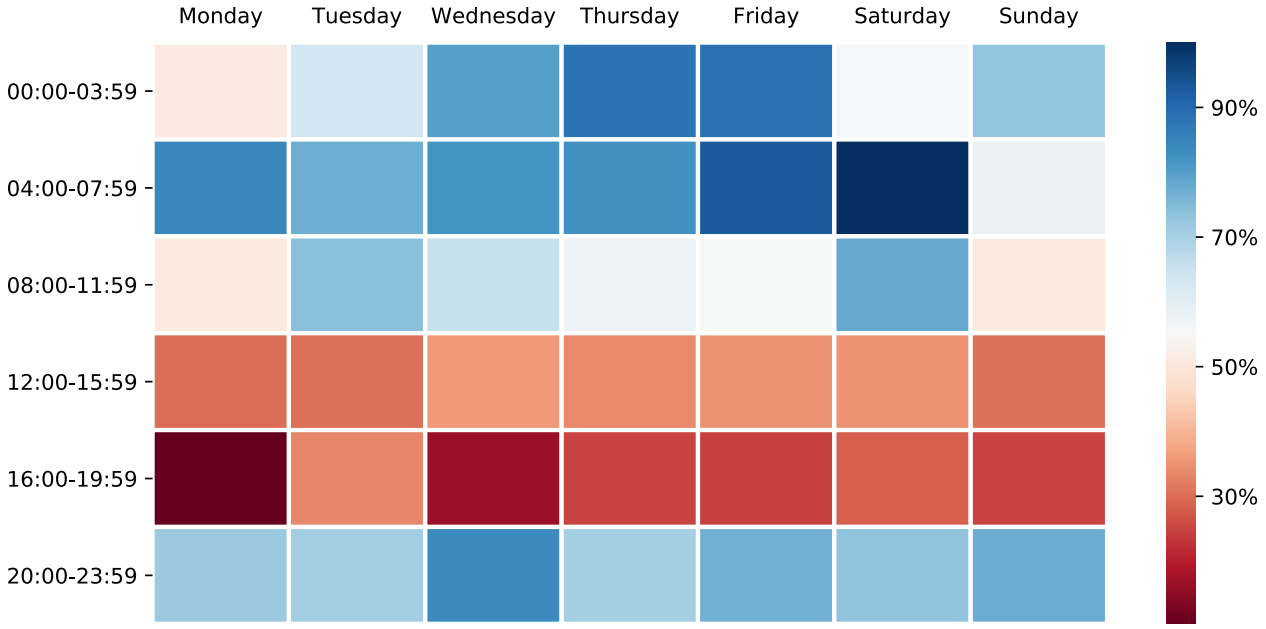


Figure 13: Daily and hourly variation in the likelihood of being assessed by a stroke specialist within 14 hours of arrival at hospital.

Figure 13 shows that patients are least likely to be reviewed by a stroke specialist within 14 hours if they are admitted between 12 pm and 8 pm across the whole week.

There has been an improvement in the proportion of patients with stroke reviewed by a stroke specialist within 14 hours of admission from 46.5% (2013-14) to 58.4% (2019-20). This is important to enable timely senior assessments and co-ordination of acute treatments.

However, there still remains gaps in the timing of senior assessments which could be made more efficient and organised. A second hyper-acute stroke unit ward round in the late afternoon could largely remove this effect in tandem with addressing staffing shortages. The proportion of sites that reported 12 or more ward rounds (for hyperacute beds) per week is 45%. The majority of patients are reviewed in person by a consultant (77.0%) as their first assessment, followed by telephone assessment (15.7%) and telemedicine (3.1%).

Urgent Brain Imaging

2016 National Clinical Guideline for Stroke
3.4.1B Patients with suspected acute stroke should receive brain imaging urgently and at most within 1 hour of arrival at hospital.

Steady year on year increase in brain imaging within 1 hour

Percentage of patients

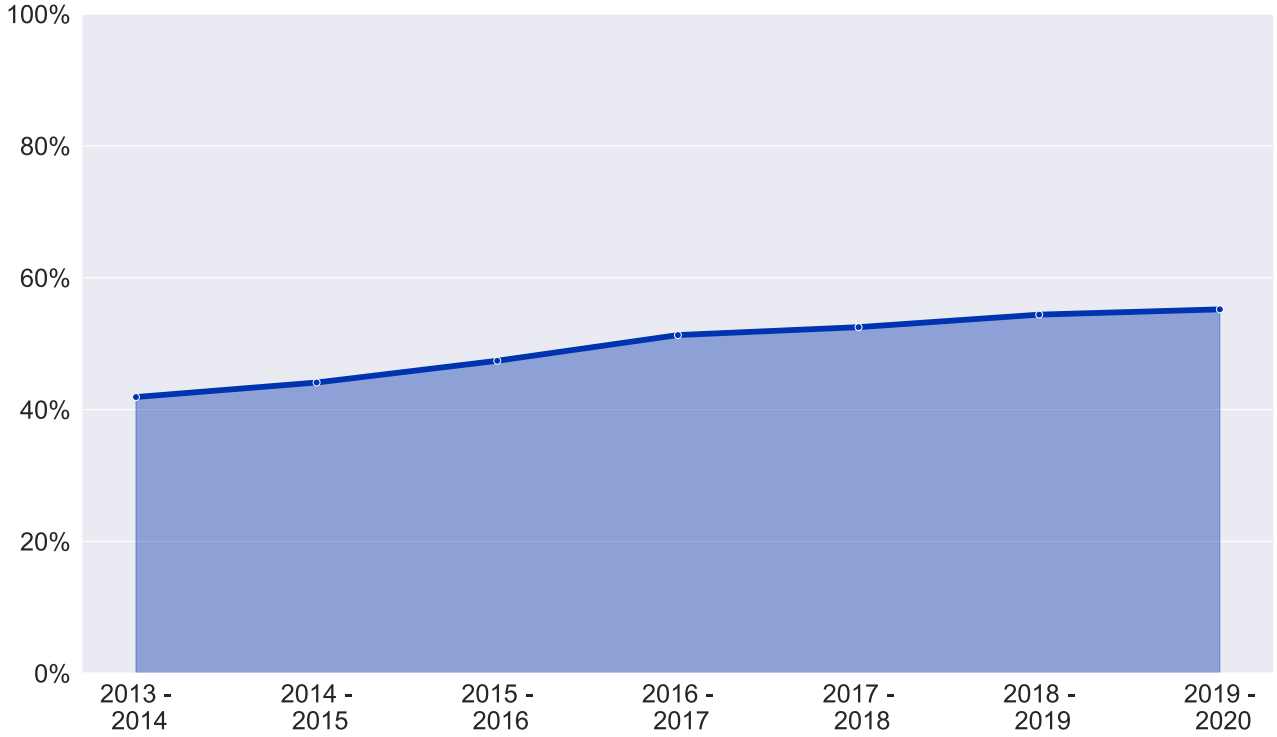


Figure 14: Percentage of patients scanned within one hour of arrival at hospital between 2013 and 2020.

There has been continued improvement of brain imaging within one hour of arrival at hospital from 41.9% (2013-14) to 55.2% (2019-20). Better organised stroke services with agreed protocols for immediate brain imaging, which is the most cost effective procedure will lead to continuous improvements.

The ongoing need for rapid imaging becomes even more crucial not only for the delivery of clot busting treatments but also for advanced brain imaging to identify which patients have a large artery occlusion eligible for mechanical thrombectomy.

Therapy

2016 National Clinical Guideline for Stroke
2.11.1A People with stroke should accumulate at least 45 minutes of each appropriate therapy every day, at a frequency that enables them to meet their rehabilitation goals, and for as long as they are willing and capable of participating and showing measurable benefit from treatment.

Many patients feel that they do not receive enough therapy in both the hospital setting and at home, particularly at the weekends.

62% of units now provide physiotherapy on 6 or 7 days per week and 58% provide occupational therapy. Only 22% of units provide speech and language therapy over the weekend highlighting room for improvement. 53% of units do not provide any 7-day therapy coverage. Services must plan and develop their therapy provision including revising rotas to provide treatments over 7 days.

Increase in patient days on which therapy is received from 2013 to 2020

Median percentage of inpatient days

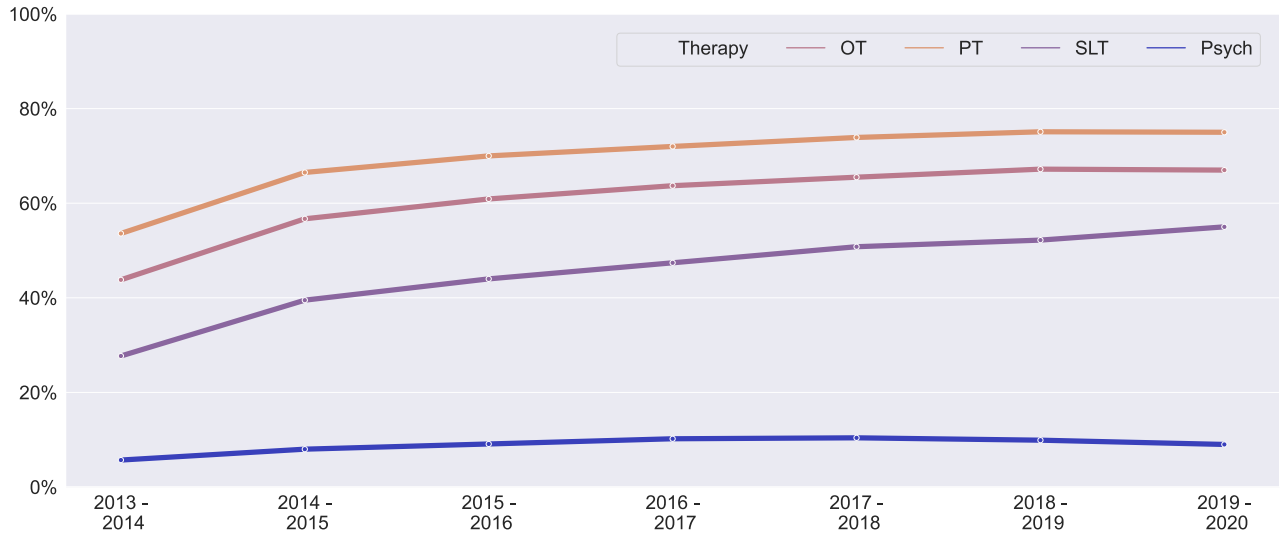
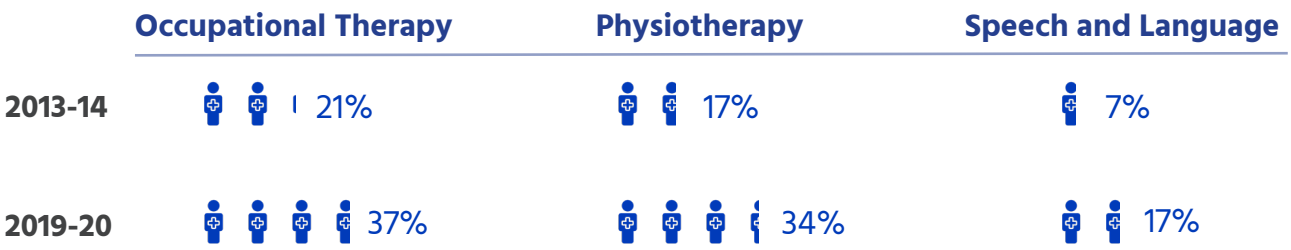


Figure 15: Median percentage of inpatient days on which physiotherapy, occupational therapy, speech and language therapy or psychology is received between 2013 and 2020.

Figure 15 shows that the percentage of days in hospital whereby physiotherapy, occupational and speech and language therapy is delivered has improved from 2013-14 to 2019-20 but that improvement has now levelled off, except for Speech and Language Therapy.



Percentage of patients receiving the equivalent of 45 minutes, 5 days a week for 2013-14 vs 2019-20

SSNAP reports on the percentage of patients who receive at least 45 minutes of each relevant therapy that they need at least 5 days a week. The percentage of patients receiving this standard has increased but there are still significant proportions of patients who are well enough to receive therapy but do not receive the amount of rehabilitation that they need.

SSNAP has previously reported on the relationship between length of stay and attainment of therapy targets, with evidence that the longer a patient's length of stay, the less likely they are to consistently receive their target amount of therapy contact (https://www.strokeaudit.org/SupportFiles/Documents/Research/Are-people-with-stroke-getting-enough-therapy.aspx). There remains much to be done to increase the level of face-to-face therapy for people admitted to hospital with stroke, particularly for those more disabled patients with longer lengths of stay in whom rehabilitation is likely to have the greatest impact on their final discharge destination.

Future Trajectory and Recommendations

In order to improve admission times to an acute stroke unit, there needs to be a systematic approach to improve the flow across the whole stroke pathway and create the necessary capacity to accommodate new patients. This will involve early and timely involvement of stroke specialists in addition to comprehensive therapy provision to maximise recovery and support early discharge where necessary. There are various opportunities to deliver a more efficient therapy service over 7 days which include using therapy assistants, video technology, group therapy and reducing administrative tasks to free up more therapy time.

4. Expanding Reperfusion Treatment

NHSE Long Term Plan Ambition
All patients who could benefit from thrombolysis (20%) receive it and expanding mechanical thrombectomy from 1% to 10% of all stroke patients.

2016 National Clinical Guideline for Stroke
3.5.1A Patients with acute ischaemic stroke, regardless of age or stroke severity, in whom treatment can be started within 3 hours of known onset should be considered for treatment with alteplase.

2019 NICE guideline NG128: Stroke and transient ischaemic attack in over 16s: diagnosis and initial management
Offer thrombectomy as soon as possible to people who were last known to be well between 6 hours and 24 hours previously (including wake-up strokes):

- who have acute ischaemic stroke and confirmed occlusion of the proximal anterior circulation demonstrated by CTA or MRA and
- if there is the potential to salvage brain tissue, as shown by imaging such as CT perfusion or diffusion-weighted MRI sequences showing limited infarct core volume taking into account the factors in recommendation 1.4.8.

Thrombolysis

Proportion of patients receiving thrombolysis has remained static over the past 7 years

Percentage of patients

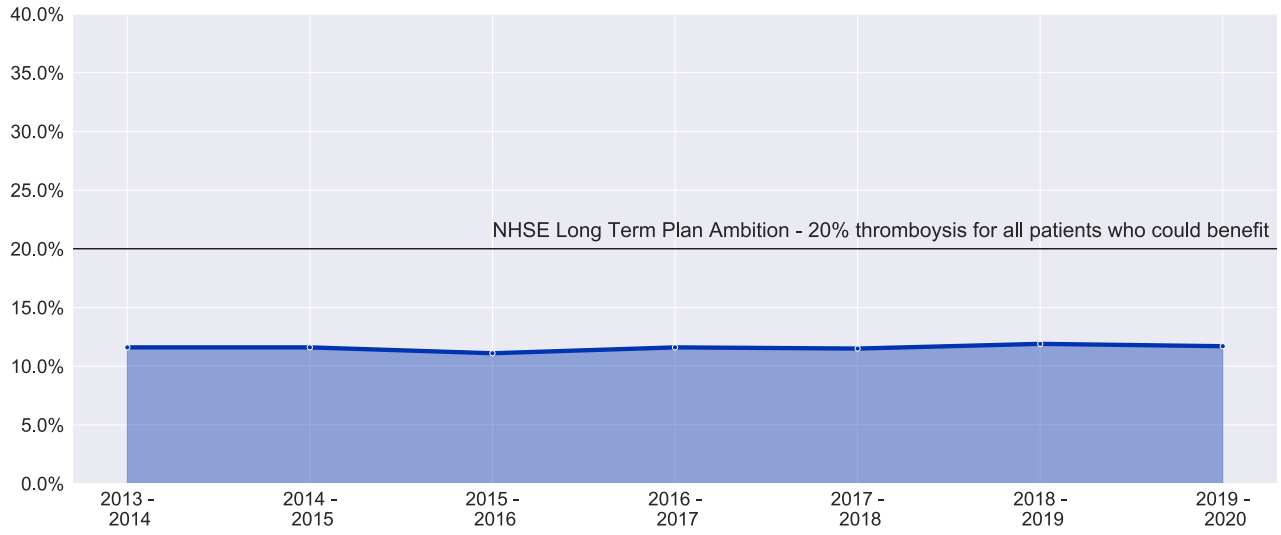


Figure 16: Percentage of all stroke patients who received thrombolysis between 2013 and 2020.

The proportion of patients receiving thrombolysis has remained static at 11-12% across 7 years. Door-to-needle times (time taken from arrival to hospital to the time of treatment) have improved over the last seven years (58 to 53 minutes) but with a rate of under 1 minute per year.

Fewer patients receiving thrombolysis in less than 1 hour

Distribution of time from hospital arrival to receiving thrombolysis ("door-to-needle" time)

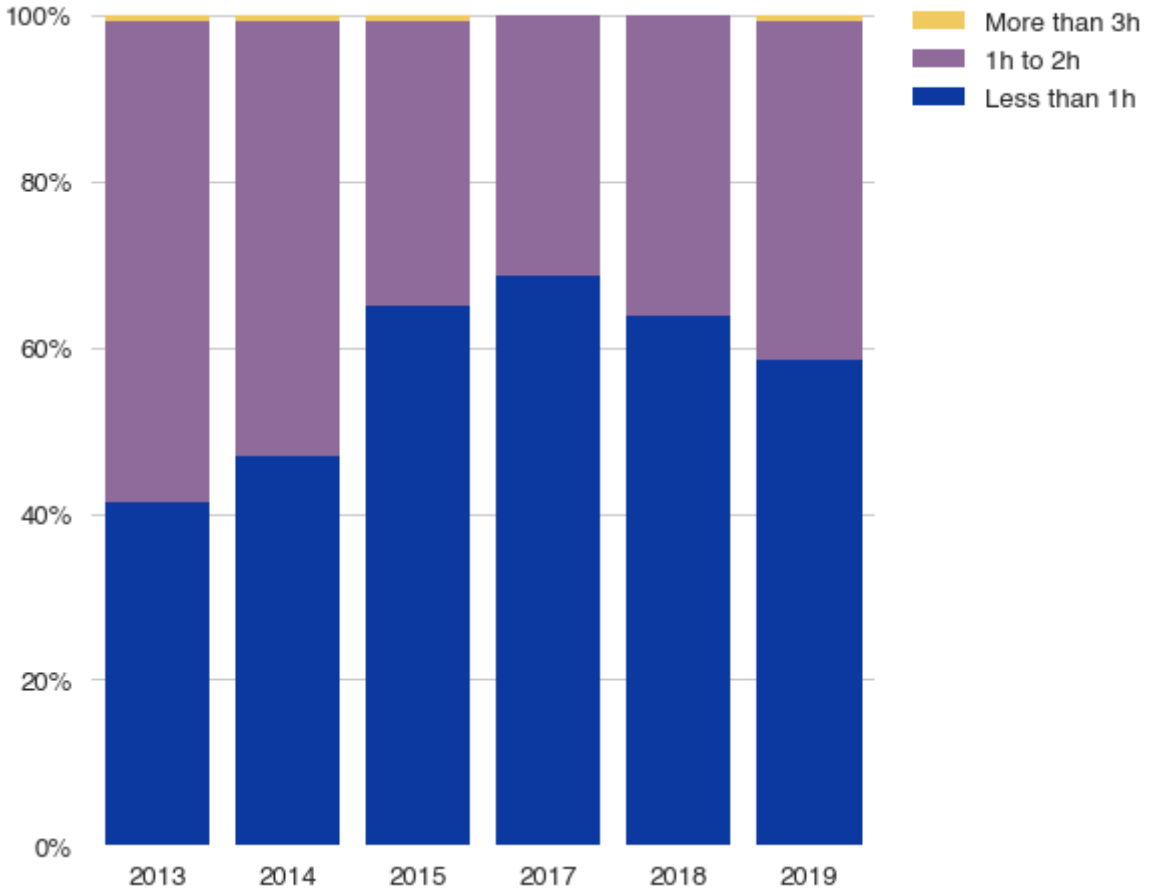


Figure 17: Distribution of door-to-needle time between 2013 and 2020.

Of note, the proportion of patients who receive thrombolysis under one hour has declined over the last two years.This may be as a consequence of additional imaging requirements but nevertheless should act as a catalyst to reaffirm the mantra of "time is brain."

Slower time to thrombolysis outside of working hours

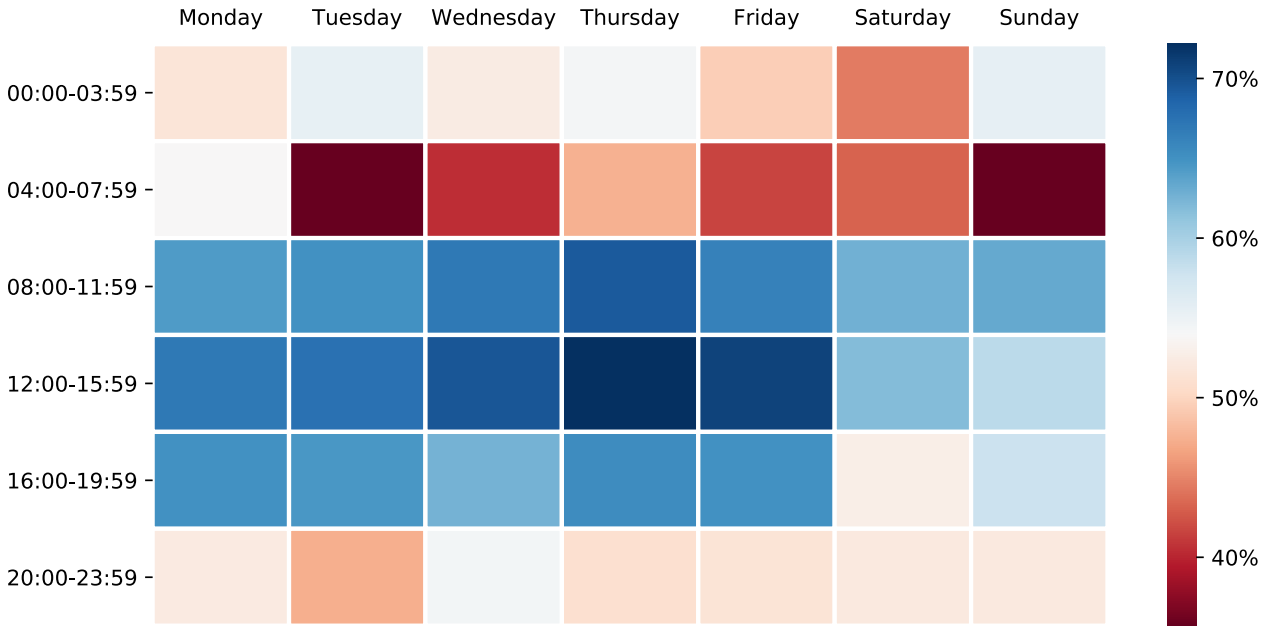


Figure 18: Daily and hourly variation in the likelihood of receiving thrombolysis within one hour of admission.

Patients are more likely to receive thrombolysis within 60 minutes of hospital arrival between 8 am to 8 pm, Monday to Friday. Patients arriving at night and at weekends were less likely to be treated rapidly compared with those arriving during working hours. There are still large variations in the delivery of thrombolysis between hospitals. The lowest thrombolysis rate was 4.3% and the highest was 28.1%,indicating that there are efficiency measures to be made to improve rates nationally for both increasing the proportion of patients treated and the speed with which treatment is delivered.

A number of organisational factors tend to be correlated with higher thrombolysis rates. These include out of hours specialist nursing, notification from ambulance emergency services prior to arrival to hospital, the use of telemedicine, the delivery of thrombolysis in the CT scanner and managerial responsibility and ownership of national stroke data.

The onset to arrival time to hospital has lengthened by 50 minutes from 2 hours 25 minutes (2013-14) to 3 hours 15 minutes (2019-20). Gains made by improving the door-to-needle times have been outweighed by the delays incurred from the time of stroke to arrival to hospital.

Deteriorating onset times offset door-to-needle gains
Time from stroke onset to thrombolysis (minutes)

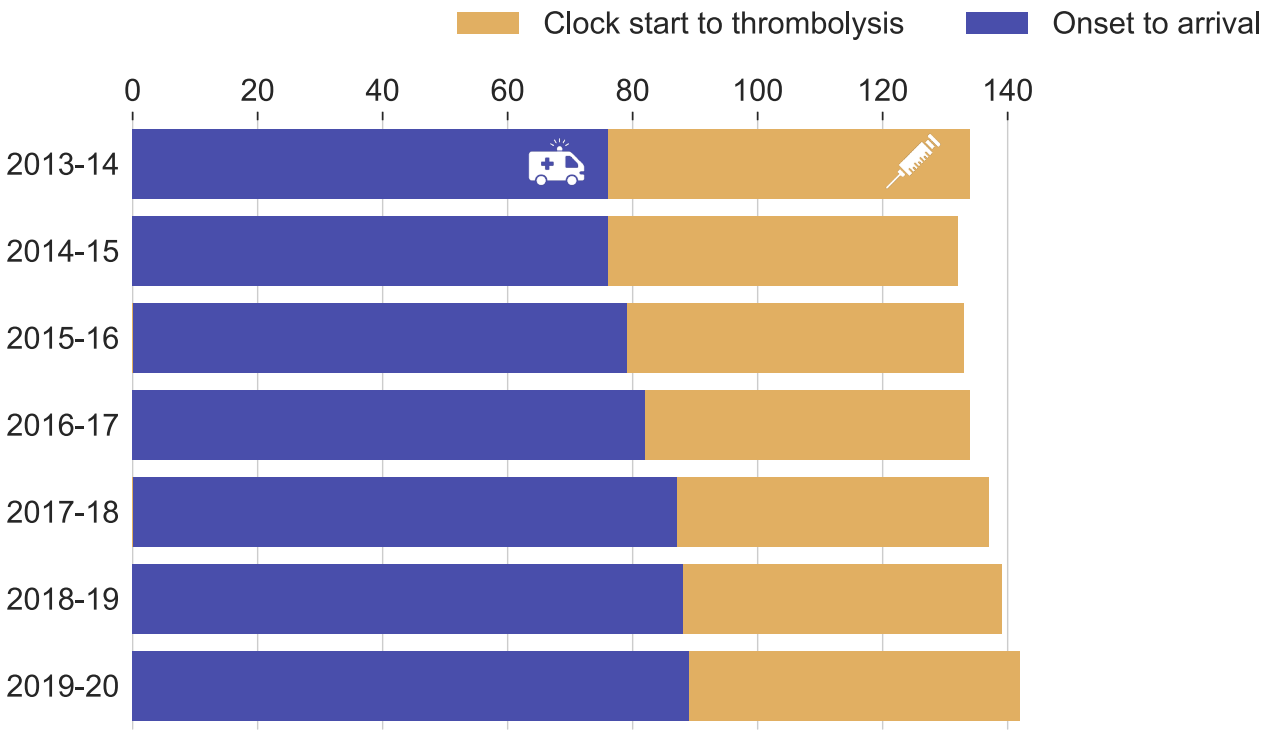


Figure 19: Median times from onset-to-arrival and from clockstart-to-thrombolysis for thrombolysed patients between 2013 and 2020.

The re-organisation of hyper-acute stroke services with local reconfigurations may be a factor in delayed responses as well as increasing pressures on pre-hospital services. The SSNAP Ambulance Linkage Project is now helping us to understand the potential delays and has shown that there are still considerable delays from stroke onset to ambulance call (greater than 60 minutes). Recognition of stroke symptoms is therefore a crucial first step in reducing the pre-hospital delays.

Median onset to call

	Apr-19	May-19	Jun-19	Jul-19	Aug-19
Median Onset to Call	01:05	01:05	01:05	01:09	01:03

Thrombectomy

There are 26 centres commissioned to deliver thrombectomy across England (24), Northern Ireland (1) and Wales (1). Two English neuroscience centres performed fewer than 5 MT procedures during 2019-20. 7% of acute sites do not have access to a thrombectomy service.

Regional variation of thrombectomy cases delivered in neuroscience centres across England, Northern Ireland and Wales

Number of thrombectomies performed

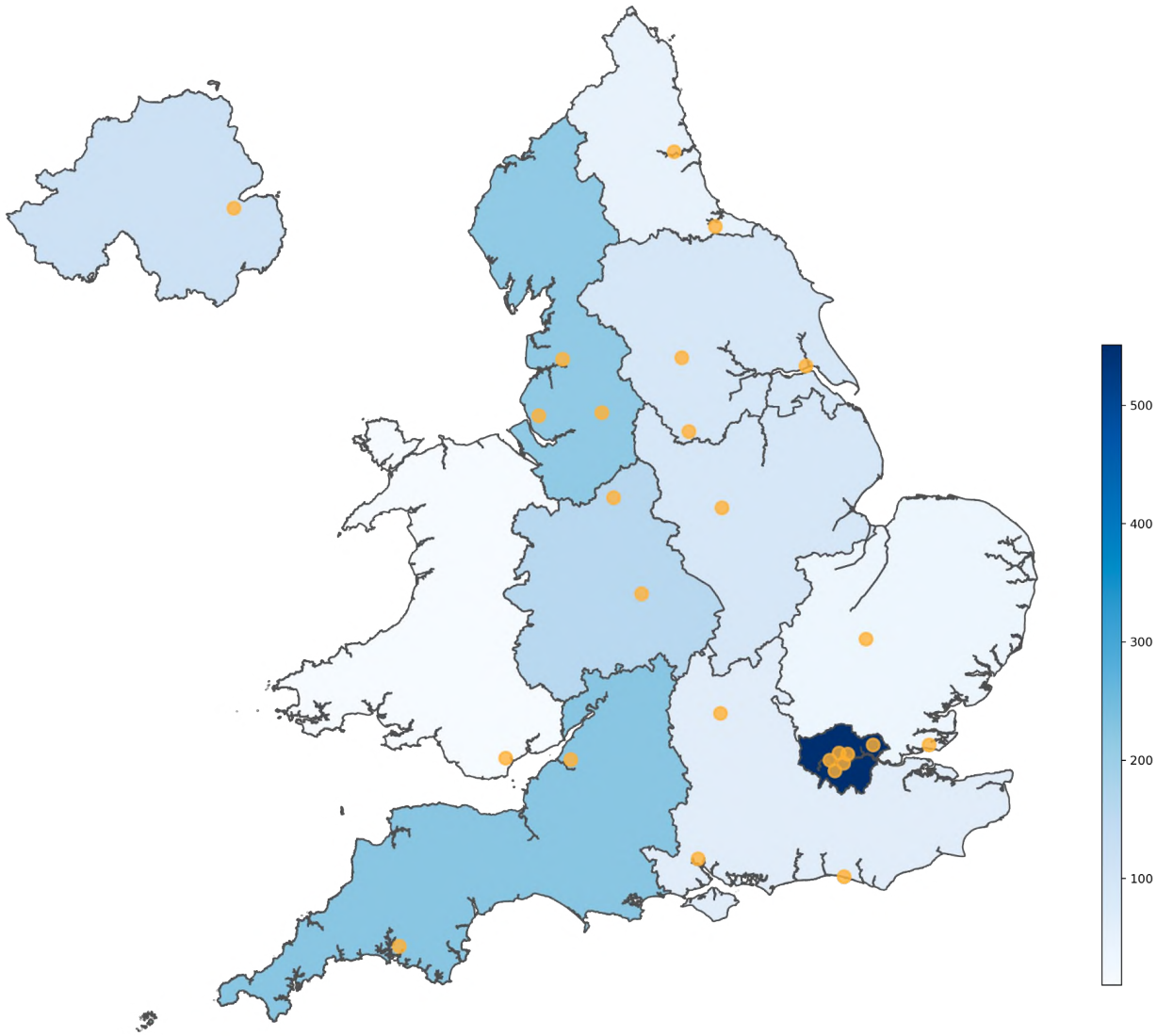


Figure 20: Number of thrombectomies performed across England (by NHS region), Wales and Northern Ireland. Yellow circles show location of thrombectomy centres.

London

In London, 6 out of 8 (75%) hyper-acute stroke centres have thrombectomy capability. Each centre has established pathways for the transfer of patients from the two hyper-acute centres that do not provide this intervention. Three London centres now provide a 24/7 thrombectomy service. London centres serve a larger population than the metropolitan area, also serving many areas in the South East.

Thrombectomies performed in London in 2019-2020

Number of thrombectomies performed

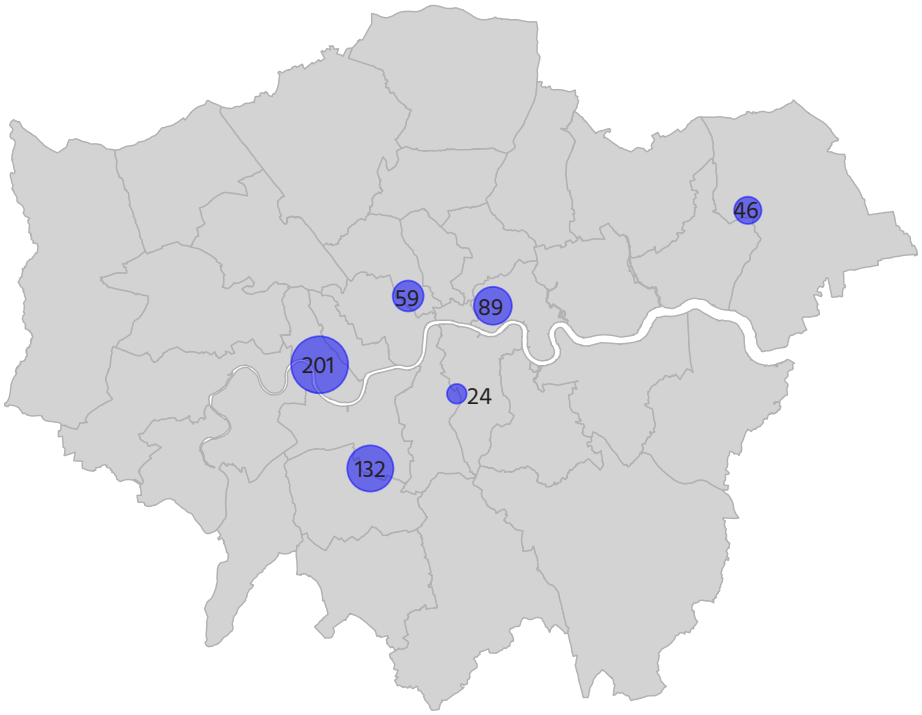
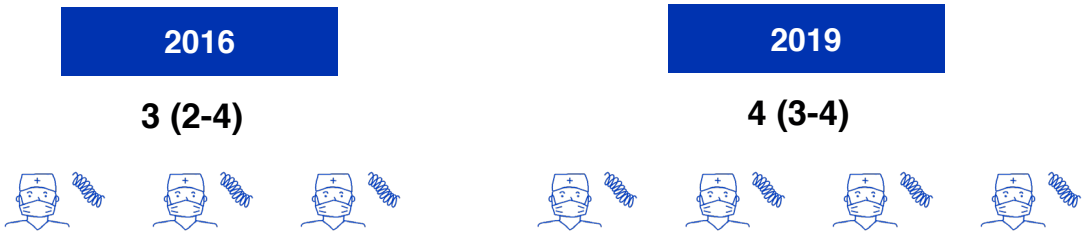


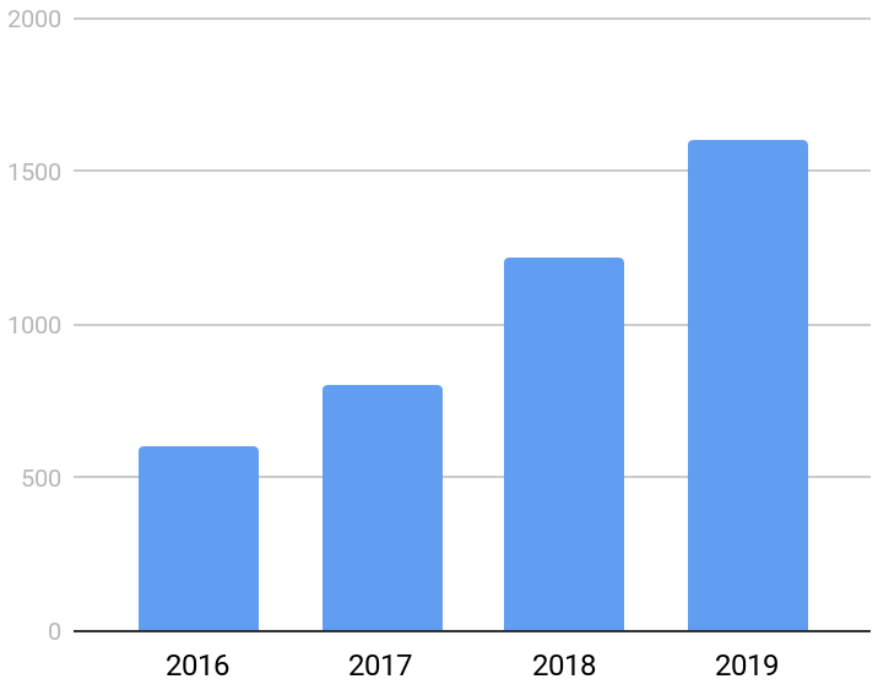
Figure 21: Number of thrombectomies performed per neuroscience centre in London. Blue circles show location of thrombectomy centres and number of thrombectomies performed.

Consultant level doctors performing intra-arterial (thrombectomy) treatment

Median number (IQR)



Number of patients receiving thrombectomies



+ 0.4%

1.4% ⬆ 1.8%

The percentage of thrombectomy interventions have increased from 1.4% (2018/19) to 1.8% (2019-20)

Future Trajectory and Recommendations

In order to reach the ambition of 20% of stroke patients receiving thrombolysis, there needs to be a whole system approach reducing delays to each aspect of the emergency pathway. This includes focusing on pre-hospital systems such as closer collaboration between ambulance and hospital services, efficient use of pre-alert systems, improved pre-hospital diagnostic accuracy, and improved patient awareness of stroke symptoms; and hospital emergency systems such as improving brain scanning times and facilitating rapid clinical assessments. We also need to better understand why there remains such widespread variation in rates between centres – six-fold between the least and the most. This is much greater variation than would be expected simply from different demographics.

At the current rate of progression of delivering thrombectomy, it is estimated that 3.2% of stroke patients will receive this intervention in 5 years. Facilities for mechanical thrombectomy are not universally available and there is a need to determine how many specialist centres will be required to ensure maximum geographical provision. There is also a shortage of trained specialist staff to deliver thrombectomy, through Interventional Neuroradiology (INR). There is an urgent need to expand this workforce as well as offering credential training for other specialties to support delivery and maintaining the necessary skills and expertise for thrombectomy.

5. Higher intensity models of Stroke Rehabilitation

NHSE Long Term Plan Ambition
Out of hospital, more integrated and higher intensity rehabilitation for people recovering from stroke.

2016 National Clinical Guideline for Stroke
2.11.1A People with stroke should accumulate at least 45 minutes of each appropriate therapy every day, at a frequency that enables them to meet their rehabilitation goals, and for as long as they are willing and capable of participating and showing measurable benefit from treatment.

For in hospital therapy, the median number of minutes of therapy on the days that patients receive it in 2019-20 is 40 minutes for OT, 35.7 minutes for PT and 31.8 minutes for SALT. However, there are days when patients should be undergoing therapy and yet they receive none. Patients requiring speech and language therapy still receive it on only half of the days that they are considered to require it as an inpatient. Percentage of days on which psychology is received when it is required has deteriorated from 10.3% (2018-19) to 8.8% (2019-20).

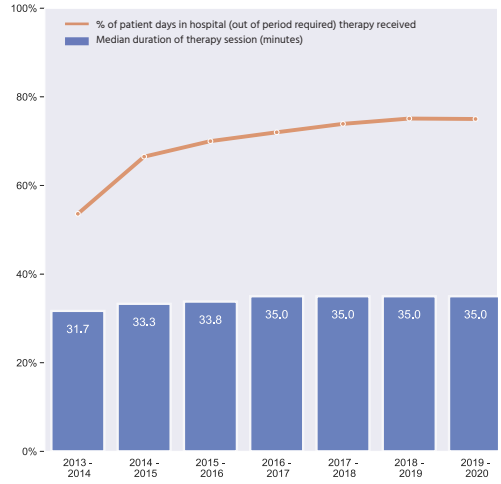
It is also evident that in hospital therapy targets are more likely to be achieved during shorter lengths of stay indicating a shortfall of resources the longer the patient stays in hospital. This is particularly evident in patients with moderate to severe stroke with longer lengths of stay and the greatest needs who are least likely to receive the recommended levels of therapy.

In community rehabilitation settings (early supported discharge and community rehabilitation teams), the median number of minutes of therapy on the days that patients receive it is 48.6 minutes for OT, 45.5 minutes for PT, 47.1 minutes for SALT. However, there are a considerable number of days where patients receive little or no therapy. For example, patients requiring psychology only receive it during 4.9% of their time spent under community stroke teams.

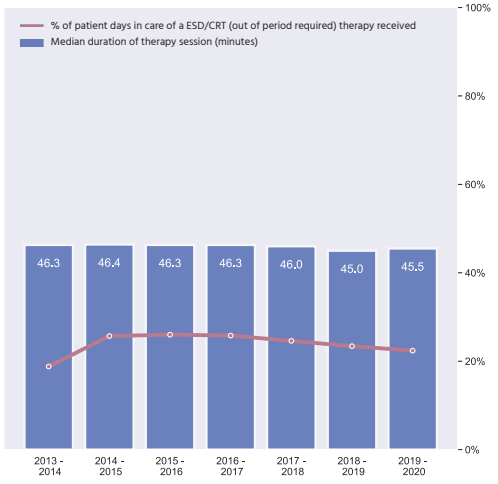
Therapy Intensity

Physiotherapy

In hospital

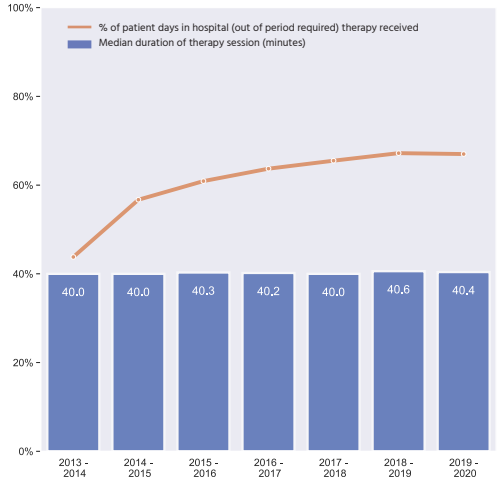


Community



Occupational Therapy

In hospital



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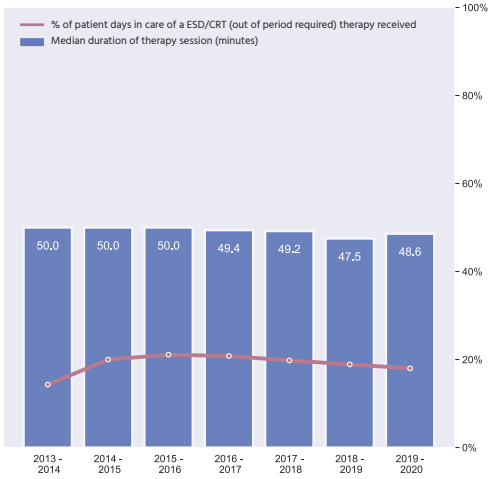
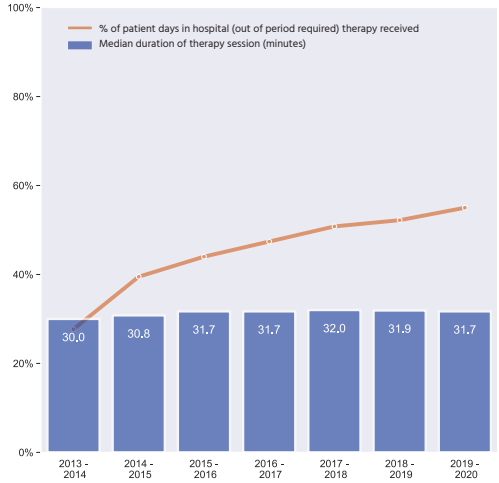


Speech & Language Therapy

In hospital



Community

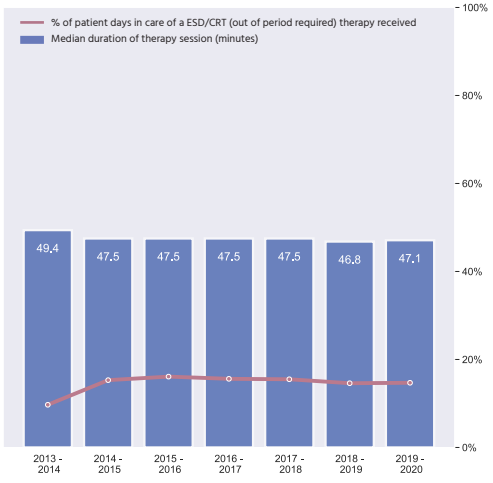


Figure 22: Comparison of therapy intensity for occupational therapy, physiotherapy and speech and language therapy in the hospital and community setting between 2013 and 2020.

Future Trajectory and Recommendations

Early supported discharge teams should provide the same expertise and intensity of therapy at home as in the stroke unit, allowing people to get home more quickly, but access to ongoing therapy varies considerably. In order to address longer term rehabilitation for stroke patients as part of the NHS Long Term Plan, there needs to be a greater degree of flexibility on how therapy is delivered at home tailored to meet the needs of the patient as part of a stroke specialist service. The goal is to maximise the use of resources to benefit the highest number of patients throughout their stay in both hospital and community settings. This may be facilitated through a number of methods including use of telerehabilitation platforms as observed during the COVID pandemic.

6. Improved outcomes to 6 months and beyond

NHSE Long Term Plan Ambition
To support improved outcomes to 6 months and beyond.

NICE Quality Standard for Stroke 2016
Adults who had a stroke have a structured health and social care review at 6 months and 1 year after stroke and then annually.

A consistent feature of national policy initiatives across the UK has been the intent to improve the support to people living with disability after stroke. This has proved to be a difficult area to sustain tangible improvements in recovering their independence. In embarking on that recovery, it is important that 6 month follow up data is recorded for as many patients as possible to evaluate disability outcomes and recurrent vascular events. Other relevant information includes secondary prevention measures, mood and cognition, accommodation status as well as the opportunity to identify and address other unmet needs, both physical and psychological which emerge only as people adapt and learn about living life after stroke.

The proportion of patients receiving a 6-month assessment has increased from 20% to 40% since 2013

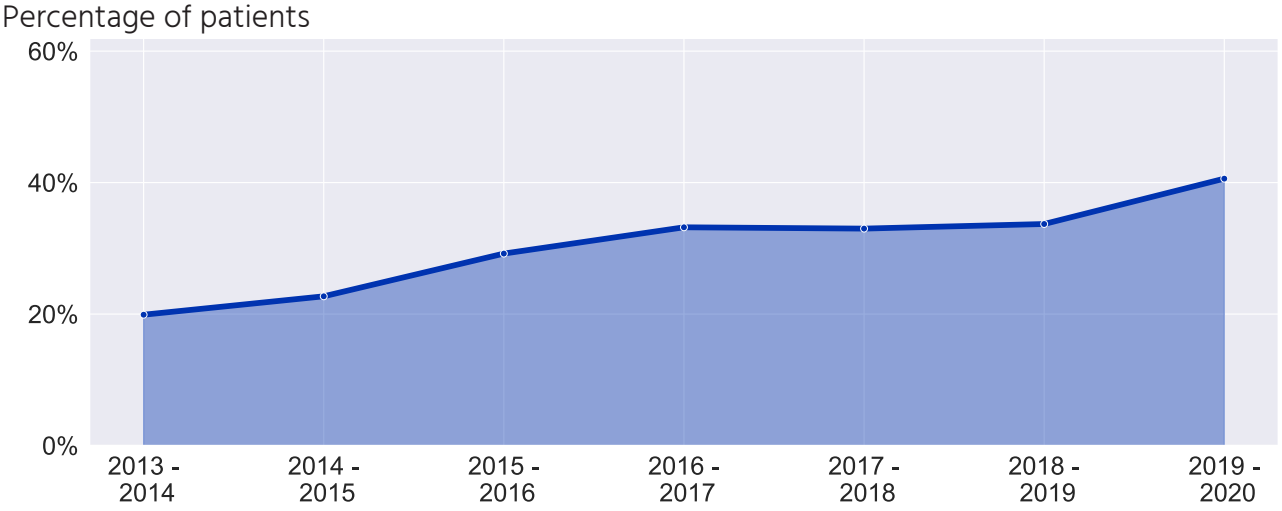


Figure 23: Percentage of patients receiving a 6-month assessment between 2013 and 2020.

Outcomes at six months

Changes over time in outcomes at six months between 2013 and 2020

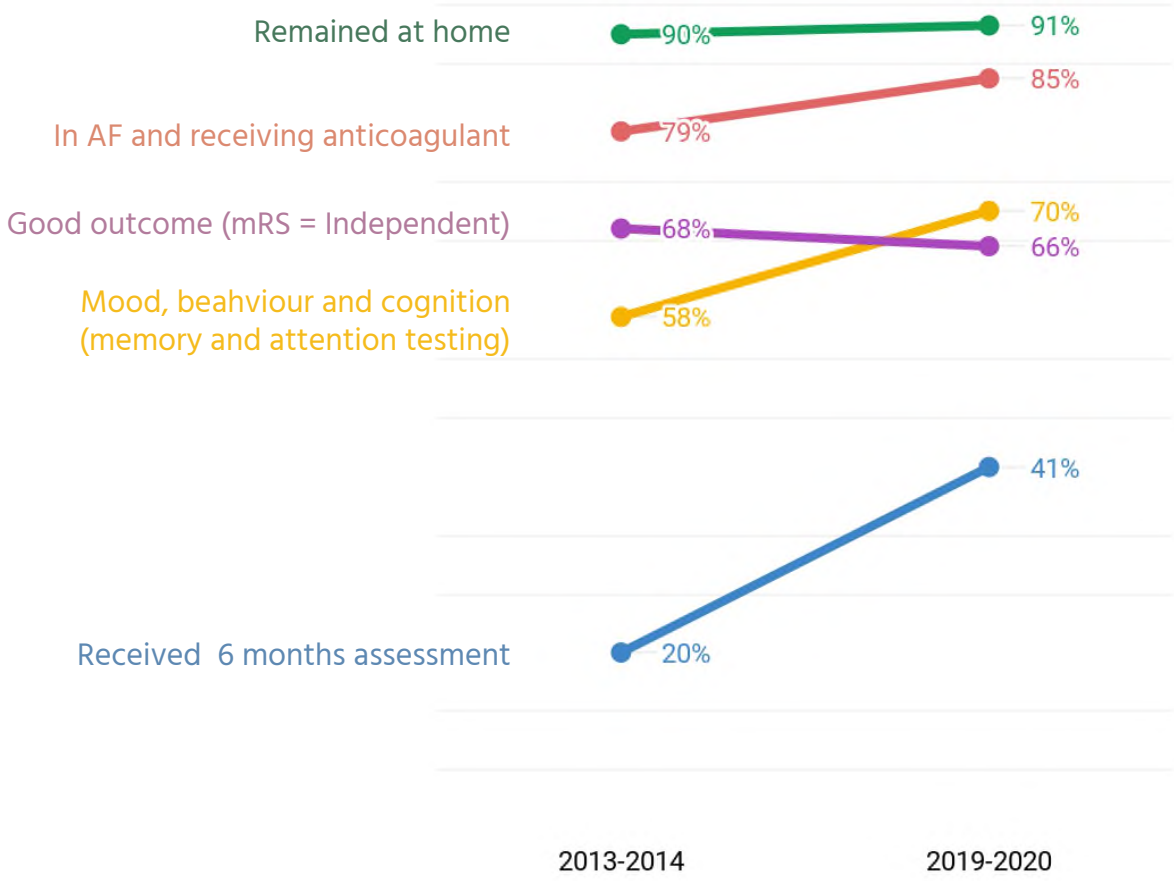


Figure 24:
Percentage of patients who remain at home at 6 months had not changed from 90% (2013/14) to 91% (2019/20)
Patients in AF at 6 months who are receiving anticoagulants had increased from 79% (2013/14) to 85% (2019/20)
Percentage of patients who have a good outcome ('independent': Modified Rankin Score 0-2) at 6 months has decreased from 68% (2013/14) to 66% (2019/20)
Percentage of patients who have mood, behaviour and cognition (memory and attention testing) assessed at 6 months has increased from 58% (2013/14) to 70% (2019/2020)
Percentage of patients receiving a 6 month assessment has increased from 20% (2013/14) to 41% (2019/20).

Although the rates of 6 month assessments have increased over time, with a welcome further increment this year incentivised by a one-year CQUIN (Commissioning for Quality and Innovation), the high proportion of patients not receiving follow-up (nearly 60%) will inherently create bias in the reporting. For example, it is evident from SSNAP data analysis that 6-month assessments are more likely to occur in patients who are recovering at home with their stroke. It is also clear that patients previously under the care of an Early Supported Discharge Team are more likely to undergo a 6-month assessment than those who are not.

An important milestone for the Long Term Plan is to reduce 150,000 heart attacks, strokes and dementia cases over the next 10 years. There is evidence that cardiovascular disease is associated with higher risk of developing dementia. This raises the possibility that risk factors

for stroke such as blood pressure, smoking, high cholesterol and being overweight, which are modifiable, may be important in the prevention of dementia, and so there is a vital role for reviewing secondary vascular prevention at 6 months and beyond in trying to reduce the long term population burden from cardiovascular disease and vascular dementia.

It is planned in future for the SSNAP dataset to include more detailed outcome domains at 6 months. These will include the amount of time spent at home after discharge, the use of health related quality of life assessments (EuroQoL) and readmission rates. These measures will provide meaningful patient focused outcome data, and extend the ability of national audit to reflect on medium-term outcomes for all patients.

Future Trajectory and Recommendations

If the current rate of improvement is sustained, then in the next 5 years, the percentage of 6-month assessments carried out will be approximately 60% of applicable stroke patients if the rate of improvement continues from 2018-19 to 2019-20. There should be commissioning arrangements in place to support 6-month assessments across every stroke service with robust notification sources to identify eligible patients.

Concluding Thoughts

It has been very encouraging to see the major improvements in stroke care in recent years in England, Wales and Northern Ireland as demonstrated in the National Stroke Audit (SSNAP). Standards derived from successive editions of the National Clinical Guideline for Stroke, NICE Clinical Guidelines on Acute Stroke and the Seven Day Services Clinical Standards have been pivotal in setting the standard of stroke services and in delivering improved care and outcomes. SSNAP provides health care providers, health boards and commissioners with valuable and comprehensive clinical data enabling them to compare local performance with the rest of the country. Our Seventh Annual Report describes the current performance through measuring the structure, process and outcomes of stroke care in 2019-20. Once again, this will enable services to identify what improvements are required to achieve high quality care both in hospital and in the community.

The stroke agenda is very prominent within the 2019 NHS Long Term Plan with a number of stretching ambitions to be delivered over the next 10 years. These include developing improved models of integrated post-hospital stroke rehabilitation for stroke survivors, delivering a ten-fold increase in the proportion of patients who receive a clot-removing thrombectomy, training more clinicians to provide 24/7 thrombectomy in more sites, delivering clot-busting thrombolysis to nearly twice as many patients, providing a seven day multidisciplinary workforce and focusing on life after stroke for six months and beyond. This report has articulated what structures and processes are currently in place for these key domains in stroke care and the trajectories for the implementation of the stroke ambitions set out in the NHS Long Term Plan. In many instances this has served to identify the considerable further work that is needed, and it will remain vital to monitor and scrutinise progress towards these ambitions over the coming years.

Although the COVID-19 pandemic has dominated the healthcare landscape in 2020, this report has covered the emerging initial impact of the pandemic on stroke services during the first few months of the year. It is welcoming that such a high proportion of stroke services continued to collaborate with the National Stroke Audit during this challenging period when the national programme of audits had been suspended. This highlights their commitment to maintaining standards and quality improvement. Although there has been evidence from the UK and around the world that stroke admissions declined during this period, particularly sharply amongst mild stroke and older patients, there is evidence that high quality services were still being maintained. The annual report next year will focus in more detail of the impact of COVID-19 on process and outcomes after stroke across the rest of 2020.

SSNAP has shown that over the last seven years there have been major improvements in many domains of care but the national audit data continues to show wide variations in the quality of stroke care across the country with many challenges still evident.

One can argue that in the 21st century there should be no stark differences in the provision and quality of stroke care, regardless of the day and time a patient is admitted to hospital. A prime example is getting patients onto a stroke unit within four hours of arrival at the hospital so that patients can receive the relevant specialist care as soon as possible. This standard provides an indirect measure of how well hospital services are organised so that patients can not only access expert multidisciplinary care but receive such care for the great majority of their hospital stay. Establishing a whole systems approach to the stroke pathway is critical in maintaining

patient flow and stroke unit capacity, and enabling patients to stay in hospital no longer than is absolutely necessary.

An example of a complex issue affecting whole healthcare systems is the lengthening of onset-to-arrival times to hospital and this increasing delay outweighs the small incremental improvements in door to needle time for thrombolysis observed over several years. Although some of these delays may be driven by the re-organisation of hyperacute stroke services, these have been almost entirely urban reconfigurations and are unlikely to solely account for the changes that have been seen. It seems much more likely that these delays are attributable to increasing pressures on pre-hospital services. The Ambulance Linkage Project has shown that there are still considerable delays between the onset of stroke and the call for emergency services (>60 minutes), highlighting a continuing need for patient education and symptom recognition among high-risk groups. The proportion of patients who undergo thrombolysis has remained static at 12% and there is a pressing need to identify where rapid gains can be made across both the pre-hospital and hospital pathways to attain the ambition of the 20% thrombolysis rate that is typical in other parts of Europe. This will involve scrutinising through data-driven quality improvement every process of the hyperacute pathway collaboratively with relevant stakeholders in the ambulance service, emergency medicine, radiology and elsewhere. We would encourage centres that have had particularly low thrombolysis rates over many years to work with high performing centres to benefit from shared learning.

Although therapy provision has improved across many of the domains, the intensity of therapy delivered both in hospital and even more so in the community falls short of what is required to maximise recovery and independence. The provision of psychology services is still very low or absent in many parts of the country and requires urgent attention. With finite resources available, it is important to maximise the flexible use of therapy resources for as many patients as possible through in-patient rehabilitation, Early Supported Discharge services and onwards into community rehabilitation. This will include the provision of therapy particularly at the weekends to ensure maintenance of therapy benefits are continued across the whole week. The innovative use of technology for remote rehabilitation has been accelerated by the COVID-19 pandemic and may provide an important tool in the future to maximise the benefits patients derive from rehabilitation, and new models of integrated community rehabilitation are about to be piloted that will explore new methods for achieving better outcomes after discharge home.

A welcome improvement has been in the delivery of six-month assessments focussing on a number of important needs after stroke for patients and families as well as recording outcomes. A significant increase in the proportion of stroke survivors accessing 6-month reviews this year has been encouraged through the use of a one-off stimulus in England - the CQUIN initiative. Although encouraging, further collaboration is required to address the inequalities we still see over the longer term and to understand where resources need to be directed for maximum benefit. There are a number of outcomes other than mortality and disability that require measuring and this will include patient reported outcomes (PROMs) such as health-related quality of life in future years.

The future of stroke medicine is exciting with clear aspirational targets for us all to address over the next 10 years. SSNAP remains a powerful tool to support data-driven quality improvement across the entire stroke pathway across England, Wales and Northern Ireland. We acknowledge that the NHS Long Term Plan refers to England only, but its underlying premise in addressing the greatest cause of adult-onset disability is also reflected in the future vision for stroke care in Wales and Northern Ireland. Thrombectomy will increasingly transform the lives of

many patients and the focus must be on delivering such treatments as quickly and safely as possible in the new Comprehensive Stroke Centres. The development of Artificial Intelligence (AI) with advanced imaging may offer enhanced patient selection increasing delivery of both thrombectomy and thrombolysis. There remains considerable scope to improve outcomes for people with intracerebral haemorrhage through the better implementation of existing evidence. The formation of Integrated Stroke Delivery Networks in England, and a similar collaborative approach in the devolved nations, is a crucial vehicle to ensure that high quality stroke care is delivered across the entire pathway for their population and is key to delivering these ambitious improvements for people with stroke.

We very much hope that this report provides readers, both professional and public, with an informative insight to stroke care in 2019-20 to support continuous quality improvement across stroke services in England, Wales and Northern Ireland.

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Clinical Director,
Sentinel Stroke National Audit Programme

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Sentinel Stroke National Audit Programme

Glossary

Acute organisational audit Snapshot audit run every two-three years, covering the quality of stroke service organisation in acute settings.

Ambulance Linkage Project SSNAP has extended data collection of patients in England to include the time spent from the call to 999 services and times in between up until arrival at hospital. https://ssnap.zendesk.com/hc/en-us/ articles/360002656377-Ambulance-linkage-information-sheet Data will be reported as part of the Ambulance Quality Indicators (AQI) https://www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators/ambulance-qualityindicators-data-2019-20/

Anticoagulant A type of drug that reduces blood clotting; examples include warfarin and DOAC (direct oral anticoagulants).

Aspiration pneumonia An infection in the lungs partly caused by stomach contents inhaled into the lungs, usually because of dysphagia.

Atrial Fibrillation (AF) An abnormal heartbeat which can result in the formation of blood clots.

Bed capacity The number of beds available for patients.

Blood pressure The pressure of circulating blood on the walls of blood vessels.

Clinical Audit A way to find out if healthcare is being provided in line with standards and lets care providers and patients know where their service is doing well, and where there could be improvements.

Clinician A professional delivering clinical care who has direct contact with patients rather than being involved solely in research and teaching.

Commissioning for Quality and Innovation (CQUIN) This is a framework supporting improvements in the quality of services and the creation of new, improved patterns of care within the NHS in England. https://www.england.nhs.uk/nhs-standard-contract/cquin/cquin-19-20/

COVID-19 is an infectious disease caused by a newly discovered coronavirus. https://www.who.int/health-topics/coronavirus#tab=tab_1

CT scan Computed Tomography scan. Detailed images of internal organs are obtained by this type of sophisticated X-ray device.

Door-to-needle time (DTN) Term that refers to the time from arrival at hospital or onset of stroke (for inpatient strokes) to the time a patient is thrombolysed. See Thrombolysis.

Early Supported Discharge (ESD) A system in which rehabilitation is provided to stroke patients at home instead of at hospital at the same intensity as inpatient care.

Face Arm Speech Test (FAST) A test used to screen for the diagnosis of stroke or TIA. https://www.stroke.org.uk/what-is-stroke/what-are-the-symptoms-of-stroke

Hyperacute stroke unit (HASU) HASUs bring experts and equipment under one roof to provide world-class treatment 24 hours a day, for the first stage in the treatment of stroke (approximately the first 72 hours), reducing death rates and long-term disability.

In hospital mortality rate The proportion of patients who die during or shortly after admission to hospital. It is the proportion of people who are not discharged alive from inpatient care.

Integrated Stroke Delivery Network (ISDN) Integrated Stroke Delivery Networks (ISDNs) are described within the NHS Long Term Plan as "involving relevant agencies including ambulance services through to early supported discharge will ensure that all stroke units will, over the next five years, meet the NHS seven-day standards for stroke care and the National Clinical Guidelines for Stroke. https://www.longtermplan.nhs.uk/online-version/chapter-3-further-progress-on-care-quality-and-outcomes/better-care-for-major-health-conditions/stroke-care/

Intracerebral Haemorrhagic Stroke (ICH) A type of stroke caused when a blood vessel bursts, resulting in bleeding into the brain.

Ischaemic Stroke A type of stroke that happens when a clot blocks an artery that carries blood to the brain.

Long Term Plan The NHS long Term Plan was launched in January 2019. It sets out a plan for the NHS to improve patient care and health outcomes in the future. Stroke is one of the main areas covered. https://www.longtermplan.nhs.uk/areas-of-work/ stroke/

Median The median is the middle point of a data set; half of the values are below this point, and half are above this point.

Multidisciplinary team A team or service which is composed of staff from different healthcare professions with specialist skills and expertise. The members work together to ensure patients receive comprehensive, coordinated treatment.

Onset Time This is the date and time recorded by the acute hospital in SSNAP as the date and time the patient first reported symptoms of stroke.

Post-acute organisational audit Snapshot audit first run in 2015 and due to be repeated in 2021, covering the quality of stroke service organisation in post-acute settings.

The National Institutes Health Stroke Scale (NIHSS) The NIHSS is one of the most sensitive measures of stroke severity and is collected in SSNAP at various time points in patient care. Further information https://ssnap.zendesk.com/hc/en-us/articles/360011852014-General-Breakdown-of-NIHSS-scoring

SSNAP Collaboration A group composed of the clinical leads at each hospital participating in SSNAP for the clinical audit, involved in coordinating the data collection for the audit. https://www.strokeaudit.org/Research/SSNAP-Collaboration.aspx

Thrombectomy Also referred to as intra-arterial therapy. The surgical removal of a blood clot. Thrombectomy is a very new treatment that is not available in many parts of the country.

Thrombolysis Treatment with a drug that breaks down blood clots.

Further Reading

NHS Long Term Plan. https://www.longtermplan.nhs.uk/areas-of-work/stroke/

NHS Wales 2017-2020 Stroke Delivery Plan. https://gov.wales/sites/default/files/publications/2018-12/stroke-delivery-plan-2017-to-2020.pdf

Reshaping Stroke Care. Department of Health, Northern Ireland. https://www.health-ni.gov.uk/sites/default/files/consultations/health/rscs-consultation-document.pdf

Stroke and transient ischaemic attack in over 16s: diagnosis and initial management. NICE guideline [NG128]. https://www.nice.org.uk/guidance/ng128/resources/stroke-and-transientischaemic-attack-in-over-16s-diagnosis-and-initial-management-pdf-66141665603269

SSNAP Acute Organisational Audit 2019. https://www.strokeaudit.org/Documents/National/AcuteOrg/2019/2019-AOANationalReport.aspx

National Clinical Guideline for Stroke. Royal College of Physicians, 2016. https://www.strokeaudit.org/Guideline/Guideline-Home.aspx

Seven day services in the NHS, 2018. https://improvement.nhs.uk/resources/seven-day-services/

Associations Between 30-Day Mortality, Specialist Nursing, and Daily Physician Ward Rounds in a National Stroke Registry. Paley L, Williamson E, Bray BD, Hoffman A, James MA, Rudd AG; SSNAP Collaboration. Stroke. 2018 Sep;49(9):2155-2162. doi: 10.1161/STROKEAHA.118.021518 https://www.ahajournals.org/doi/full/10.1161/STROKEAHA.118.021518

Are in-patients with stroke in the UK getting enough therapy? Data from the national stroke registry for England, Wales, and Northern Ireland McCurran V, James M, Muruet W, Clark L, Wolfe C, Hoffman A, Rudd A; SSNAP Collaboration Presented on the 5th European Stroke Organisation Conference; 2019 May 22 – 24; Milan, Italy, Eur Stroke J. Abstract nr AS08-046 https://journals.sagepub.com/doi/pdf/10.1177/2396987319845560

Ambulance linkage project: https://ssnap.zendesk.com/hc/en-us/articles/360002656377-Ambulance-linkage-information-sheet

An insight into stroke care during COVID-19. SSNAP webinar presented on 30 July 2020. https://kingscollegelondon-gsq.my.webex.com/webappng/sites/kingscollegelondon-gsq.my/recording/2176c8fdc1d34fc78d0efc81a5c9a050/playback

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HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing, and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage, and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions.

The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies.

http://www.hqip.org.uk/national-programmes

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A special thanks to the NHS

I had my stroke in November of 2015. This resulted in me being left with a severely impaired heart function and a right sided homonymous hemianopia, basically this means I have lost all the sight on my right hand side. I also have Charles Bonnet syndrome, which is a condition that some people who have lost their sight can suffer from. It causes you to see things that aren't really there, known as visual hallucinations.

So I now live in a left handed world. You can imagine times have been, and still are, very difficult for me. Normal everyday tasks are very challenging, just the simple things like eating, getting round the house or venturing outdoors especially when I'm out in crowded places.

I was given the opportunity to attend the Bridgend Stroke Group on a Tuesday for the Art class. I had no idea if I would even be able to draw a straight line never mind paint a picture. With help from the regular tutor Steph and many hours of perseverance I now enjoy losing myself in a painting. The painting I submitted to the SSNAP team was my way of saying thank you for all the great work the NHS have done throughout the Corona virus and also to say thank you for nursing me after my Stroke.

https://www.kranky.co.uk/