Royal College of Physicians | Sentinel Stroke National Audit Programme (SSNAP)

Acute organisational audit

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Acute Organisational Audit
Generic report

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Prepared by

Royal College of Physicians, Clinical Effectiveness and Evaluation Unit on behalf of the Intercollegiate Stroke Working Party

Document purpose	To disseminate the site level results of the SSNAP acute organisation of stroke services in acute trusts.
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Target audience	Multidisciplinary stroke teams, managers, medical directors and trust executives of sites that participated in the 2014 SSNAP organisational audit
Description	This is the second acute organisational audit report published under the auspices of the new Sentinel Stroke National Audit Programme. It provides continuity from the previous 7 biennial rounds of the National Sentinel Stroke Organisational Audit and the 2012 SSNAP acute organisational audit. This report includes all data submitted by sites via a web-based tool between 16 June and 18 July 2014. The results reflect the organisation of stroke services as of 1 July 2014. This report contains national and site level figures to allow benchmarking of performance, changes over time, and regional comparisons.
Superseded	SSNAP Acute Organisational Audit 2012 National Sentinel Stroke Audit – Organisational Report (2010, 2009, 2008, 2006, 2004)
Related publications	National clinical guideline for stroke 4th edition (Royal College of Physicians, 2012) http://www.rcplondon.ac.uk/resources/stroke-guidelines SSNAP Clinical Audit Quarterly reports: April – June 2014 https://www.strokeaudit.org/results/national-results.aspx SSNAP Clinical Audit annual report: April 2013 – March 2014 (to be published Dec 2014) https://www.rcplondon.ac.uk/projects/sentinel-stroke-national-audit-programme Site level report of the National Sentinel Stroke Organisational Audit 2012 (made available to Trusts in November 2012) https://www.rcplondon.ac.uk/projects/ssnap-acute-organisational-audit National clinical guidelines for diagnosis and initial management of acute stroke and transient ischaemic attack (NICE, 2008) www.nice.org.uk/CG68 NICE Quality Standard for Stroke 2010 http://www.nice.org.uk/guidance/qualitystandards/stroke/strokequalitystandard.jsp National Stroke Strategy (Department of Health, 2007) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081062 (please copy and paste this link into your browser) Department of Health: Progress in improving stroke care (National Audit Office, 2010) http://www.nao.org.uk/publications/0910/stroke.aspx Clinical Commissioning Group (CCG) Outcome Indicator Sets (OIS) (http://www.strokeaudit.org/Entity-documents.aspx)
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Thanks are due to many team members who contributed to organising the collection and retrieval of data including audit staff, IT and coding staff in addition to members of the clinical teams.

Foreword

Speaking as a born optimist I see much to celebrate in this audit report. We have again managed to get data from all hospitals delivering acute stroke care, despite the amount of time already being devoted to getting data on virtually every stroke patient admitted to hospital in the country for the clinical SSNAP audit. We have seen improvements in the structure of services in many areas. 99% of sites now provide a 24 hour a day service for patients who might benefit from clot busting treatment, which is an extraordinary achievement considering that only a few years ago it was a treatment being delivered in just a few centres of excellence. Nurse staffing levels have increased a bit but as we have shown using previous audit data the staffing ratios need to be even higher to reduce death rates. We have been pushing for what feels like generations to get clinical psychology recognised as an essential component of routine stroke care and the figures are better than they were in the last audit in 2012 with nearly two-thirds of sites having access to some psychology support. And perhaps best of all the proportion of areas of the country with early supported discharge services has risen from 66% to 75%.

But even the most fervent optimist has to recognise that there is still a lot to do and as every year passes of financial stringency it gets harder to achieve. The 25% of recalcitrant Clinical Commissioning Groups not commissioning Early Supported Discharge have to somehow be persuaded of the hard scientific arguments that such services produce better outcomes at lower cost. The stroke units that are still not offering all the five key quality characteristics need to urgently improve. We have to find a solution to the medical workforce problem that there are a quarter of sites with an unfilled stroke consultant post mainly as a result of us failing to train enough junior doctors and this is only going to get worse as nearly half of sites are hoping to appoint to new positions in the next year.

I want to personally thank everyone who has worked so hard over the years to transform services for stroke patients from the worst in Europe to some of the best and who continue to strive under difficult circumstances to ensure that their patients receive the best possible care. Let’s continue to work together to make sure by the time of the next report on the structure of stroke services we have even more to celebrate and less to feel ashamed of.

Tony Rudd
Chair, Intercollegiate Stroke Working Party

Ten Key Recommendations

1. Overall improvements in stroke care that have been made over successive rounds of the audit have generally been maintained – which in the recent climate of change within the NHS has to be seen as a positive achievement. There is no room for complacency however, and all providers of stroke care and CCGs/commissioners should continue to review service performance and improvement by participation in the prospective clinical component of SSNAP.

2. There is now 24/7 access to thrombolysis throughout the audit which is excellent for patients. Quality of thrombolysis services will be monitored and driven up through SSNAP, with the aim of giving thrombolytic treatment to appropriate patients in the most timely and safest way. Thrombolysis performance in SSNAP should be regularly reviewed at provider and CCG level and compared to national benchmarks.

3. Average staffing levels for nurses and care assistants on stroke units have increased in terms of numbers from a median of 8 per 10 stroke unit beds in 2012 to 9 in 2014. This may still not be enough. Skill mix and training are still too variable across the audit.

4. Clinical psychology involvement in the stroke multidisciplinary team has significantly improved to now 61% of sites but many patients still have no access at all. All stroke units should have access to clinical psychology.

5. Social work presence within the stroke multidisciplinary team has decreased and is now only seen in 57% of sites. With a growing need for joint health and social care planning for stroke patients this trend is worrying and will likely lead to prolonged hospital length of stay for stroke patients with complex social care needs and potentially increase burden on carers and family. All stroke units need formal working arrangements with local social services and ideally have a link social worker.

6. Stroke specific early supported discharge (ESD) has also improved so that three quarters of units have access which is a further step change in accessing evidence based community stroke care. All stroke patients should however have access to stroke specific ESD.

7. Access to stroke units has now become standard care for patients with suspected stroke. All stroke units however, need to deliver the all 5 Stroke Unit Trialists' Collaboration characteristics in order to demonstrate the benefits of stroke unit care. The fact that this is not universally happening is no longer an unfilled aspiration

but a necessity. In the same way acute admitting units need to offer a 7 day week service in line with all acute medicine conditions.

8. There are considerable concerns about the consultant stroke physician workforce, with 1 in 4 hospitals having current vacancies and almost half wishing to further expand their consultant stroke physician clinical time in the near future. The shortfall will likely impact on leadership of stroke services within the NHS and needs to be addressed immediately through training programmes in both geriatric medicine and neurology.

9. With a transition from PCTs to CCGs, commissioner involvement in service development and strategic planning of stroke services has apparently fallen away to only 65% of services. We hope this is not a trend and that the CCG specific reporting of SSNAP, this and future planned audit, will serve to encourage CCGs to act upon variance with best and benchmarked National practice. All CCGs should have a nominated lead for commissioning and developing stroke services that is registered with SSNAP.

10. Stroke services in Northern Ireland have declined across almost all domains. The review of stroke care in Northern Ireland undertaken earlier in 2014 should help guide future service improvement and organisational change.

Executive Summary

Introduction

This is the second acute organisational report published under the auspices of the Sentinel Stroke National Audit Programme (SSNAP). It provides continuity from the 2012 acute organisational audit and previous biennial NSSA audits. The audit is based on standards agreed by representatives of the ICSWP. Its questions are well understood and the majority comparable with the 2012 audit. The organisational audit complements the continuous prospective clinical audit which reports quarterly (http://www.strokeaudit.org/results/National-Results.aspx). At the time of submitting data for this organisational audit, 74,307 records had been analysed for stroke patients admitted between April 2013 and March 2014.

The Aims of the Sentinel Stroke National Audit Programme 2014

1. To benchmark services regionally and nationally
2. To monitor progress against a background of organisational change to stroke services and more generally in the NHS
3. To support clinicians in identifying where improvements are needed, planning for and lobbying for change, and celebrating success
4. To empower patients to ask searching questions

Organisation of the Audit

This audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) on behalf of NHS England as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP) and run by the Clinical Effectiveness and Evaluation unit (CEEu) of the Royal College of Physicians, London. Data were collected at site level within trusts (or Health Boards in Wales) using a standardised method. Clinical involvement and supervision at team level is provided by a lead clinician in each hospital who has overall responsibility for data quality. The audit is guided by a multidisciplinary steering group responsible for the RCP Stroke Programme – the Intercollegiate Stroke Working Party (ICSWP). Details of membership of the ICSWP can be found in Appendix 1 or www.rcplondon.ac.uk/stroke (Appendix 1).

Availability of this report in the public domain

Site results will be available to NHS England and the Care Quality Commission in England, NHS Wales (Welsh Assembly Government), and the Department of Health, Social Services and Public Safety in Northern Ireland. For the first time, we will publish a full results portfolio including results for all data items by named hospital and a summary spread sheet which will include key indicators from the organisational audit along with total organisational scores and total score by named hospital. These named hospital reporting outputs will be uploaded separately to participants in Excel format shortly after the report is made available to trusts. We hope to make these tables public in time for the UK Stroke Forum in December 2014, subject to HQIP's standard reporting procedure. It is planned to make public your individual site level report on the RCP website in December 2014 in line with the transparency agenda. We will inform you when dates are finalised giving you as much notice as possible.

Participation

There is 100% participation of eligible trusts (150) in England (139), Wales (6) and Northern Ireland (5).The Isle of Man (1) also participated.

Audit results

This section presents an executive summary of the findings of the audit. It brings together the clinical commentary from Sections 2 – 4 of the full report. For ease of reading it does not contain the full findings which are presented in the tables in the relevant section of the report.

Presentation, assessment and initial treatment

- FAST has become standard as pre-hospital screening for suspected stroke with 165/167 sites having a FAST-track pathway for potential thrombolysis patients. A third of hospitals now have a direct transfer policy from ambulance to stroke unit for suspected stroke patients bypassing Emergency departments all together.
- Whilst use of telemedicine has continued to grow, there is concern that it has not incorporated the use of video enabled clinical assessment (71% in 2014 compared with 76% 2012). In over two-thirds of cases currently, telemedicine is reserved for acute stroke patients as part of a thrombolysis treatment pathway only and in only 10% of services using telemedicine to assess *all* suspected stroke patients. All acute stroke patients need access to specialist stroke neurological diagnosis and opinion when they arrive at hospital.

Thrombolysis for stroke (for 167 sites providing care within the first 72h)

- As in 2012, 90% of hospitals providing care within the first 72h provide a thrombolysis service however in 2014 99% of hospitals now either offer on-site thrombolysis or else have a formal arrangement to transfer patients to a site that does offer it.
- With the increasing implementation of centralised models of hyperacute stroke care this may reduce the provision of onsite thrombolysis as thrombolysis services are concentrated in some parts of the country into larger single centres. There has been an increase to 83% of hospitals now providing on-site, 24/7 thrombolysis as opposed to a shared care arrangement and 99% of sites now provide 24/7 cover with either on-site or local arrangements. This is a significant improvement in access to thrombolytic therapy from only 50% in 2010.
- Assessment and decision making for thrombolysis has changed little since 2012 in terms of staff groups involved, with an understandable difference between the percentage of sites with consultant in person decision making in hours (99%), and out of hours (50%). However consultant led thrombolysis using telephone only remains a very questionable practice in terms of speed, effectiveness and safety when compared to onsite presence or video enabled telemedicine. The responsible thrombolysis decision maker needs to be clear on the diagnosis of stroke, timing of onset of symptoms, results of brain imaging and the presence of contraindications. There needs to be clear clinical governance around such arrangements.
- A broad range of consultant specialities continue to support thrombolysis rotas with the majority being stroke physicians and care of the elderly specialists. It is important that all those participating are confident and competent in stroke thrombolysis – which can be challenging when managing and diagnosing acute stroke is not part of the consultants' regular daytime job plan. The British Association of Stroke Physicians (BASP) has defined definitions for physicians with stroke skills which should be the minimum applicable criteria for any doctors supervising a thrombolysis decision. The

Health Technology Assessment 2002 also supports this by recommending that administration of acute stroke treatments such as thrombolysis should be carried out only by stroke specialists (stroke team or neurologist) who have received specific training on how to do so.

- The median number of doctors on a thrombolysis rota remains 6 – so almost half of rotas have fewer than 6 consultants. Shortfalls in current consultant stroke physician appointments (see Workforce Planning, page 81) will make addressing this challenging in the short term.
- Endovascular treatment for acute stroke (Intra-arterial thrombolysis and or mechanical clot retrieval) remains an exciting but as of yet, unproven treatment. Very small numbers of patients are currently being treated nationally. Appropriate patients should be offered treatment in specialist centres as part of a randomised clinical trial and outcomes published in a registry such as SITS-TBY. It is concerning that nearly 30% of sites using intra-arterial treatments are neither entering them in to a trial nor submitting data to a registry. These sites urgently need to address the clinical governance issues around delivering unproven treatments.

Stroke units

- Nearly all sites have a direct admission policy to stroke units which is the standard recommended in all recent national guidelines although as in 2012, there are still three units where this is not the case. Direct admission exists in almost all sites 24/7 and the number of sites with exclusion criteria for patients accessing acute stroke unit care has reduced to three.
- Over 90% of units have 5 day a week or more consultant ward rounds. Seven day consultant ward rounds have increased to almost two-thirds of Type 1 beds. The HASU model of care requires this to be 100% to ensure all patients with suspected stroke are reviewed by a stroke consultant on a post emergency admission ward round.
- Compliance with the acute quality criteria on stroke units have improved in relative terms but still the vast majority fall below the gold standard of meeting all 7 criteria. Type 1 beds only meet this in 37% of cases and Type 3 beds in 17% – which needs to be addressed through service specification and commissioning to make a significant step change. Most units fall down on organisational issues such as stroke unit admission procedures and weekend stroke consultant ward rounds.
- Exclusion criteria for Type 2 beds (post 72 hours) cannot be condoned or justified. No patient should be excluded on the basis of age, stroke severity or co-morbidity. Rehabilitation potential is difficult to predict early after stroke and even if uncertain or thought to be poor, stroke unit multidisciplinary teams are best placed to provide disability management and inform transfer of care arrangements for severely affected stroke patients. There has been an increase in the number of stroke units using exclusion criteria since 2012. We ask the eight dedicated post-acute stroke units which currently have exclusion criteria, to reconsider.
- Stroke consultant ward round frequency for Type 2 beds has reduced slightly since 2012 from 77% having at least 5 days a week rounds to 69% now.
- Nursing staffing levels in hospital are important and associated with patient safety and mortality. There has been much discussion about 'safe' or 'minimum' numbers of nursing staff by NICE (http://www.nice.org.uk/Guidance/InDevelopment/gid-safenursestaffingadultwardsacutehospitals) and we have recently published that in

acute stroke units there is an association between higher nursing numbers and lower mortality (http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1001705). Due to the complexity of stroke patients it should be expected that nursing levels should be above the average for acute hospitals. The difference at national level in registered nursing levels in Type 1 beds between 10am and 10pm seen in the audit may be cause for concern. The fact that nursing levels are approximately the same across days of the week and public holidays is reassuring. Units with below average stroke unit staffing should urgently address this issue and increase their establishment. Poor care resulting from low nursing levels is clearly unacceptable and should be an issue addressed by commissioners and the Care Quality Commission.

- There has been an increase in whole time equivalent (WTE) clinical psychology posts such that now 54% of sites have some clinical psychology service however when compared to absolute numbers of staff per stroke unit, clinical psychology input remains pitiably small with a median of 0.04 WTE per ten beds. Otherwise multidisciplinary staffing, in terms of median numbers per 10 beds, has not greatly changed in the face of a further small increment in delivering weekend occupational and physiotherapy services. Units moving to provide 7 day a week therapy services need to ensure that this does not come at a cost of reducing therapy services within normal working hours.
- Junior doctor support for stroke units is provided predominantly by early years trainees with relatively little registrar grade input. Training specialist registrars in stroke is crucial to meeting the unmet demand for stroke specialist consultants and training posts need to be reviewed and increased to match current and future consultant demand.
- Access to clinical psychology has increased with the further investment in staffing from 52% in 2012 to 61% in 2014. This makes the lack of access to such support seem even more inequitable for the 39% of units that have no clinical psychology input. Access to social work expertise remains high but key services for stroke patients such as orthotics, orthoptics and in particular podiatry, are still shamefully lacking in a number of units. Commissioners should look towards using service specifications with providers to ensure stroke patients who require these key services have timely access or expect a negative impact on quality of care and likely prolonged length of stroke unit stay.
- The practice of keeping stroke patients in bed until reviewed by a therapist remains at the same level as in 2012 (22 sites 2012, 23 sites 2014). We would strongly recommend those trusts with this policy to provide training and competencies for stroke unit nursing staff to be able to make this key early management decision. Even with an increase in 7 day therapy, many patients will arrive outside of normal working hours and a clinical decision about early mobilisation is required to prevent patients who are medically stable otherwise being inappropriately kept on bed rest.
- The composition of multidisciplinary stroke team meetings has not greatly changed from 2014 other than a small increase in clinical psychology participation (31% from 26%). More teams than before (69% from 61%) are meeting more than twice a week indicative of the importance placed by hospitals on formal MDT communication in order to optimise stroke unit care.
- Palliative care treatment remains an important aspect of stroke unit care and in the aftermath of the controversy surrounding the withdrawal of the Liverpool Care Pathway from hospitals in 2013, it is reassuring that hospital guidance on end of life care is still in

place for 96% of stroke units. The 8 sites that do not have such guidance should urgently address this.

- We now have good RCT evidence not to use compression stockings after stroke and the single unit where this is still practiced should stop. Since 2012 there is new RCT evidence to support intermittent pneumatic compression device use in selected stroke patients. We will look to monitor the implementation of this at a patient level in SSNAP although already 42% of units state they are using such devices. The patient level audit suggests that the proportion of patients actually receiving Intermittent Pneumatic Compression (IPC) treatment currently is very small.

Stroke Unit Trialists' Collaboration (SUTC) Key Characteristics of All Stroke Units

- The aspiration for all stroke units must be to fulfil all 5 of the SUTC key characteristics. With the enormous investment and the many improvements in all aspects of stroke care nationally, it is then hugely disappointing that we have not made more significant improvements over time here. The shortfalls are in particular in providing formal links with patients and carers, patient information and a programme of continuing education for the stroke MDT staff. The fact that formal links with patients and carers has decreased is concerning particularly as the 2012 SSNAP acute organisational report called for an improvement in this area by stating '*This may be considered a less important component of care than some of the others but we would suggest this it is critical for a stroke unit to perform effectively. Without direct involvement of patients and carers it is very unlikely that the unit will address their needs adequately. We consider this to be one of the major areas for improvement over the next 12 months*.' We would like to reiterate this for 2014.

  These criteria do not necessarily require financial resource and should be considered as fundamental for all stroke units. If your site does not meet all 5 criteria, then you should consider addressing the deficiencies as a priority.

Management of stroke services

- Other than clinical psychology there has been little increase (absolute numbers or relative by site) in stroke specific ***senior*** multidisciplinary team (MDT) resource since 2012. Indeed only clinical psychology has expanded whilst physiotherapy, occupational and speech and language therapy have all decreased in absolute numbers. This may be explained by changes to skill mix seniority in order to finance seven day therapy services. The most senior posts (8b and 8c) remain predominantly within clinical psychology. According to this audit there is still no stroke specific 8c OT post. Overall it appears that investment in senior stroke MDT posts has plateaued and if anything is decreasing in keeping with the recent fallow period in NHS investment.
- Over one in ten stroke services have now made appointments of the new allied health professional group of physician associates – predominantly to make up for shortfalls in junior doctors (or senior nurses). Physician associates are likely to expand and play an important role, in particular, in future hospital stroke services.
- Overridingly the numbers of senior stroke nurse posts reported to the audit are small given the move towards 7 day services.
- The practice of the most senior nurses not working nights or weekends will likely need to be reviewed although with such a rare resource, stroke services will need to consider carefully how best to use – especially the band 8, stroke specialist nurses.

- One in four hospitals currently has full time vacancies for stroke consultants whilst almost half of all hospitals plan to increase their current stroke consultant sessions. This highlights a clear concern in terms of shortfall in appropriately trained stroke consultants. The median number of stroke consultants per hospital is three with 72% coming from the speciality of geriatric medicine. Only 53 hospitals (29%) currently have specialist registrar training posts in stroke and this has not changed greatly from the 49 hospitals (26%) from 2012.
- Over 95% of hospitals have a strategic multidisciplinary group responsible for stroke, and 89% of sites have regular reporting to trust boards. Commissioner involvement in such groups has reduced in relative terms since the advent of Clinical Commissioning Groups from 76% in 2012 to 65% in 2014. This is understandable perhaps given the organisation change in commissioning within England but is important for CCGs to address going forward to ensure the full implementation of the 10 year National Stroke Strategy for England published in 2007**.** Patient involvement has also not improved with 66% in 2014 compared with 73% in 2012. Putting the patient voice at the heart of service improvement needs to be a consideration for all such groups that currently do not include lay representation, particularly as there has been in the same period a significant increase in patient surveys of stroke services - with now half of hospitals implementing continuous patient surveys (compared to 36% in 2012).
- Doctors continue to be the dominant profession leading hospital stroke services. However, successful stroke teams are multidisciplinary and with the advent of an increase in consultant grade posts in nursing, therapies and allied health professions, this need not be the case. Given the issues with current shortfalls in consultant stroke physicians (see section 3.10) Trusts should be encouraged to develop multidisciplinary leadership of stroke services.
- With the organisational changes associated with the Stroke Research Network being integrated into the Comprehensive Research Network in April 2014, it is reassuring that at least at the current time, there has been little evident impact in stroke research activity with the median number of stroke studies and WTE allotted for stroke data collection remaining unchanged from 2012.
- Whilst clinical ownership is vital for validation of clinical research and data collection there has been a reassuring relative increase in administrative support for such activity with a relative reduction in the time spent by doctors and nurses.

Patient support and communication

- Patient involvement in discharge planning is largely unchanged from 2012. It is routine in the majority but not all stroke services. Services that do not positively report on the patient involvement in discharge planning should consider why they are at odds with the majority of providers.
- Clinicians working with stroke patients know that there is lamentable access to vocational rehabilitation for patients with neurological deficits such as aphasia. The data reported does not have face validity and should not induce complacency from commissioners there is not an issue that needs to be dealt with. It more than likely represents a very loose definition of vocational rehabilitation than anything else.

Pathway at discharge

- Access to stroke-specific Early Supported Discharge (ESD) has continued to increase from 44% in 2010, to 66% in 2012 and now 74% in 2014. Commissioners in the quarter of the country where there is no stroke-specific ESD team should consider themselves now in a minority and not offering best and evidence-based services. In the SSNAP clinical audit currently around one in four patients discharged alive from stroke units are already being discharged with ESD.
- Access to non-specialist ESD has also increased from 2012 from 26% to 36% in keeping with the impetus to reduce length of stay for all hospitalized patients. As highlighted in 2012 this is an unproven intervention in the context of stroke where for the vast majority of cases a stroke specific service will produce the best outcome.
- Access to a specialist community rehabilitation team has increased significantly from 2012 – with 131 hospitals (72%) having access compared with 108 (57%) in 2012. As length of stay in hospital decreases this is increasingly important to good outcome after stroke and commissioners should be aiming to provide this for all stroke patients. Almost 30% of hospitals patients have no access to specialist community stroke rehabilitation.
- Access to non-specialist community rehabilitation has increased since 2012 (49% to 70%) but perhaps at the expense of developing specialist community stroke services in the community which are still lacking in 28% of the country (see above). In future rounds of the SSNAP clinical audit it may become clearer as to whether this influences clinical outcome and such therapy should be seen as additional as opposed to an alternative to specialist neurological rehabilitation for those recovering with the effects of stroke.

Transient Ischaemic Attack (TIA) / neurovascular service

- Rapid access TIA clinics are now well established. The median number of neurovascular clinics has increased from 20 in 2012 to 24 per 4 week period with more patients being seen on average (median 54 patients seen in last 4 weeks in 2014 compared with 46 in 2012), although there remains a differential of service between 5 day and 7 day services in terms of access to vascular imaging for high risk TIA patients.

Changes over time

Acute stroke care organisation (Domain 1)

There have been some positive but modest improvements in terms of increased quality in acute stroke care organisation, as judged by the proportion of sites fulfilling all 7 acute criteria. However, Type 1 beds should be commissioned to provide all 7 criteria within a service specification. The shortfall in specialist weekend ward rounds in over one-third of such units is a concern.

Although the proportion of hospitals sites offering thrombolysis onsite has remained similar since 2012, the number of sites where this is the case has decreased which may reflect the advent of centralised models of hyperacute care. The numbers of potentially eligible patients for thrombolysis and their outcomes is being prospectively recorded as part of SSNAP clinical audit, which will help judge the success of any future organisational changes in terms of effectiveness of thrombolysis treatment by population.

Specialist roles (Domain 2)

Whilst the audit continues to demonstrate regular MDT meetings with multidisciplinary representation, the frequency of multiple weekly meetings seems now to have plateaued across sites at around 80%. This is likely to reflect the differences between patterns of working between Type 1 bedded units (for the first 72 hours of care only), Type 3 (for the first 72 hours of care and beyond) and Type 2 (for post 72 hour care) units.

Given the importance of joint health and social care planning in transfers of care of stroke patients into the community, the diminishing amount of social work representation at MDT meetings is a major concern. Social workers were present at MDT meetings in 78% of sites in 2010 and now in only 57% in 2014.

Access to psychology has improved from 52% in 2012 to 61% of sites in 2014, which means patients in approximately 40% of sites do not access this key component of specialist stroke care. More 7 day ward rounds are taking place on Type 1 beds in keeping with the general increase in consultant weekend ward rounds in acute hospitals. However, this does not take place in 36% of hospitals sites with Type 1 beds, which means that patients being admitted at weekend in such units are not being reviewed by stroke consultants – as they are on weekdays. The neurological diagnosis of stroke and its differentials is best made by consultants with training and experience in stroke. All patients admitted to hospital with a suspected stroke should have the expectation of being reviewed by a stroke specialist consultant within 24 hours of admission. It is very unlikely that a patient with acute myocardial infarction admitted to a coronary care unit would not be seen over a weekend by a cardiologist. Why should stroke be different?

Inter disciplinary services (for sites with a stroke unit) (Domain 3)

Multidisciplinary care is integral to stroke unit care and whilst there has been steady improvements towards 100% access to all the allied health professions reported there are still significant deficiencies. This should be picked up using service specifications by commissioners in order to provide the very best stroke care for patients.

We know that nursing numbers are key to patient safety in hospital and whilst the median number of nursing staff (trained and untrained) had previously been steady between 2008-2012 at eight at 10am on weekdays, it is encouraging to see this has increased to a total of nine in the 2014 audit. The amount of 7 day a week physiotherapy and occupational therapy remains low at 28% and 22% respectively with speech and language therapy available 7 days a week in only 5% of sites.

Transient Ischaemic Attack (TIA) / neurovascular service (Domain 4)

Neurovascular clinics are now well established throughout the audit with almost all sites offering such services with average waiting times of 2 days. Seven day a week services have increased modestly but it is surprising that high risk TIA patients admitted to 40% of hospital sites are still ***not*** investigated and treated on the same day. High risk TIA patients are by definition at risk of early recurrence of stroke symptoms and should be treated urgently. After all, patients with unstable angina admitted acutely to hospital would not be left without same day investigation and initiation of preventative treatment.

Quality improvement and research (Domain 5)

With all the changes to NHS organisations it is reassuring that there has been no decline in the elements of quality improvement and in particular stroke research. Whilst nationally the response to each of the items within Domain 5 is 89% or more we should aspire to 100% for all four of them.

Communication with patients and carers has generally improved with each audit which should be congratulated. Sites where this is not happening are firmly in the minority and should be looking to address this aspect of their service as a priority. The expectation is that we should see 100% positive responses to the same questions in the next audit.

Planning and access to specialist support (Domain 6)

The median number of stroke unit beds per site has remained reasonably constant over time since 2008, at 26 beds. Access to ESD has increased but still a quarter of sites do not transfer care into the community using this evidence based approach. Access to specialist community neurorehabilitation has improved from 57% in 2012 to 72% of sites in 2014, but still 28% of sites have no access at all.

Audit results by country

Thrombolysis provision and patients thrombolysed

We are pleased to report that there is now effectively 100% access to thrombolytic treatment for acute ischaemic stroke across England, Wales and Northern Ireland. Over half of sites have access to inter-arterial treatments and 93% of sites in Wales reported that they use inter-arterial treatments for acute stroke.

The evidence base for prevention of venous thromboembolism after stroke has been transformed by the CLOTS trials and it is good to see very little variation in the audit in the use of compression stockings, which has effectively disappeared from clinical practice. Use of Intermittent Pneumatic Compression (IPC) may well increase in England after review and recommendation by NICE. Currently there is low take up of IPC in Wales compared to England and Northern Ireland.

Stroke unit provision

The median number of beds in a stroke unit varies considerably by country and will relate to catchment area and demographics. However, the need for stroke units to be geographically distinct clinical areas with dedicated and 7 day specialist multidisciplinary staffing means that small units may struggle to be affordable and be prey to economies of scale.

Stroke care in the first 72 hours

There are currently no Type 1 beds in Northern Ireland. In both England and Wales the aspiration must be that all seven criteria for acute stroke units are met in such units and this is not happening at all in the current two Welsh units and in only 38% of the English HASUs.

The median number of Type 1 beds per site in England remains at six but has increased in Wales from five to eight since 2012. The increase in Type 1 beds has to be accompanied with the quality assurance of meeting all seven acute criteria.

In Type 3 stroke unit beds there is also a marked difference by country in acute criteria being met, with units in England achieving six or more criteria in 63% of sites compared with 25% of units in Wales and 30% of units in Northern Ireland.

The 5 SUTC characteristics for all stroke units (type 1, type 2 and type 3 beds)

With respect to the 5 SUTC criteria which should be present in all stroke units there is again marked variation by country. Welsh stroke units report meeting all five criteria in 86% of sites, whilst English units only report all five being met in 41% of sites and the percentage is even lower in Northern Ireland at 18%. This variation is unacceptable and should be addressed by commissioners through service specifications.

Whole Time Equivalents (WTE) of staff across all stroke units

The median number of nurses per 10 beds on duty at 10am is between three and four across all three countries. The median total WTE equivalent of trained nurses per 10 stroke beds is nine in England and Northern Ireland and eight in Wales. Only England has senior 8b or 8c stroke nurse consultant posts. There are no senior (band 8) nursing posts at all in Northern Ireland.

Junior doctor time is also variable across countries with England having twice as many (30) junior sessions than Northern Ireland (15). This picture has not changed significantly from 2012 and has implications for training of future stroke consultants by country.

The median WTE of MDT staff is broadly similar across all three countries but weekend therapy provision is mainly happening in England, with two sites in Wales offering weekend stroke physiotherapy and no weekend therapy working in Northern Ireland at all reported currently.

Management of stroke services

There has been a large increase in accredited registrar stroke training posts in Wales to five in 2014 from one in 2012. At the same time Northern Ireland has now lost its single training post, which does not bode well for the speciality going forward. Variations in direct clinic consultant time exist between countries between a median of 19 programmed activity (PAs) per site in England and 5 PAs per hospital in Northern Ireland. These numbers are not however adjusted for total numbers of stroke unit beds - which we know are much smaller in Northern Ireland. All countries are looking to invest in additional stroke consultant clinical time in the future but a quarter of stroke consultant posts across all three countries remain unfilled currently. The situation appears worst in Northern Ireland where 36% of sites have unfilled posts and with no current recognised training post in Northern Ireland recruitment will be dependent on overseas applicants it now seems. Hopefully this apparent workforce crisis will be addressed by the recent stroke services review in Northern Ireland.

Quality improvement

As in 2012, Wales is leading the way in terms of Quality Improvement initiatives including preparing reports for Trust boards - in stark contrast to the situation in N. Ireland, where such reports have been presented in less than half of sites.

Research studies

Most countries remain research active although sites in England have a greater proportion of sites with three or more research studies and this number in Northern Ireland has fallen from 64% in 2012 to 36% in 2014.

Patient support and communication

Wales continue to perform well compared to the other countries in respect to patients support and communication and performance in Northern Ireland has seemingly deteriorated significantly from the audit results of 2012. Disseminating national audit report to patient and carer groups has never been easier with ‘easy access’ versions of quarterly SSNAP reports being readily available including ‘PowerPoint’ slide shows (https://www.strokeaudit.org/results/national-results.aspx).

Early Supported Discharge Teams and Community Rehabilitation Teams

Stroke specific ESD is still significantly under provided in Wales, where there is also no stroke or neurology specific community rehabilitation provision (there was one reported in 2012).

Section 1: Introduction and methodology

Introduction

This is the second acute organisational report published under the auspices of the Sentinel Stroke National Audit Programme (SSNAP). The Clinical Effectiveness and Evaluation Unit in the Clinical Standards Department of the Royal College of Physicians first conducted the National Sentinel Stroke Audit (NSSA) in 1998 and subsequently a total of seven rounds have been undertaken with 100% participation achieved since 2006. SSNAP combines the NSSA and the Stroke Improvement National Audit Programme (SINAP) which audited care in the first 72 hours after stroke. In addition to this acute organisational audit, SSNAP comprises of the SSNAP clinical audit which has prospectively collected a minimum dataset for every stroke patient, including acute care, rehabilitation, 6-month follow up, and outcome measures since December 2012. As a result of this SSNAP is now the single source of stroke data for England, Wales and Northern Ireland. All results from the SSNAP clinical audit are available to view using the new Results Portal https://www.strokeaudit.org/results/national-results.aspx. Later in 2014 SSNAP will carry out an organisational audit of post-acute stroke services.

The Aims of the SSNAP Acute Organisational Audit

1. To audit against the National Clinical Guidelines for Stroke
2. To enable trusts to benchmark the quality of their stroke services nationally and regionally.
3. To measure the extent to which the recommendations made in the 2012 SSNAP Acute
4. Organisational Audit have been implemented.
5. To measure the rate of changes in stroke service organisation since the implementation of the National Stroke Strategies and the publication of the National Audit Office Report.

Organisation of the audit

This audit is commissioned by the Healthcare Quality Improvement Partnership (HQIP) on behalf of NHS England as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP) and run by the Clinical Effectiveness and Evaluation unit (CEEu) of the Royal College of Physicians, London. Data were collected within trusts using a standardised method. This audit was overseen at a site level by a lead clinician for stroke who was responsible for the quality of data supplied. The audit is guided by a multidisciplinary steering group responsible for the RCP Stroke Programme – the Intercollegiate Stroke Working Party (ICSWP) (Appendix 1).

Availability of this report in the public domain

Site results will be available to NHS England and the Care Quality Commission in England, NHS Wales (Welsh Assembly Government), and the Department of Health, Social Services and Public Safety in Northern Ireland. We will publish a full results portfolio including results for all data items by named hospital and a summary spread sheet which will include key indicators from the organisational audit along with total domain scores and total organisational score by named hospital. This portfolio will be uploaded separately to participants in an Excel format shortly after the site level report is made available to trusts. We hope to make these tables public in time for the UK Stroke Forum in December 2014, subject to HQIP's standard reporting procedure. As in 2012 it is planned to make public your individual site level report on the RCP website in December 2014 in line with the transparency agenda. We will inform you when dates are finalised giving you as much notice as possible. All results from the SSNAP clinical audit are available to view using the new Results Portal https://www.strokeaudit.org/results/national-results.aspx.

Eligibility and recruitment

All sites that routinely admit patients within 7 days of stroke were eligible to participate. Previously, only sites which directly admitted acute stroke patients were eligible, but due to the centralisation of stroke services and the establishment of a hyperacute model of stroke care in different parts of the country this was changed in 2012. Registration forms were submitted for each site which confirmed service configuration and details of the lead clinician and clinical audit lead.

Due to changes in service configurations and trust mergers the total number of sites decreased from 190 to 183 since the 2012 organisational audit. In total there were 157 sites in England, 14 in Wales, 11 in Northern Ireland and 1 Islands.

Participation

There is 100% participation of eligible trusts (150) in England, Isle of Man, Wales and Northern Ireland. Please see Appendix 3 for more details of participating sites.

Methods

Standards in the audit

A number of changes were made to the 2014 proforma of questions (Appendix 2) from the 2012 audit. Due to the significant growth of information being obtained from the SSNAP clinical audit, more data linkages were possible to acquire figures previously requested and a number of questions were therefore removed. Several questions were also added to enable a more comprehensive snapshot of acute stroke services. The focus of these additional questions included interventional neuroradiology, total nursing establishments for stroke beds, specialist nurses within the stroke workforce and workforce planning (with the latter as a part of a national BASP initiative to look at workforce planning for doctors).

We are aware of the on-going reconfiguration of services across geographical areas and this audit has been devised to take account of this dynamic process. The audit reflects this in the formulation of questions to obtain information about what stroke services are available for the population served by the acute trusts. There is now an increasing need to understand what happens to stroke patients after their hospital stay; in order to establish this SSNAP has been commissioned to carry out an audit of post-acute services. This new snapshot audit will start in autumn 2014 and approach commissioning bodies (CCGs in England, Health Boards in Wales and Local Commissioning Groups in Northern Ireland) for information on what services are being commissioned and in phase 2 ask post-acute providers for information on a) what services are being commissioned and b) what stroke services are provided within the community.

Data collection tool

As with the 2012 audit data collection was carried out using the SSNAP internet based webtool. Two nominated leads from every site were identified and given unique usernames and passwords which enabled them to access the webtool. Security and confidentiality were maintained through the use of site codes. High data quality was ensured through the use of built in validations which prevented illogical data being entered. Data could be saved during as well as at the end of an input session. Once data entry was completed, sites were advised to export and check their responses with clinical sign off.

Data were entered between 16 June and 18 July 2014. Sites then had a week to check the accuracy of their data; after 25 July no changes were permitted. Each participating site was provided with a standardised help booklet containing data definitions clarifications and context specific online help was available on the webtool. A telephone and email helpdesk was provided by the CEEu to answer any individual queries.

Definitions

Definition of a 'site'

Lead clinicians were asked to collect data on the basis of a unified service typically within a trust. For most trusts the 'site' was the trust. For some trusts there were several 'sites' each offering a discrete service. A site may include several hospitals and some include more than one trust.

Stroke Unit

The definition used for a stroke unit (and used in this audit) is:

Stroke unit - a multidisciplinary team including specialist nursing staff based in a discrete ward which has been designated for stroke patients.

Participants were asked to state the number of beds used for patients at different points in the pathway to differentiate the 'type' of stroke unit to which patients are directly admitted. The three categories of stroke unit beds are outlined below:

- Type 1: beds used *solely* used for patients in the first 72 hours after stroke
- Type 2: beds *solely* used for patients beyond 72 hours after stroke
- Type 3: beds used for *both* the first 72 hours of care and beyond

5 SUTC key characteristics of all stroke units

Five key characteristics were chosen from the Stroke Unit Trialists' Collaboration (SUTC) and subsequent papers, as markers of good stroke unit organisation. The audit has assessed how many of these are in place. These will be referred to in the document as the 5 SUTC characteristics and are:

- Consultant physician with responsibility for stroke
- Formal links with patient and carer organisations
- Multidisciplinary meetings at least weekly to plan patient care
- Provision of information to patients about stroke
- Funding for external courses and uptake

7 Acute Criteria for beds used for the first 72 hours of care

To evaluate specifically the quality of *acute* stroke unit organisation we determined whether the following 7 criteria were met. These criteria are not all evidence based but were developed using the consensus of an expert working group.

The 7 acute criteria for units with beds providing care in the first 72 hours:

- Continuous physiological monitoring (ECG, oximetry, blood pressure)
- Immediate access to scanning for urgent stroke patients
- Direct admission from A&E/front door
- Specialist ward rounds on 7 days a week
- Acute stroke protocols/guidelines
- Nurses trained in swallow screening
- Nurses trained in stroke assessment and management

How to read this report

This report presents national and hospital level data for many important aspects of the organisation of stroke services. National results are presented as percentages, and site variation is summarised by the median and Inter-Quartile Range (IQR). Ratios of staffing numbers per 10 stroke unit beds are given rather than staffing numbers per se so as to allow an interpretation more relevant to national standards.

Denominators

The denominators within the report vary depending on the number of sites to which the data analysed relate. To illustrate, denominators can include all sites which participated (183), sites which treat patients in the first 72 hours (167), sites which have different 'types' of stroke unit beds, or sites which provide thrombolysis (165). A summary of the denominators used in the report is given in the table below.

Where the numerators and denominators do not add up exactly this is due to differences between the denominators within the table, the ability to select more than one answer option and the rounding up or down of the individual percentage values.

Summary of denominators used in report	
N sites	183
N of sites with a stroke unit	183
N hospitals covered by sites	206
N sites that treat some or all patients in the first 72 hours	167
Number of sites that do not treat patients in the first 72 hours	16
N stroke units with beds *solely for the* ***first 72 hours***	75
N stroke units with beds *solely for* ***beyond*** *the first* ***72 hours***	99
N stroke units with *beds for* ***first 72 hours and beyond***	109
N sites currently providing thrombolysis onsite	151
N sites providing 24/7 thrombolysis onsite	138
N sites providing 24/7 thrombolysis onsite or through local arrangements	165
N sites with access to stroke specialist early supported discharge team	135
N sites with access to non-specialist early supported discharge team	66
N sites with access to specialist community rehabilitation team	131
N sites with access to non-specialist community rehabilitation team	128
N sites with access to TIA/neurovascular clinic (onsite or within Trust)	183
N sites with access to TIA/neurovascular clinic on site only	179

Evidence

No references have been quoted in this report for reasons of space. All relevant evidence and standards are available in the following:

- National clinical guideline for stroke 4th edition (Royal College of Physicians, 2012) http://www.rcplondon.ac.uk/resources/stroke-guidelines
- National clinical guidelines for diagnosis and initial management of acute stroke and transient ischaemic attack (NICE, 2008) www.nice.org.uk/CG68
- NICE Quality Standard for Stroke 2010 http://www.nice.org.uk/guidance/qualitystandards/stroke/strokequalitystandard.jsp

Presentation of results

Section 2 provides a trust level summary of audit results. Results have been divided into 6 domains covering key aspects of the organisation of stroke services, with an overall total score. A breakdown of the standards within each domain, the criteria required to achieve the maximum score and the national spread of results are presented. The algorithm for the domains and total organisational score is described in Appendix 4.

Section 3 gives individual site results for every data item benchmarked against the national average.

Section 4 compares the 2014 SSNAP acute organisational audit results with those of the 2012 SSNAP acute organisational audit and previous rounds of the NSSA for those standards where comparison is possible.

Section 5 gives a regional comparison between England, Wales and Northern Ireland.

Section 6 is an overview of site results and scores by named team for the acute organisational audit. We have published total domain scores and total organisational score by named hospital and these performance tables have been uploaded separately for participants. We hope to make these tables public in time for the UK Stroke Forum in December 2014 in addition to the full results portfolio of named site results, subject to HQIP's standard reporting procedure.

Section 2: Trust level summary of audit results 2014

This section provides you with the equivalent of your own site level executive summary. It gives a comprehensive overview of the organisation of your service and provides information on your performance and relative position compared to all participating sites. It should point to key areas of good practice and areas requiring improvement.

The results are divided into six domains covering key aspects of the organisation of stroke care. A domain comprises several elements that relate to the topic. The chapter starts with your 'total organisational score' and summarised results of your domain scores. This is followed by detailed information for each domain for your individual site. Individual results are given alongside the criteria required to score the maximum.

The chapter also gives a comparison between SSNAP clinical audit, which prospectively measures the processes of stroke care for every patient and the biennial organisational audit.

2.1 Domain scores for 2014

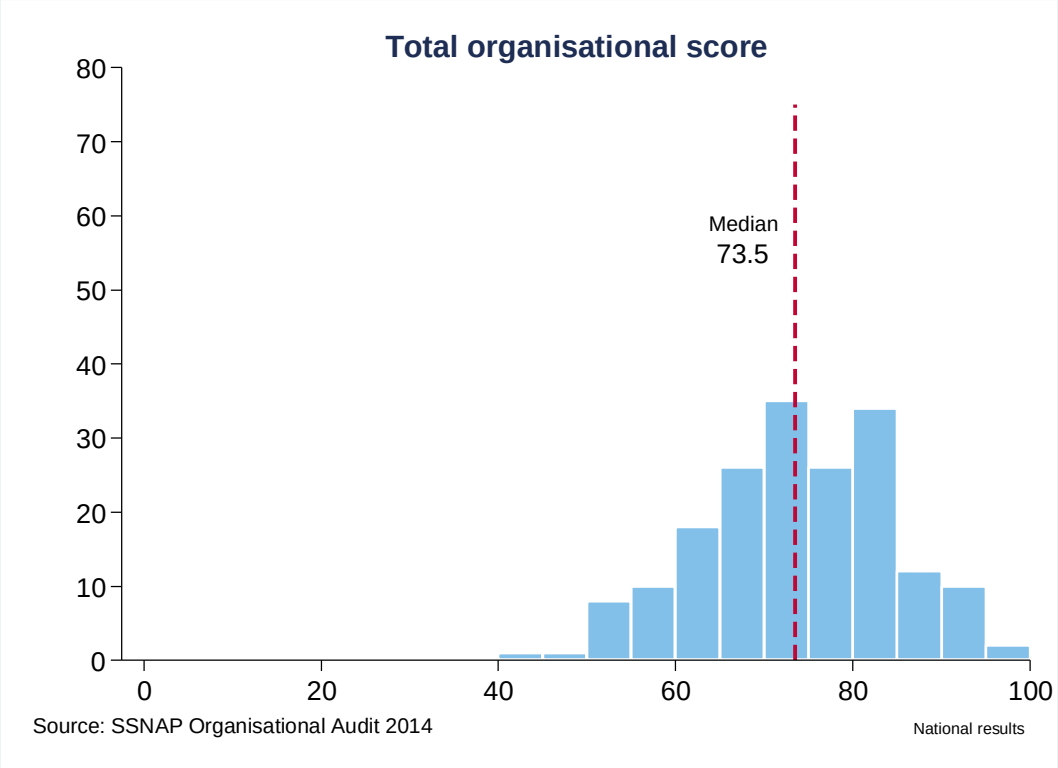
A scoring system was developed to enable sites to compare their organisation of stroke care with other sites. The scores for six separate components of organisation each range from 0 to 100, with 100 being the optimal score. A total organisational score is obtained by calculating the average of the six domain scores.

There are now six domains, from 8 in 2012, containing 46 key indicators. Due to some questions being removed from the 2014 proforma and one new key indicator relating to weekend nurse staffing levels being added it was necessary to alter the number of domains and their structure. The new indicator has been included due to the new evidence around nurse levels and the reduced risk of mortality. The stringent scoring criteria for all the pre-existing key indicators remain largely the same (see appendix 4 for scoring algorithm).

For each domain and overall sites will be given a performance level (A-E). In order to do this SSNAP will use an absolute scoring method. The aim is for this to allow sites to benchmark their performance against all other sites and for this to be comparable to all future acute organisational audit results.

Domain scores and total organisational score will be made public by named hospital.

Your total organisational score is



Summary of domain scores	A	B	C	D	E	Your site
D1 Acute care*	21 sites (11%) scored 90.0-100%	15 sites (8%) scored 80.0-89.9%	45 sites (25%) scored 65.0-79.9%	86 sites (47%) scored 50.0-64.9%	16 sites (9%) scored <50.0%	
D2 Specialist roles	45 sites (25%) scored 90.0-100%	40 sites (22%) scored 80.0-89.9%	51 sites (28%) scored 65.0-79.9%	39 sites (21%) scored 50.0-64.9%	8 sites (4%) scored <50.0%	
D3 Interdisciplinary services	7 sites (4%) scored 85.0-100%	42 sites (23%) scored 70.0-84.9%	45 sites (25%) scored 60.0-69.9%	65 sites (36%) scored 45.0-59.9%	24 sites (13%) scored <45.0%	
D4 TIA/Neurovascular clinic	88 sites (48%) scored 90.0-100%	45 sites (25%) scored 80.0-89.9%	37 sites (20%) scored 70.0-79.9%	5 sites (3%) scored 60.0-69.9%	8 sites (4%) scored <60.0%	
D5 Quality improvement, training & research	55 sites (30%) scored 85.0-100%	30 sites (16%) scored 75.0-84.9%	48 sites (26%) scored 65.0-74.9%	26 sites (14%) scored 50.0-64.9%	24 sites (13%) Scored <50.0%	
D6 Planning & access to specialist support	94 sites (51%) scored 90.0-100%	37 sites (20%) scored 75.0-89.9%	15 sites (8%) scored 60.0-74.9%	12 sites (7%) scored 50.0-59.9%	25 sites (14%) scored <50.0%	
Organisational audit total score	12 sites (7%) scored 90.0-100	46 sites (25%) scored 80.0-89.9%	61 sites (33%) scored 70.0-79.9%	44 sites (24%) scored 60.0-69.9%	20 sites (11%) scored <60.0%	

The median total organisational score was 73.5. *Please note that all scores rounded to one decimal place after calculation of each domain.*

*16 sites which do not treat patients during the first 72-hours after stroke have been allocated the Domain 1 score of the site where their patients are treated during this initial phase.

Domain 1 - Acute care organisation

Standard: A stroke patient should always be cared for on a stroke unit which has the necessary equipment and procedures in place and is staffed with trained multidisciplinary clinicians.
Patients seen within four and half hours of developing symptoms should be considered for thrombolysis. Not all patients are suitable and giving the treatment to unsuitable patients can be dangerous. However when given to the right patients, at the right time and in the right way it can dramatically reduce the risk of long term disability.

Standard: Effective communication between all the stroke team members is vital. Expertise from nursing, medicine and all the therapy professionals including clinical psychology is required.

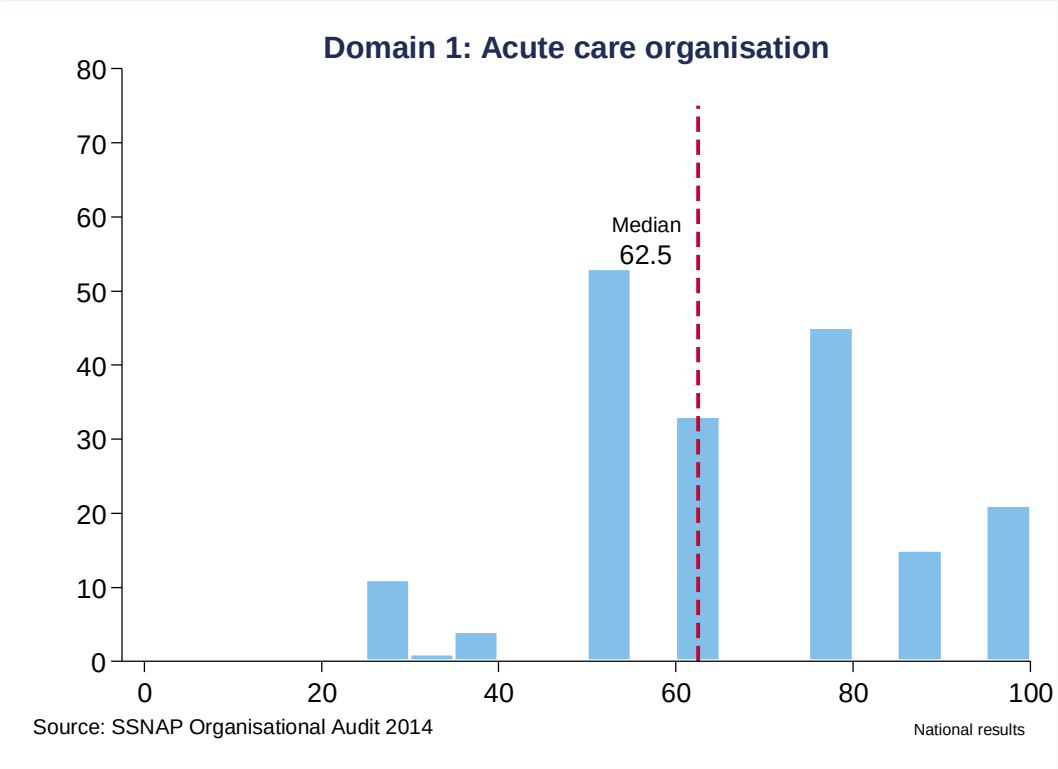
16 sites which do not treat patients during the first 72 hours after stroke have been allocated the Domain 1 score of the site where their patients are treated during this initial phase.

	Your site	Maximum score if,
Quality of care of stroke units treating patients within the first 72 hours of stroke applying seven acute features*		7 features
Level of thrombolysis provision – hours per day and days per week on- and off-site		24/7 on- and/or off-site
Ratio of nurses per ten beds on duty at 10am on weekends		3 or more nurses
Score domain 1		100

* Continuous physiological monitoring (ECG, oximetry, blood pressure), Immediate access to scanning for urgent stroke patients, direct admission from A&E/front door, specialist ward rounds on 7 days a week, acute stroke protocols/guidelines, nurses trained in swallow screening, nurses trained in stroke assessment and management

The table below shows the range of scores for Domain 1. The median national score is 62.5.

Summary of domain scores	A	B	C	D	E
D1 Acute care	21 sites (11%) scored 90.0-100%	15 sites (8%) scored 80.0-89.9%	45 sites (25%) scored 65.0-79.9%	86 sites (47%) scored 50.0-64.9%	16 sites (9%) scored <50.0%



Domain 2 - Specialist roles

Standard: Stroke is a complex disease and is best managed by staff with specialist knowledge and experience both in the initial phase where diagnosis and acute treatment is a priority and subsequently during the period of rehabilitation.

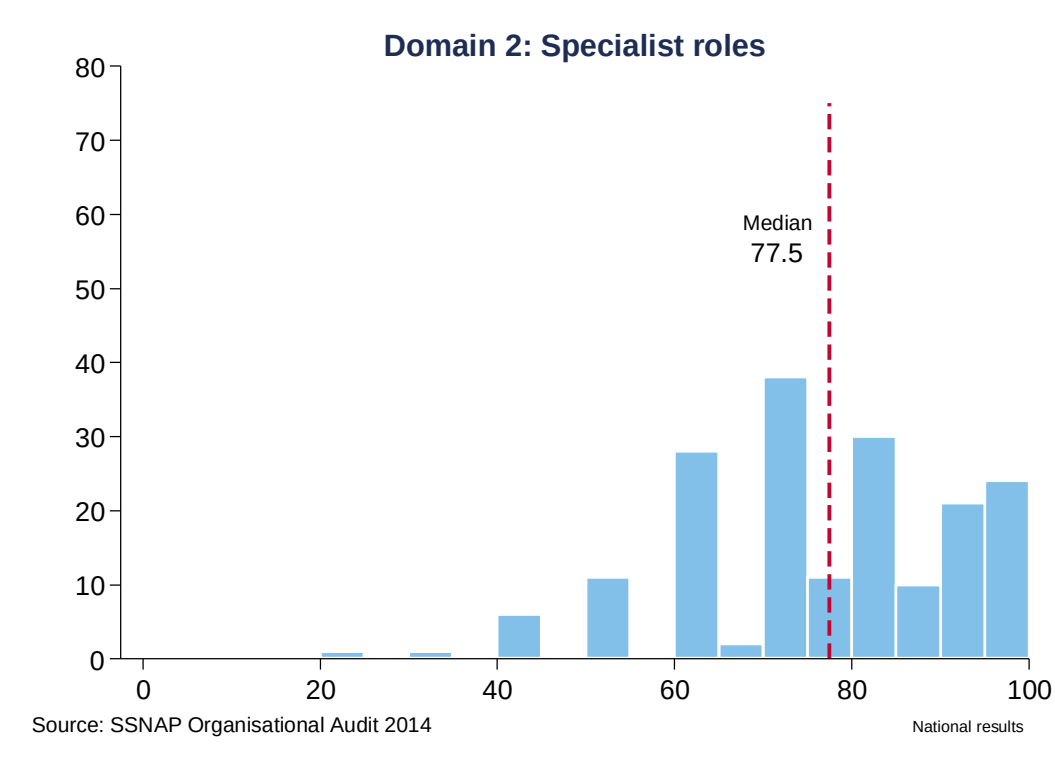
All patients who are dying from their stroke should have care provided by staff experienced in recognising the need for palliative care and delivering it.

	Your site		Maximum score if,
Frequency of consultant ward rounds per week*			on 7 days a week
Presence of senior nurses and therapists (band 7 or above) on the SU			Yes
Access within 5 days to social work expertise, orthotics, orthoptics, podiatry			Yes to all four specialties
Palliative care patients treated on the SU			Yes
Access to clinical psychologists and provision of following aspects of psychological care	**Inpatient**	**Outpatient**	
i. mood assessment ii. higher cognitive function assessment iii. mood treatment iv. higher cognitive function treatment v. non-cognitive behavioural problems assessment and/or treatment			Access and all five aspects of psychological care provided for inpatients and outpatients
i. Provision of service which supports stroke patients to remain in, return to or withdraw from work and/or ii. Provision of educational or vocational training			Yes to either services provided
Patients stay in bed until assessed by physiotherapist			No
Score domain 2			100

*16 sites which do not treat patients in the first 72 hours are removed from the denominator for this element of the domain i.e. they are scored out of 8 rather than 10.

The table below shows the range of scores for Domain 2. The median national score is 77.5.

Summary of domain scores	A	B	C	D	E
D2 Specialist roles	45 sites (25%) scored 90.0-100%	40 sites (22%) scored 80.0-89.9%	51 sites (28%) scored 65.0-79.9%	39 sites (21%) scored 50.0-64.9%	8 sites (4%) scored <50.0%



Domain 3 - Interdisciplinary services (stroke unit)

Standard: Effective multidisciplinary working is the most important aspect of stroke care. Staff should co-ordinate their treatments, involve patients and carers in the process and be able to provide as much therapy as the patient can tolerate.

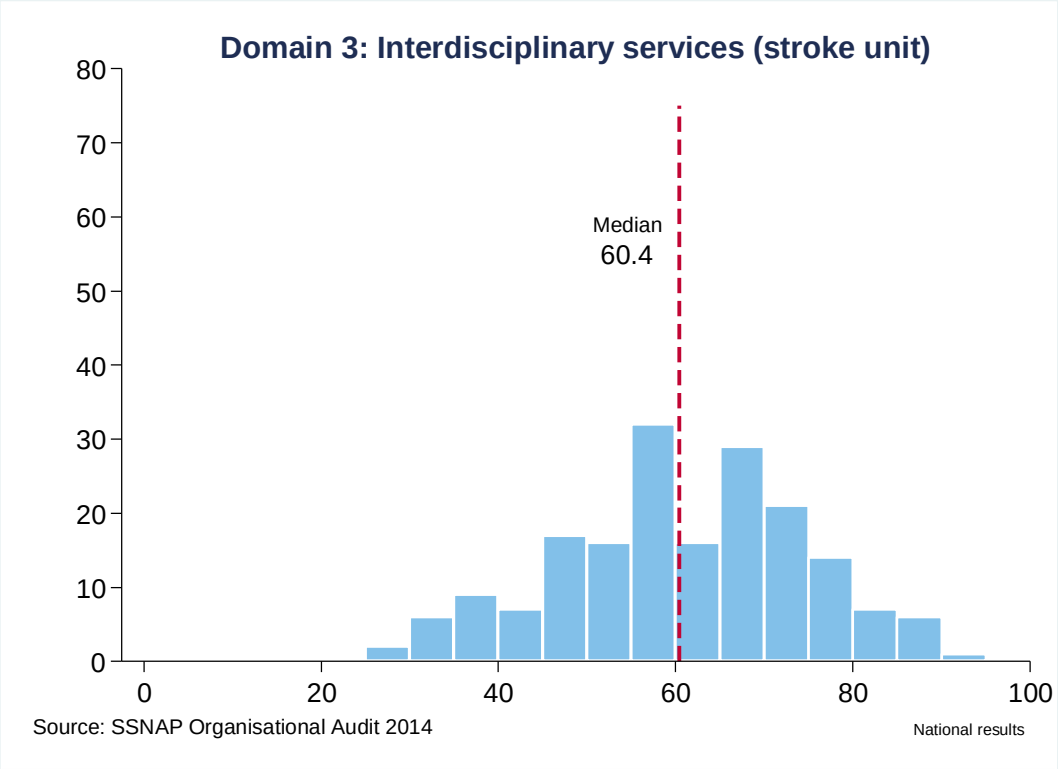
	Your site	Maximum score* if,
Qualified nurses on duty at 10 am weekdays per 10 SU beds		2.308 or more
Care assistants on duty at 10 am weekdays per 10 SU beds		1.702 or more
Qualified therapy staff availability in WTE (Whole Time Equivalents) per 10 SU beds:		
Clinical psychology		0.192 or more
Dietetics		0.286 or more
Occupational Therapy		1.500 or more
Physiotherapy		1.632 or more
Speech & Language Therapy		0.750 or more
Pharmacy		0.238 or more
6 or 7 day working for occupational therapy, physiotherapy, speech and language therapy		6 or 7 day working for at least 2 disciplines
Frequency of formal team meetings		more than twice a week
Disciplines that attend the team meetings**		8 disciplines
Score domain 3		100

* The scoring and position in the quartiles for each of the specialties is based on the 2014 site variation.
** Clinical psychology, Dietetics, Medicine (senior doctor), Nursing, Occupational Therapy, Physiotherapy, Social Work and Speech and Language Therapy.

Staffing levels have been grouped according to quartiles, where the first quarter represents the highest staffing levels and the fourth represents the lowest.

The table below shows the range of scores for Domain 3. The median national score is 60.4.

Summary of domain scores	A	B	C	D	E
D3 Interdisciplinary services	7 sites (4%) scored 85.0-100%	42 sites (23%) scored 70.0-84.9%	45 sites (25%) scored 60.0-69.9%	65 sites (36%) scored 45.0-59.9%	24 sites (13%) scored <45.0%



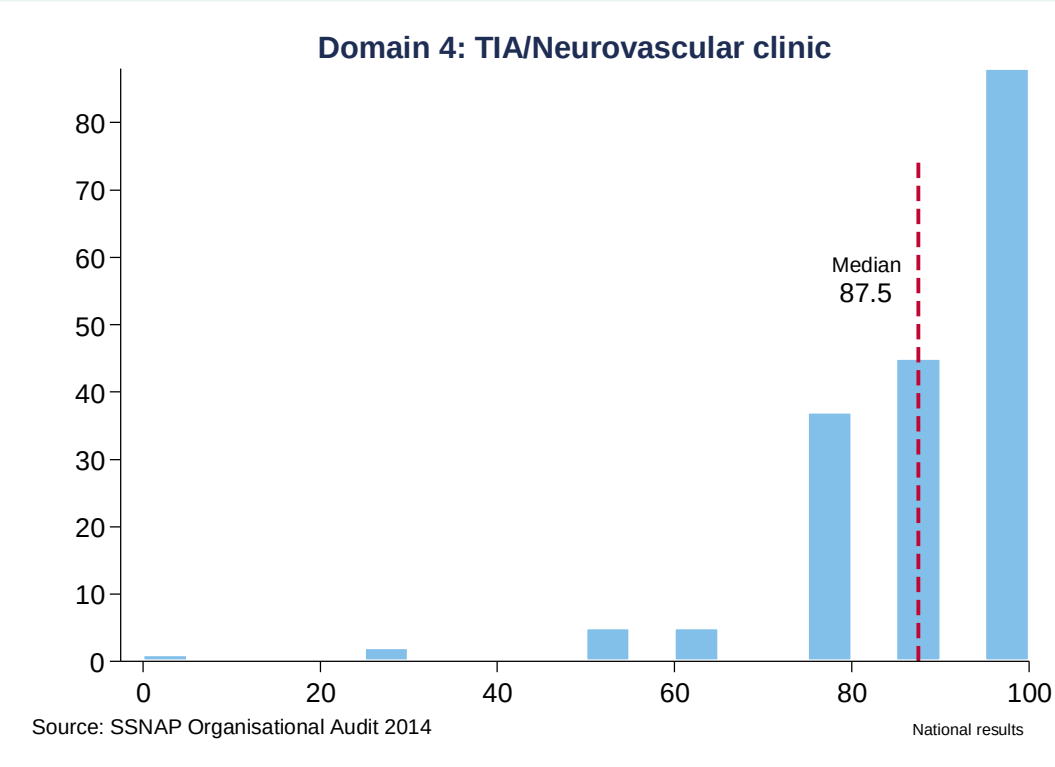
Domain 4 - TIA/ Neurovascular clinic

Standard: High-risk TIA patients should be seen, investigated and treatment initiated within 24 hours of onset of symptoms. For low-risk TIA patients the time frame is one week.

	Your site	Maximum score if,
TIA service can see, investigate & initiate treatment for ALL **HIGH**-RISK patients within 24 hours		Same or next day (7 days a week)
TIA service can see, investigate & initiate treatment for ALL **LOW**-RISK patients within one week		Within a week
Usual waiting time to get carotid imaging (**HIGH-RISK** TIA)		Same or next day (7 days a week)
Usual waiting time to get carotid imaging (**LOW-RISK** TIA)		Within a week
Score domain 5		100

The table below shows the range of scores for Domain 4. The median national score is 87.5.

Summary of domain scores	A	B	C	D	E
D4 TIA/Neurovascular clinic	88 sites (48%) scored 90.0-100%	45 sites (25%) scored 80.0-89.9%	37 sites (20%) scored 70.0-79.9%	5 sites (3%) scored 60.0-69.9%	8 sites (4%) scored <60.0%



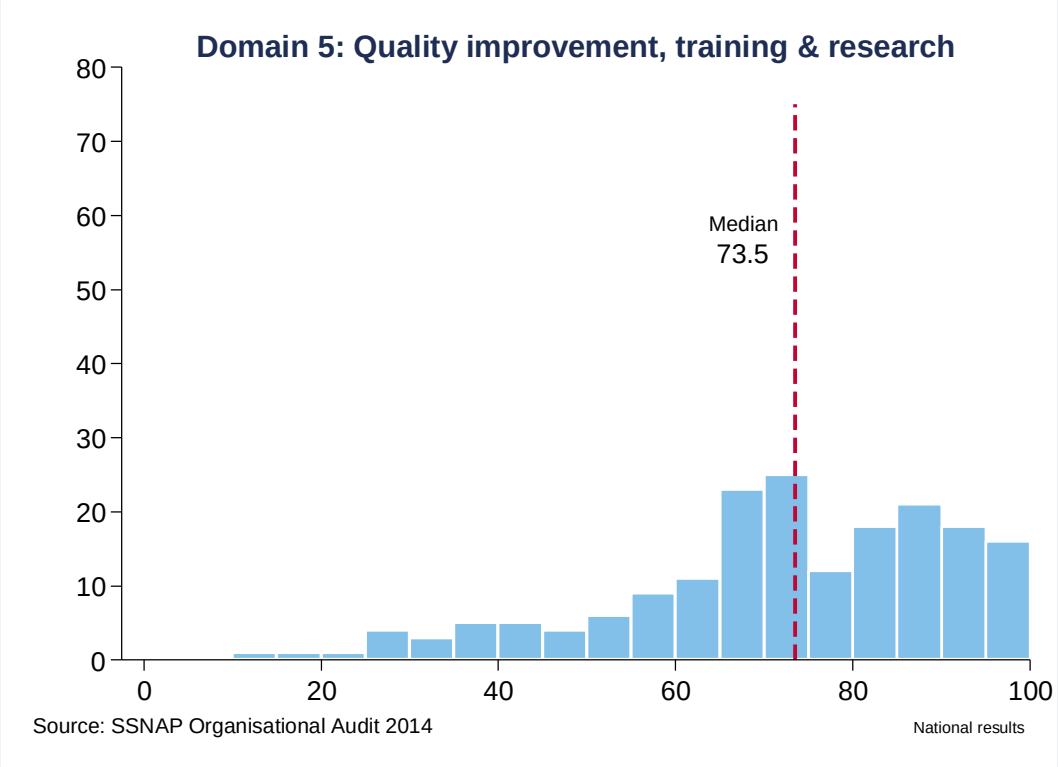
Domain 5 - Quality improvement, training & research

Standard: High quality leadership is the cornerstone for developing and delivering high quality stroke services. Poor quality services invariably have poor quality clinical and or managerial leaders.

	Your site	Maximum score if,
Report on stroke service produced for trust board (e.g. on audit results)		Yes
Members of strategic group responsible for stroke		
Ambulance trust representative		Yes
Clinician		Yes
Patient representative		Yes
PCT commissioner		Yes
Social services		Yes
Stroke Network representative		Yes
Trust board member		Yes
Funding for external courses available for nurses & therapists and at least 10 study days funded between April 2013 and March 2014		Yes
Clinical research studies		5 or more
Formal links with patients and carers organisations on ALL of the following: services provision, audit, and service reviews and future plans.		Yes
Patient/carer views sought on stroke services		Continuous or more than 4 times a year
Report produced within past 12 months which analysed views of patients		Yes
Score domain 5		100

The table below shows the range of scores for Domain 5. The median national score is 73.5.

Summary of domain scores	A	B	C	D	E
D5 Quality improvement, training & research	55 sites (30%) scored 85.0-100%	30 sites (16%) scored 75.0-84.9%	48 sites (26%) scored 65.0-74.9%	26 sites (14%) scored 50.0-64.9%	24 sites (13%) Scored <50.0%



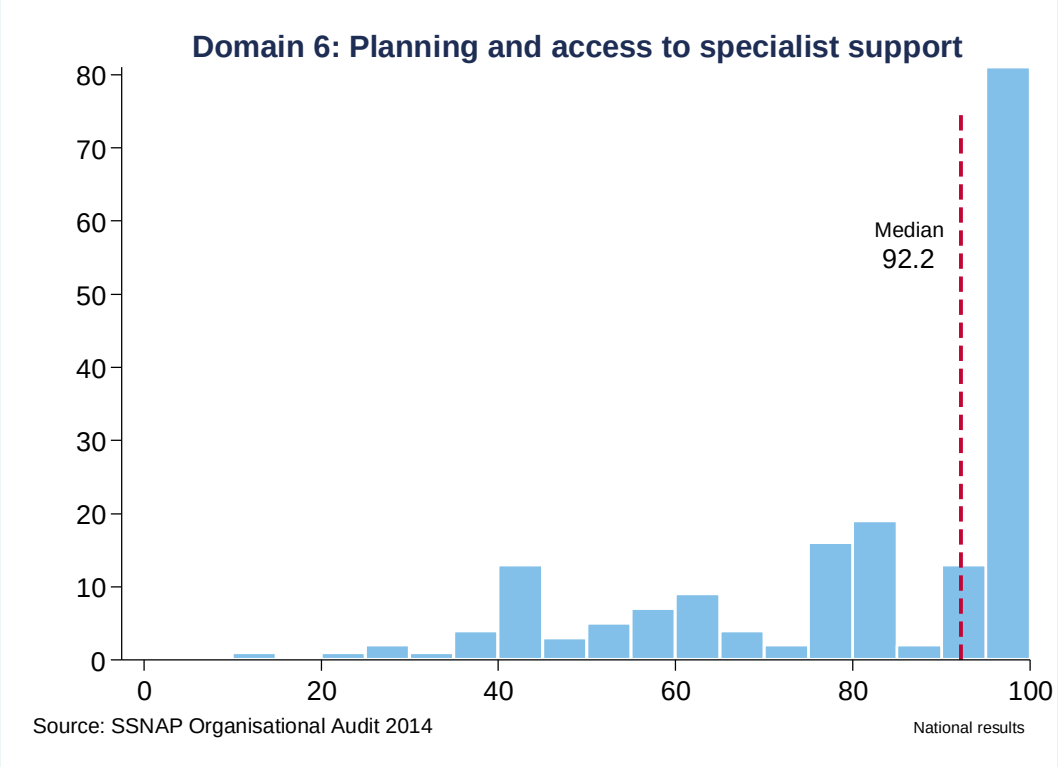
Domain 6 – Planning and access to specialist support

Standard: Patient and carers should be provided with comprehensive information about the services they may need and how to access them on discharge from hospital, as well as on how to prevent further strokes.

	Your site	Maximum score if,
Availability of patient information on each of the following topics for stroke units & outpatients		
• Patient version of national or local guidelines/standards		Yes on both
• Social services		Yes on both
• Benefits agencies		Yes on both
• Secondary prevention advice		Yes on both
Patients are given a personalised rehabilitation discharge plan		Yes
Access to a stroke/neurology specialist early supported discharge (ESD) multidisciplinary team		Yes
Access to a stroke/neurology specialist community team for longer term management		Yes
Score domain 6		100

The table below shows the range of scores for Domain 6. The median national score is 92.2.

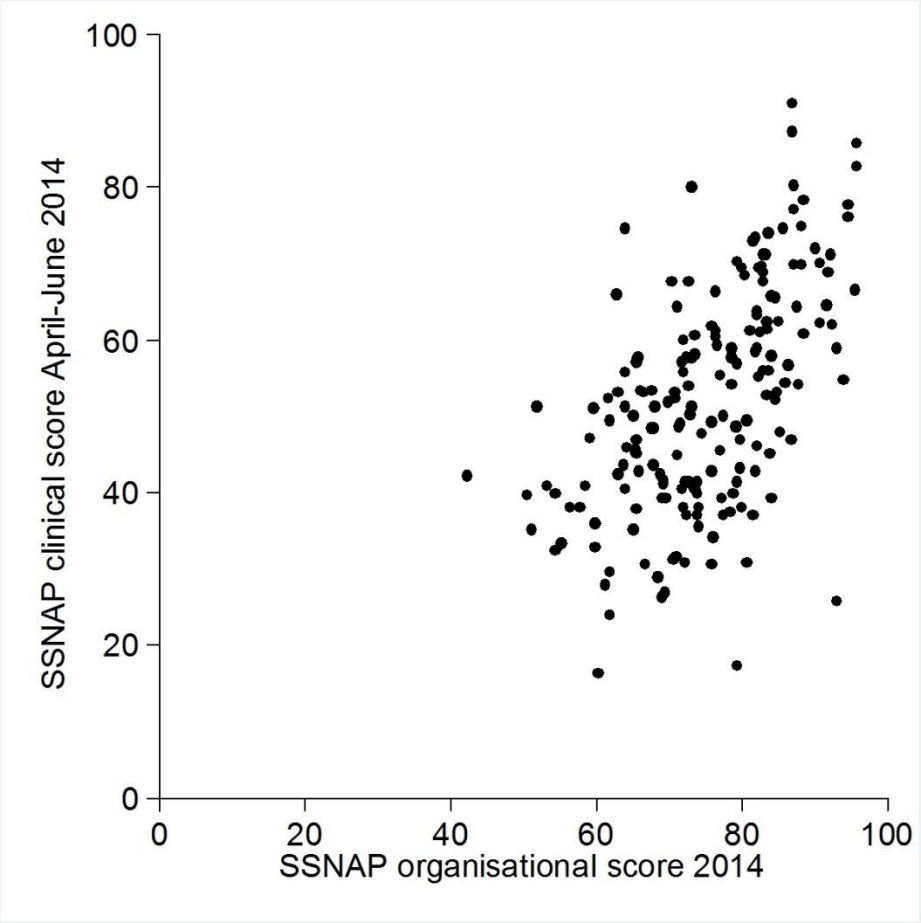
Summary of domain scores	A	B	C	D	E
D6 Planning & access to specialist support	94 sites (51%) scored 90.0-100%	37 sites (20%) scored 75.0-89.9%	15 sites (8%) scored 60.0-74.9%	12 sites (7%) scored 50.0-59.9%	25 sites (14%) scored <50.0%



2.3 National SSNAP Clinical Audit vs. Organisational Audit performance results

In addition to measuring the quality of stroke services through a biennial organisational audit, SSNAP prospectively measures the processes of stroke care for every patient through the longitudinal clinical audit. SSNAP clinical results are publically reported on a quarterly basis*. In the scatterplot below, the relationship between performance in the most recent SSNAP clinical report (April – June 2014) and the 2014 acute organisational audit (services on 1 July 2014) is shown.

It has been shown that patients admitted to stroke services with higher levels of organisation are more likely to receive high quality care and better outcomes (Bray et al 2013 www.ncbi.nlm.nih.gov/pubmed/24052511).
For the regression analysis of the SSNAP clinical April-June 2014 score and the SSNAP organisational overall score, the regression coefficient is 0.78 with a 95% CI of 0.61 to 0.95 p<0.001. This means that for every 1% the organisational score increases, the average increase in the clinical score was 0.78%.



*A suite of SSNAP quarterly reports, including named team results and interactive maps, can be accessed via the reporting portal: https://www.strokeaudit.org/results/national-results.aspx.

Section 3: Audit results for individual sites 2014

3.1 Overview of stroke services

Denominators for this section	
N sites	183
N hospitals covered by sites	206
N sites that treat some or all patients in the first 72 hours	167
Number of sites that do not treat patients in the first 72 hours	16
N sites with a stroke unit	183
N hospitals covered by sites with a stroke unit	206
N stroke units with beds *solely for the **first 72 hours** (Type 1 beds)*	75
N stroke units with beds *solely for **beyond** the first **72 hours** (Type 2 beds)*	99
N stroke units with beds *for **first 72 hours and beyond** (Type 3 beds)*	109

3.1.1 Who completed the organisational audit proforma? (QA.1)

	National (183 sites)		**Your site**
Doctor	83%	152	
Nurse	68%	124	
Manager	28%	52	
Therapist	36%	65	
Clinical Audit / Clinical Governance	25%	46	
Stroke coordinator	5%	10	
Stroke/Data analyst	2%	4	
Other*	5%	10	

*comprises Data administrator (2), (Stroke) Data officer (2), Information officer (1), Stroke (service) administrator (2), Secretary (1), Stroke data staff (1), Community stroke team (1)

3.1.2 Site description

Out of 183 sites participating in the audit, 90% (164) covered 1 hospital, 8% (15) covered 2 hospitals and 2% (4) covered 3 hospitals.

Your report covers stroke services in **XX** hospital(s):

3.1.3 Type of service provided overall

To take account of service reconfigurations, in particular the implementation of centralised models of hyperacute care, sites were asked about the extent to which they treat patients in the first 72 hours after stroke.

The SSNAP clinical audit produces a transfer tree for all acute providers in order for them to see their patient flow across different providers. This is included as a tab in the full clinical audit results portfolios. Sites are able to map their patient flow across different providers using this tool and it may be useful in terms of context for sites that do not treat patients in the first 72-hours (http://www.strokeaudit.org/results.aspx).

Care in the first 72 hours after stroke (Q1.1)	National (183 sites)		**Your site**
Care provided for ALL patients in the first 72 hours after stroke	83%	152	
Care provided for SOME stroke patients in first 72 hours after stroke	8%	15	
Care is NOT provided for patients within first 72 hours of stroke	9%	16	

There are 16 sites in the audit which do not treat patients within the first 72 hours of stroke.

Following this model of stroke care, these sites did not answer Section 1 of the organisational proforma which covers acute care (See appendix 2 for proforma). Nor did they answer any questions related to stroke beds used solely for the first 72 hours of stroke care (Section 2A) or beds used for both first 72 hour care and beyond (section 2E).

3.1.4 Type and number of stroke unit beds (Q2.1)

All 183 sites which participated in the audit had a stroke unit. Across these sites, there are a national total of 5250 stroke unit beds, median 26 per site and interquartile range (IQR) 20-36 per site.

The 183 sites were made up of 206 hospitals, of which 205 had stroke unit beds. 165 sites had stroke unit beds in one hospital, 14 in two hospitals and 4 in three hospitals. There is a median of 24 stroke unit beds and IQR 19-30 per hospital with a stroke unit.
Your site had TOTAL BEDS stroke unit beds in **XX** hospitals.

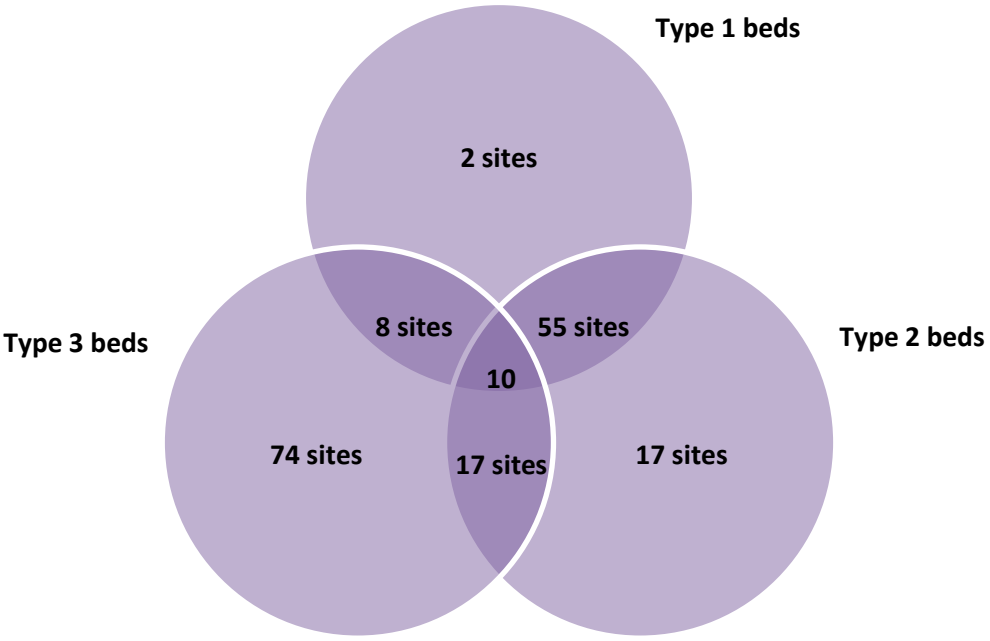
Type and number of SU beds (Q2.1)	Total N of beds	Site level			Your site
		%	N	Median (IQR)	
Beds solely used for patients in first 72 hours after stroke (Q2.1c)	National (167 sites)				
	681	45%	75	6 (4-12)	
Beds for pre- and post-72 hour care (Q2.1e)	2391	65%	109	22 (17-26)	
Beds solely used for patients beyond 72 hours (Q2.1d)	National (183 sites)				
	2178	54%	99	21 (16-26)	

Of the 183 sites with a stroke unit, 167 stated that they provide care to patients in the first 72 hours after stroke (from Q1.1). These sites were asked to provide information on the number of beds used *solely* for patients in the first 72 hours (Type 1 beds) and the number of beds used for *both* the first 72 hours and post 72 hour care (Type 3 beds). 16 sites stated that they do not treat patients in the first 72 hours so were not asked about these types of beds. All 183 sites were asked about the number of beds used solely for patients post 72 hours after stroke (Type 2 beds).

The table and diagram below show the number of sites with each 'type' of bed. The 'types' are not mutually exclusive i.e. sites can have more than one 'type'.

Key: Type 1: Beds *solely* for first 72 hours of care
Type 2: Beds *solely* for beyond 72 hours of care
Type 3: Beds for *both* first 72 hours of care and post 72 hour care

Combinations of 'types' of SU beds (183 sites):	% (N) of type of bed combinations		Median (IQR) of all SU beds	National Total of all SU beds (N = 5250)	Type of SU bed: National totals		
					Type 1 beds	Type 2 beds	Type 3 beds
Type 1 only	1%	(2)	16 (12-19)	31	31	0	0
Type 2 only	9%	(17)	22 (20-24)	356	0	356	0
Type 3 only	40%	(74)	22 (18-26)	1676	0	0	1676
Type 2 and Type 3	9%	(17)	36 (26-44)	597	0	254	343
Type 1 and Type 3	4%	(8)	27 (23-33)	224	35	0	189
Type 1 and Type 2	30%	(55)	32 (26-40)	1901	547	1354	0
Type 1, Type 2 and Type 3	5%	(10)	47 (39-53)	465	68	214	183


Type 1 beds
2 sites
Type 3 beds
8 sites
55 sites
Type 2 beds
10
74 sites
17 sites
17 sites

3.2 Presentation, assessment and initial treatment

The denominator for this section is 167 sites which provide care to patients in the first 72 hours after stroke.

3.2.1 Presentation at hospital (Q1.1, Q1.2, Q1.3)

NICE Quality Standard*:* People seen by ambulance staff outside hospital, who have sudden onset of neurological symptoms, are screened using a validated tool to diagnose stroke or transient ischaemic attack (TIA). Those people with persisting neurological symptoms who screen positive using a validated tool, in whom hypoglycaemia has been excluded, and who have a possible diagnosis of stroke, are transferred to a specialist acute stroke unit within 1 hour.

Ambulance	National (167 sites)	**Your site**
Arrangements in place with local ambulance services to FAST-Track (rapid blue light transfer to hospital) patients presenting with acute stroke who may be appropriate for thrombolysis (Q1.2)	99% (165)	
There is an agreed pathway for ambulance clinicians to transport appropriate patients directly to a stroke unit (Q1.3)	34% (56)	

Comment: FAST has become standard as pre-hospital screening for suspected stroke with 165/167 sites having a FAST-track pathway for potential thrombolysis patients. A third of hospitals now have a direct transfer policy from ambulance to stroke unit for suspected stroke patients bypassing Emergency departments all together.

3.2.2 Use of telemedicine (Q1.4)

National clinical guideline recommendation: A telemedicine service in an acute stroke unit should consist of:

- a video link which enables the stroke physician to observe a clinical examination and/or
- a telephone which enables the stroke physician to discuss the case with a trained assessing clinician and talk to the patient and carer directly.

All telemedicine services should have a link which enables the stroke physician to review radiological investigations remotely.

Telemedicine (Q1.4)	National		Your site
	2010 (201 sites)	2012 (176 sites)	2014 (167 sites)
Stroke unit uses telemedicine to allow remote access for management of acute stroke care.	33% (67)	61% (107)	70% (117)
If YES:			
Remote viewing for brain imaging is used	100% (67)	96% (103/107)	97% (113/117)
Video enabled clinical assessment is used	24% (16/67)	76% (81/107)	71% (83/117)
There is a telemedicine rota in operation with other hospitals	N/A	64% (69/107)	60% (70/117)

Groups of patients are assessed using telemedicine (Q1.4(c))	National (117 sites)	Your trust
Only patients potentially eligible for thrombolysis	68% (80)	
Some patients (regardless of eligibility for thrombolysis)	21% (25)	
All patients (who require assessment during times when telemedicine is in use)	10% (12)	

Comment: Whilst use of telemedicine has continued to grow, there is concern that it has not incorporated the use of video enabled clinical assessment (71% in 2014 compared with 76% 2012). In over two-thirds of cases currently, telemedicine is reserved for acute stroke patients as part of a thrombolysis treatment pathway only and in only 10% of services using telemedicine to assess *all* suspected stroke patients. All acute stroke patients need access to specialist stroke neurological diagnosis and opinion when they arrive at hospital.

3.3 Thrombolysis for stroke (Q1.5, Q1.6, Q1.7, Q1.8, Q1.9, Q1.10 and Q1.11)

Denominators for this section	
N sites providing care for patients in the first 72 hours	167
N sites currently providing thrombolysis onsite	151
N sites providing 24/7 thrombolysis onsite or through local arrangements	165
N sites providing 24/7 thrombolysis onsite	138
N sites providing <24/7 thrombolysis onsite	29
N sites with consultant on thrombolysis rota	149

NICE recommendations: Alteplase is recommended for the treatment of acute ischaemic stroke when used by physicians trained and experienced in the management of acute stroke. It should only be administered in centres with facilities that enable it to be used in full accordance with its marketing authorisation. (Alteplase TA122 2007).

Alteplase should be administered only within a well organised stroke service with:

- staff trained in delivering thrombolysis and in monitoring for any complications associated with thrombolysis
- level 1 and level 2 nursing care staff trained in acute stroke and thrombolysis
- immediate access to imaging and re-imaging, and staff trained to interpret the images.

Staff in A&E departments, if appropriately trained and supported, can administer alteplase for the treatment of acute ischaemic stroke provided that patients can be managed within an acute stroke service with appropriate neuroradiological and stroke physician support.

In the financial year April 2013 to March 2014, 11.6% (8607/74307) of all stroke patients entered into the SSNAP Clinical Audit were thrombolysed. Of those considered eligible for thrombolysis, based on the RCP national stroke guideline fourth edition, 74.3% were thrombolysed (7618/10250).

Thrombolysis availability (Q1.5)	National (167 sites)		Your site
Thrombolysis currently provided for stroke patients on site	90%	151	

Comment: As in 2012, 90% of hospitals providing care within the first 72h provide a thrombolysis service however in 2014 99% of hospitals now either offer on-site thrombolysis or else have a formal arrangement to transfer patients to a site that does offer it.

3.3.1 Level of Thrombolysis service (Q1.6, Q1.11d)

The table below summarises the service available be it on-site only or in collaboration with neighbouring sites.

Thrombolysis service offered	National (167 sites)		Your site
• 24/7 service provided on-site	83%	(138)	
• Less than 24/7 service provided on-site but a 24/7 service provided overall involving local arrangements	8%	(13)	
• No on-site service but a 24/7 service provided involving local arrangements	8%	(14)	
• Less than 24/7 service provided on-site, with no local arrangements	0%	(0)	
• Less than 24/7 service provided overall including local arrangements	0%	(0)	
• No onsite service and less than 24/7 service provided including local arrangements	1%	(1)	
• No provision at all	1%	(1)	

Level of thrombolysis service offered*		National (167 sites)	
Weekdays	24 hours per day	99%	(165)*
	9-23 hours per day	1%	(1)
	1-8 hours per day	0%	(0)
	0 hours per day	1%	(1)
Saturdays	24 hours per day	99%	(165)*
	9-23 hours per day	0%	(0)
	1-8 hours per day	0%	(0)
	0 hours per day	1%	(2)
Sundays / Bank Holidays	24 hours per day	99%	(165)*
	9-23 hours per day	0%	(0)
	1-8 hours per day	0%	(0)
	0 hours per day	1%	(2)

*These 165 sites provided a 24/7 service either onsite (n=138) or through local arrangements (n=27)

Change over time	National		
Level of thrombolysis service offered	2010 (201 sites)	2012 (179 sites)	2014 (167 sites)
24/7 service provided either on-site or off-site	50%	90%	99%
24/7 service provided on-site	28%	74%	83%
No provision at all	12%	2%	1%

Comment: With the increasing implementation of centralised models of hyperacute stroke care this may reduce the provision of onsite thrombolysis as thrombolysis services are concentrated in some parts of the country into larger single centres. There has been an increase to 83% of hospitals now providing on-site, 24/7 thrombolysis as opposed to a shared care arrangement and 99% of sites now provide 24/7 cover with either on-site or local arrangements. This is a significant improvement in access to thrombolytic therapy from only 50% in 2010.

3.3.2 Joint arrangements (Q1.10, Q1.11)

138 sites currently provided a 24/7 on-site thrombolysis service. The other 29 sites were asked about arrangements to provide cover.

	National (29 sites)		Your site
Your hospital has a formal bypass arrangement with the local ambulance service to take stroke patients to a hospital where a thrombolysis service is available (Q1.10)	90%	26/29	
(If YES), Start date of this arrangement (Q1.10a)	2013	8% (2/26)	
	2012	4% (1/26)	
	2011	35% (9/26)	
	Pre 2011	54% (14/26)	
There is an agreement with (an)other site(s) to provide thrombolysis for patients during the hours when your site does not provide it (Q1.11)	97%	28/29	

Out of the 28 sites which have a thrombolysis agreement, 13 provide some thrombolysis onsite. 5 out of these 13 sites have a joint on call medical rota for thrombolysis. The remaining 15 (out of 28) sites, which provide no onsite thrombolysis, were not asked about the joint on call medical rota.

3.3.3 Patient assessment for on-site thrombolysis (Q1.7)

Patient assessment for thrombolysis		National (151 sites)		Your site
'Normal Hours' (up to and including 10 consecutive hours on weekdays)	Consultant physician	72%	(108)	
	Registrar	62%	(94)	
	Lower grade doctor	22%	(33)	
	Stroke nurse or therapist band 8	11%	(17)	
	Stroke nurse or therapist band 7	54%	(81)	
	Stroke nurse or therapist band 6	59%	(89)	
	Stroke nurse or therapist band 5	9%	(14)	
'Out of Hours' (Weekend/ Bank Holidays and more than 10 hrs weekdays)	Consultant physician	44%	(67)	
	Registrar	68%	(102)	
	Lower grade doctor	20%	(30)	
	Stroke nurse or therapist band 8	4%	(6)	
	Stroke nurse or therapist band 7	28%	(42)	
	Stroke nurse or therapist band 6	45%	(68)	
	Stroke nurse or therapist band 5	11%	(16)	

3.3.4 Decision making for thrombolysis (Q1.8)

Decision making for thrombolysis		National (151 sites)		**Your site**
'Normal Hours' (up to and including 10 consecutive hours on weekdays)	Consultant physician in person	99%	(150)	
	Consultant physician via telemedicine	8%	(12)	
	Consultant physician via telephone	17%	(26)	
	Registrar	11%	(16)	
	Lower grade doctor	2%	(3)	
	Stroke nurse band 8	0%	(0)	
	Stroke nurse band 7	2%	(3)	
	Stroke nurse band 6	4%	(6)	
	Stroke nurse band 5	0%	(0)	
	Consultant as most senior	99%	(150)	

'Out of Hours' (Weekend/ Bank Holidays and more than 10 hrs weekdays)	Consultant physician in person	50%	(75)
	Consultant physician via telemedicine	61%	(92)
	Consultant physician via telephone	32%	(48)
	Registrar	10%	(15)
	Lower grade doctor	0%	(0)
	Stroke nurse band 8	0%	(0)
	Stroke nurse band 7	1%	(2)
	Stroke nurse band 6	2%	(3)
	Stroke nurse band 5	0%	(0)
	Consultant as most senior	94%	(142)

No sites during normal hours report that decision making for thrombolysis is undertaken solely by a consultant physician via telephone, but this is the case in 10 sites 'out of hours'.

Comment: Assessment and decision making for thrombolysis has changed little since 2012 in terms of staff groups involved, with an understandable difference between the percentage of sites with consultant in person decision making in hours (99%), and out of hours (50%). However consultant led thrombolysis using telephone only remains a very questionable practice in terms of speed, effectiveness and safety when compared to onsite presence or video enabled telemedicine. The responsible thrombolysis decision maker needs to be clear on the diagnosis of stroke, timing of onset of symptoms, results of brain imaging and the presence of contraindications. There needs to be clear clinical governance around such arrangements.

3.3.5 Specialty on a thrombolysis rota (Q1.9)

Consultant level doctors on an on call thrombolysis rota	National (151 sites) Median	IQR	Your site
Number of consultant level doctors on a thrombolysis rota*	6	3-8	
Specialty on thrombolysis rota	**% of sites**	**n of sites**	**Your site**
Stroke physician	85%	128/151	
Neurologist	29%	44/151	
Care of the elderly	34%	51/151	
Cardiologist	4%	6/151	
General medicine physician	9%	14/151	
A&E	7%	10/151	
Acute Physician	15%	23/151	
Other	2%	3/151	
No consultant	1%	2/151	

*2 of the 151 sites had no consultant level doctors on the thrombolysis rota. 26 sites had 10 or more consultant level doctors on the thrombolysis rota.

Consultant specialty on thrombolysis rota	National (151 sites)	National total of consultants across sites
Stroke physician	85%	409
Neurologist	29%	153
Care of the elderly	34%	145
Cardiologist	4%	11
General medicine physician	9%	48
A&E	7%	39
Acute Physician	15%	47
Other	2%	3
No consultant	1%	
Total		855

Comment: A broad range of consultant specialities continue to support thrombolysis rotas with the majority being stroke and care of the elderly physicians. It is important that all those participating are confident and competent in stroke thrombolysis – which can be challenging when managing and diagnosing acute stroke is not part of the consultants' regular daytime job plan. BASP has defined definitions for physicians with stroke skills which should be the minimum applicable criteria for any doctors supervising a thrombolysis decision. The Health Technology Appraisal 2002 also supports this by recommending that administration of acute stroke treatments such as thrombolysis should be carried out only by stroke specialists (stroke team or neurologist) who have received specific training on how to do so.

The median number of doctors on a thrombolysis rota remains 6 – so almost half of rotas have fewer than 6 consultants. Shortfalls in current consultant stroke physician appointments (see Workforce Planning, page 80) will make addressing this challenging in the short term.

3.3.6 Intra-arterial neuroradiology (Q1.12)

Large artery occlusive stroke in general is associated with higher NIHSS score on presentation and a worse prognosis. Intra-arterial clot removal (IA thrombectomy or IAT) in acute large artery occlusive stroke is an exciting but as yet unproven treatment. Indeed where thrombolysis is contraindicated IAT offers the only realistic option to achieve recanalisation of the occluded artery. Currently, relatively small numbers of patients are treated in specialist neuroscience centres, some within randomised trials. This is a new section of the audit which aims to ascertain accurately the current levels of IAT activity, document key parts of the IAT process/care pathways and the NHS workforce required. As such it will have a pivotal role in informing future service provision.

Use of intra-arterial (e.g. thrombectomy) to treat patients with acute stroke (1.12)	National (167 sites)		Your site
Does your site use intra-arterial treatment	Yes	13% (21)	
	Yes, by referral	42% (70)	
	No	46% (76)	

If yes	National (21 sites)	Your site
What hours is the service available? (1.12(a)		
Monday – Friday, 9am-5pm	67% (14)	
Monday – Friday, extended hours	14% (3)	
Extended hours including weekends	14% (3)	
24 hours a day, 7 days a week	5% (1)	
How is large artery occlusive stroke detected at your site? (1.12(b)	National (21 sites)	
Not specifically done	0% (0)	
Analysis of non-contrast CT	0% (0)	
CTA (MRA) by ad hoc request	29% (6)	
CTA (or MRA) by local protocol	71% (15)	

	National (21 sites)	Your site
How many interventionists undertake stroke thrombectomy at your/the referral site? (1.12(c))	3 (2-4), 61	
Does this centre participate in a multisite rota for Interventional Neuroradiology procedures? (1.12(d))	19% Yes (4/21)	
How many patients presented to your site with acute stroke were treated intra-arterially between April 1, 2013 and March 31, 2014 (1.12(e))	11 (5-17), 295	
If >1	National (21 sites)	Your site
How were these procedures performed?		
All performed under General Anaesthetic	29% (6)	
All performed under conscious sedation	14% (3)	
Mixture of both techniques (1.12(f))	57% (12)	
Was clinical data for ALL of these patients:		
Collected as part of a randomised trail	29% (6)	
Entered onto an international registry	57% (12)	
Neither of the above (1.12(g))	29% (6)	

Comment: Endovascular treatment for acute stroke (Intra-arterial thrombolysis and or mechanical clot retrieval) remains an exciting but as of yet, unproven treatment. Very small numbers of patients are currently being treated nationally. Appropriate patients should be offered treatment in specialist centres as part of a randomised clinical trial and outcomes published in a registry such as SITS-TBY. It is concerning that nearly 30% of sites using intra-arterial treatments are neither entering them in to a trial nor submitting data to a registry. These sites urgently need to address the clinical governance issues around delivering unproven treatments.

3.4 Stroke units

NICE Quality Standard: Patients with suspected stroke are admitted directly to a specialist acute stroke unit and assessed for thrombolysis, receiving it if clinically indicated.

All of the 183 sites had a stroke unit.

Sites were asked about different 'types' of stroke unit beds. These 'types' were not mutually exclusive i.e. sites could have more than one type of bed. The terminology used in this section adheres to the following key.

Key: Type 1 beds: Beds *solely* for first 72 hours of care
Type 2 beds: Beds *solely* for beyond 72 hours of care
Type 3 beds: Beds for *both* first 72 hours of care and post 72 hour care

Denominators for this section	
N sites	183
N sites with a stroke unit	183
N sites with stroke unit that treat some or all patients in the first 72 hours	167
N sites with stroke unit that do not treat patients in the first 72 hours	16
N stroke units with Type 1 beds	75
N stroke units with Type 2 beds	99
N stroke units with Type 3 beds	109

3.4.1 Service provided on stroke units in the first 72 hours after stroke (Q2.1)

167 sites which provide care to patients within the first 72 hours after stroke were asked about the service they provide during this acute phase.

Of these 167 sites, 75 have beds used solely for patients in the first 72 hours (Type 1 beds) and 109 have beds used for both the first 72 hours of care and beyond (Type 3 beds).

Patient admission to stroke unit (Q2.3, Q2.19)

Description of direct admission of patients to Type 1 stroke unit beds (Q2.3, 2.19)	National		Your site	
	Type 1 beds (75 SUs)	Type 3 beds (109 SUs)	**Type 1 beds**	**Type 3 beds**
All patients are always directly admitted	16% (12)	10% (11)		
All patients are directly admitted except for those who have another predominant acute condition which demands management on another ward	48% (36)	39% (43)		
All patients are directly admitted except for when there is not a bed available in the stroke unit	35% (26)	45% (49)		
Only those patients who may be eligible for thrombolysis are directly admitted	0% (0)	0% (0)		
Only those who receive thrombolysis are directly admitted	0% (0)	0% (0)		
Some patients are directly admitted but not as outlined in any of the categories above	1% (1)	3% (3)		
Patients are never directly admitted to the stroke unit	0% (0)	3% (3)		

Availability of direct admission to Type 1 stroke unit beds (Q2.3a; 2.19a)	National		Your site	
	Type 1 beds (75 SUs)	Type 3 beds (109 SUs)	**Type 1 beds**	**Type 3 beds**
Weekdays (hours per day)				
• 0	0% (0)	3% (3)		
• 8	1% (1)	0% (0)		
• 10	0% (0)	0% (0)		
• 24	99% (74)	97% (106)		
Saturdays (hours per day)				
• 0	3% (2)	3% (3)		
• 24	97% (73)	97% (106)		
Sundays /Bank Holidays (hours per day)				
• 0	3% (2)	3% (3)		
• 24	97% (73)	97% (106)		

Comment: Nearly all sites have a direct admission policy to stroke units which is the standard recommended in all recent national guidelines although as in 2012, there are still three units where this is not the case. Direct admission exists in almost all sites 24/7 and the number of sites with exclusion criteria for patients accessing acute stroke unit care has reduced to three.

Admission exclusion criteria for stroke units (Q2.2, Q2.18)

Stroke unit exclusion criteria (Q2.2a, 2.18a)	National			**Your site**	National			**Your site**
	Type 1 beds			**Type 1 beds**	Type 3 beds			**Type 3 beds**
	2010 (75 SUs)	2012 (83 SUs)	2014 (75 SUs)	**2014**	2010 (146 SUs)	2012 (122 SUs)	2014 (109 SUs)	**2014**
Type of exclusion criteria used	7% (5)	5% (4)	**<1% (3)**		6% (9)	0% (0)	**(0)**	
• Age-related	(0)	(0)	**(0)**		(0)	N/A	**(0)**	
• Stroke severity	(0)	(0)	**(0)**		(1)	N/A	**(0)**	
• Pre-existing dementia	(0)	(1)	**(0)**		(1)	N/A	**(0)**	
• No rehabilitation potential	(1)	(1)	**(1)**		(2)	N/A	**(0)**	
• End of life care	(5)	(3)	**(2)**		(8)	N/A	**(0)**	

Continuous physiological monitoring (Q2.4, Q2.20)

Continuous physiological monitoring	National		**Your site**	
	Type 1 beds (75 stroke units)	Type 3 beds (109 stroke units)	**Type 1 beds**	**Type 3 beds**
% of beds with Continuous physiological monitoring (ECG, oximetry, blood pressure) (Q2.4, 2.20)	Median 100% IQR 80-100%	Median 20% IQR 13-29%		

Ward rounds (Q2.5, Q2.13)

	National		**Your site**	
Frequency of stroke consultant ward rounds (days per week) (Q2.5, 2.21)	Type 1 beds (75 stroke units)	Type 3 beds (109 stroke units)	**Type 1 beds**	**Type 3 beds**
National	7DAYS: 64% (48) 5-6DAYS: 33% (25) <5DAYS: 3% (2)	7DAYS: 30% (33) 5-6DAYS: 61% (66) <5DAYS: 9% (10)		

Comment: Over 90% of units have 5 day a week or more consultant ward rounds. Seven day consultant ward rounds have increased to almost two-thirds of Type 1 beds. The HASU model of care requires this to be 100% to ensure all patients with suspected stroke are reviewed by a stroke consultant on a post emergency admission ward round.

Acute criteria on stroke units (Q2.3-2.7, Q2.9; Q2.19-2.21, Q2.23, 2.25)

National clinical guideline recommendation: All hospitals receiving acute medical admissions that include patients with potential stroke should have arrangements to admit them directly to a specialist acute stroke unit (onsite or at a neighbouring hospital) to monitor and regulate basic physiological functions such as blood glucose, oxygenation, and blood pressure.

Acute criteria for stroke unit beds	National (75 stroke units) Type 1 beds	National (109 stroke units) Type 3 beds
Number of Acute criteria	37% (28/75) with all 7 31% (23/75) with 6 25% (19/75) with 5 5% (4/75) with 4 0% (0/75) with 3 1% (1/75) with 2 0% (0/75) with <2 **YOUR SITE: «pre72_total»**	17% (18/109) with all 7 39% (42/109) with 6 34% (37/109) with 5 9% (10/109) with 4 0% (0/109) with 3 2% (2/109) with 2 0% (0/109) with <2 **YOUR SITE: «mixed_total»**

Acute criteria for stroke unit beds	National (75 stroke units) Type 1 beds	National (109 stroke units) Type 3 beds
a) % of beds with **continuous physiological monitoring** (ECG, oximetry, blood pressure) (Q2.4, Q2.20)	Criterion is 100% of beds are monitored MET BY 72% (54/75) **YOUR SITE:**	Criterion is at least 1 monitored bed MET BY 88% (96/109) **YOUR SITE:**
b) **Immediate access to scanning** for urgent stroke patients (Q2.6, Q2.22)	YES for 99% (74/75) **YOUR SITE:**	YES for 99% (108/109) **YOUR SITE:**
c) **Admission procedure** to stroke unit (Q2.3, Q2.19)	64% (48/75)* **YOUR SITE:**	50% (54/109) **YOUR SITE:**
d) **Specialist ward rounds on 7 days a week** (Q2.5, Q2.21)	Criterion is 7 days a week MET BY 64% (48/75) **YOUR SITE:**	Criterion is 7 days a week MET BY 30% (33/109) **YOUR SITE:**
e) **Acute stroke protocols/guidelines for these beds** (Q2.7, Q2.23)	YES for 99% (74/75) **YOUR SITE:**	YES for 99% (108/109) **YOUR SITE:**
f**) Nurses trained in swallow screening** (Q2.9i, Q2.25i)	At least one on at 10am, 7 days a week MET BY 99% (74/75) **YOUR SITE:**	At least one on at 10am, 7 days a week MET BY 96% (105/109) **YOUR SITE:**
g) **Nurses trained in stroke assessment and management** (Q2.9ii, Q2.25ii)	At least one on at 10am, 7 days a week MET BY 100% (75/75) **YOUR SITE:**	At least one on at 10am, 7 days a week MET BY 95% (103/109) **YOUR SITE:**

* criterion is either i) All patients are always directly admitted or ii) All patients are directly admitted, except for those who have another predominant acute condition which demands management on another ward

The percentages in this table show how many sites, of those achieving a given number of the acute criteria, are achieving each individual criterion. The shading shows cells with less than 75% of sites achieving the criterion.

Comment: Compliance with the acute quality criteria on stroke units have improved in relative terms but still the vast majority fall below the gold standard of meeting all 7 criteria. Type 1 beds only meet this in 37% of cases and Type 3 beds in 17% – which needs to be addressed through service specification and commissioning to make a significant step change. Most units fall down on organisational issues such as stroke unit admission procedures and weekend stroke consultant ward rounds.

7 Acute criteria (Type 1 beds)

Number of criteria	Number of sites	All beds with monitoring	immediate access to scanning	Admission procedure	Specialist ward rounds 7 days a week	Acute stroke protocols/guidelines	Nurses trained in swallow screening	Nurses trained in stroke assessment & management
2	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (100%)	1 (100%)
3	0 (0%)	.	.	.	.	.	.	.
4	4 (5%)	0 (0%)	4 (100%)	0 (0%)	0 (0%)	4 (100%)	4 (100%)	4 (100%)
5	19 (25%)	11 (58%)	19 (100%)	4 (21%)	5 (26%)	19 (100%)	18 (95%)	19 (100%)
6	23 (31%)	15 (65%)	23 (100%)	16 (70%)	15 (65%)	23 (100%)	23 (100%)	23 (100%)
7	28 (37%)	28 (100%)	28 (100%)	28 (100%)	28 (100%)	28 (100%)	28 (100%)	28 (100%)

For Type 1 beds

- Immediate access to scanning, acute stroke protocols/guidelines and nurses trained in swallow screening and stroke assessment and management on duty at 10am 7 days a week appear to be the most readily achieved.
- Beds with monitoring, direct admission to the stroke unit, and specialist ward rounds 7 days a week appear to be the most difficult criteria to achieve.

7 Acute criteria (Type 3 beds)

Number of criteria	Number of sites	At least 1 monitored bed	immediate access to scanning	Admission procedure	Specialist ward rounds 7 days a week	Acute stroke protocols/guidelines	Nurses trained in swallow screening	Nurses trained in stroke assessment & management
2	2 (2%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)	2 (100%)	0 (0%)	0 (0%)
3	0 (0%)	.	.	.	.	.	.	.
4	10 (9%)	4 (40%)	10 (100%)	0 (0%)	0 (0%)	9 (90%)	9 (90%)	8 (80%)
5	37 (34%)	34 (92%)	36 (97%)	5 (14%)	1 (3%)	37 (100%)	37 (100%)	35 (95%)
6	42 (39%)	40 (95%)	42 (100%)	31 (74%)	14 (33%)	42 (100%)	41 (98%)	42 (100%)
7	18 (17%)	18 (100%)	18 (100%)	18 (100%)	18 (100%)	18 (100%)	18 (100%)	18 (100%)

For Type 3 beds

- Immediate access to scanning, having acute stroke protocols/guidelines for these beds appear to be the criteria most readily achievable but this is not universal.
- Direct admission to the stroke unit, at least 1 monitored bed and specialist ward rounds 7 days a week appear to be the most difficult criteria to achieve.

3.4.2 Service provided on stroke units beyond the first 72 hours

Out of 183 sites with stroke units, 99 have beds used solely for patients beyond 72 hours (Type 2 beds).

Admission exclusion criteria (Q2.12)

Stroke unit admission exclusion criteria (Q2.12a)	National Type 2 beds			**Your site Type 2 beds**
	2010 (87 units)	2012 (93 units)	2014 (99 units)	**2014**
Type of exclusion criteria used	20% (17)	5% (5)	8% (8)	
• Age-related	(0)	(0)	(1)	
• Stroke severity	(4)	(0)	(1)	
• Pre-existing dementia	(3)	(1)	(1)	
• No rehabilitation potential	(11)	(3)	(6)	
• End of life care	(15)	(4)	(5)	

Comment: Exclusion criteria for Type 2 beds (post 72 hours) cannot be condoned or justified. No patient should be excluded on the basis of age, stroke severity or co-morbidity. Rehabilitation potential is difficult to predict early after stroke and even if uncertain or thought to be poor, stroke unit multidisciplinary teams are best placed to provide disability management and inform transfer of care arrangements for severely affected stroke patients. There has been an increase in the number of stroke units using exclusion criteria since 2012. We ask the eight dedicated post-acute stroke units which currently have exclusion criteria, to reconsider.

Ward rounds (Q2.13)

Frequency of stroke consultant ward rounds (days per week) (Q2.13)	National Type 2 beds (99 units)	**Your site** **Type 2 beds**
	7DAYS: 9% (9) 5-6DAYS: 60% (59) <5DAYS: 31% (31)	

Comment: Stroke consultant ward round frequency for Type 2 beds has reduced slightly since 2012 from 77% having at least 5 days a week rounds to 69% now.

3.4.3 Staffing on ALL types of stroke units (Q2.8, Q2.9, Q2.14, Q2.15, Q2.24, Q2.25)

NICE Quality Standard: Patients with stroke are assessed and managed by stroke nursing staff and at least one member of the specialist rehabilitation team within 24 hours of admission to hospital, and by all relevant members of the specialist rehabilitation team within 72 hours, with documented multidisciplinary goals agreed within 5 days.

National clinical guideline recommendations: Each stroke rehabilitation unit and service should be organised as a single team of staff with specialist knowledge and experience of stroke and neurological rehabilitation including:

- consultant physician(s), nurses, physiotherapists, occupational therapists, speech and language therapists, dieticians, clinical psychologists, social workers
- easy access to services providing: pharmacy; orthotics; orthoptists; specialist seating; patient information; advice and support; and assistive devices.

The denominator for this section is 183 sites with a stroke unit. Nursing staff results were asked also by type of stroke unit bed. Data are presented as ratios of staff per ten stroke unit beds. For reference, the median (IQR) number of beds is given below.

Number of stroke unit beds	Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Median (IQR)	26 (20-36)	6 (4-12)	21 (16-26)	22 (17-26)

Number of nurses and care assistants on duty at 10am (Q2.8, 2.14, 2.24)

Registered nurses usually on duty at 10am (Q2.8(i), 2.14(i) & 2.24(i))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of nurses	5 (4-7)	3 (2-3)	3 (2-5)	4 (3-5)
	Median (IQR) number per 10 beds	1.9 (1.7-2.3)	3.3 (2.5-5.0)	1.7 (1.4-2.1)	1.8 (1.5-2.2)
	Your site per 10 beds				
Saturdays	Median (IQR) number of nurses	5 (4-7)	2 (2-3)	3 (2-4)	4 (3-5)
	Median (IQR) number per 10 beds	1.8 (1.6-2.2)	3.3 (2.5-5.0)	1.7 (1.3-2.0)	1.7 (1.5-2.1)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of nurses	5 (4-7)	2 (2-3)	3 (2-4)	4 (3-5)
	Median (IQR) number per 10 beds	1.8 (1.6-2.2)	3.3 (2.5-5.0)	1.7 (1.3-2.0)	1.7 (1.5-2.1)
	Your site per 10 beds				

Care assistants (CAs) usually on duty at 10am (Q2.8(ii), 2.14(ii) & 2.24(ii))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of CAs	4 (3-5)	1 (1-2)	3 (2-4)	3 (2-4)
	Median (IQR) per 10 beds	1.5 (1.3-1.7)	1.5 (0.8-2.3)	1.4 (1.2-1.8)	1.5 (1.3-1.8)
	Your site per 10 beds				
Saturdays	Median (IQR) number of CAs	4 (3-5)	1 (1-2)	3 (2-4)	3 (2-4)
	Median (IQR) number per 10 beds	1.5 (1.3-1.7)	1.3 (0.8-2.0)	1.5(1.2-1.8)	1.5 (1.3-1.7)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of CAs	4 (3-5)	1 (1-2)	3 (2-4)	3 (2-4)
	Median (IQR) number 10 beds	1.5 (1.3-1.7)	1.3 (0.8-2.0)	1.5 (1.2-1.8)	1.5 (1.3-1.7)
	Your site per 10 beds				

Nurses and care assistants usually on duty at 10am (2.8(i) & (ii), 2.14 (i) & (ii) & 2.24 (i) & (ii))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number nurses and care assistants	9 (7-12)	4 (3-5)	7 (5-8)	7 (6-9)
	Median (IQR) number per 10 beds	3.5 (3.0-3.9)	5.0 (3.9-6.7)	3.2 (2.9-3.6)	3.3 (2.9-3.8)
	Your site per 10 beds				
Saturdays	Median (IQR) number nurses and care assistants	9 (7-12)	4 (2-5)	6 (5-8)	7 (6-8)
	Median (IQR) number per 10 beds	3.3 (3.0-3.7)	5.0 (3.8-6.3)	3.1 (2.9-3.5)	3.2 (2.8-3.6)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number nurses and care assistants	9 (7-12)	4 (2-5)	6 (5-8)	7 (6-8)
	Median (IQR) number per 10 beds	3.3 (3.0-3.7)	5.0 (3.8-5.6)	3.1 (2.9-3.5)	3.2 (2.8-3.6)
	Your site per 10 beds				

Number of nurses and care assistants on duty at 10pm (Q2.10, 2.16, 2.26)

Registered nurses usually on duty at 10pm (2.10(i), 2.16(i) & 2.26(i))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of nurses	3 (2-5)	2 (2-3)	2 (2-3)	2 (2-3)
	Median (IQR) number per 10 beds	1.3 (1.0-1.7)	3.0 (1.7-3.9)	1.2 (0.9-1.4)	1.2 (0.9-1.5)
	Your site per 10 beds				
Saturdays	Median (IQR) number of nurses	3 (2-5)	2 (2-3)	2 (2-3)	2 (2-3)
	Median (IQR) number per 10 beds	1.3 (1.0-1.7)	3.0 (1.7-3.9)	1.2 (1.0-1.4)	1.2 (0.9-1.5)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of nurses	3 (2-5)	2 (1-3)	2 (2-3)	2 (2-3)
	Median (IQR) number per 10 beds	1.3 (1.0-1.7)	3.0 (1.7-3.9)	1.2 (1.0-1.4)	1.2 (0.9-1.5)
	Your site per 10 beds				

Care assistants (CAs) usually on duty at 10pm (2.10(ii), 2.16(ii) & 2.26(ii))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of CAs	2 (2-3)	1 (0-1)	2 (1-2)	2 (1-2)
	Median (IQR) per 10 beds	0.9 (0.7-1.2)	1.0 (0.0-1.7)	0.9 (0.6-1.3)	0.9 (0.7-1.1)
	Your site per 10 beds				
Saturdays	Median (IQR) number of CAs	2 (2-3)	1 (0-1)	2 (1-2)	2 (1-2)
	Median (IQR) number per 10 beds	0.9 (0.7-1.2)	1.0 (0.0-1.7)	0.9 (0.6-1.3)	0.9 (0.7-1.1)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of CAs	2 (2-3)	1 (0-1)	2 (1-2)	2 (1-2)
	Median (IQR) number 10 beds	0.9 (0.7-1.2)	1.0 (0.0-1.7)	0.9 (0.6-1.3)	0.9 (0.7-1.1)
	Your site per 10 beds				

Nurses and care assistants usually on duty at 10pm (2.10(i) & (ii), 2.16 (i) & (ii) & 2.26 (i) & (ii))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number nurses and care assistants	5 (4-8)	3 (2-4)	4 (3-5)	4 (3-5)
	Median (IQR) number per 10 beds	2.2 (1.9-2.6)	4.2 (2.7-5.0)	2.1 (1.7-2.5)	2.1 (1.7-2.5)
	Your site per 10 beds				
Saturdays	Median (IQR) number nurses and care assistants	5 (4-8)	3 (2-4)	4 (3-5)	4 (3-5)
	Median (IQR) number per 10 beds	2.2 (1.9-2.6)	4.2 (2.7-5.0)	2.1 (1.7-2.5)	2.1 (1.7-2.5)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number nurses and care assistants	5 (4-8)	3 (2-4)	4 (3-5)	4 (3-5)
	Median (IQR) number per 10 beds	2.2 (1.9-2.6)	4.2 (2.7-5.0)	2.1 (1.7-2.5)	2.1 (1.7-2.5)

Number of specially trained nurses (Q2.9, 2.15, 2.25)

Nurses trained in **swallow screening** usually on duty at 10am (2.9(i), 2.15(i) & 2.25(i))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of nurses	4 (2-5)	2 (1-3)	2 (1-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.4 (0.9-1.9)	2.5 (1.7-3.3)	1.1 (0.6-1.7)	1.4 (0.9-1.9)
	Your site per 10 beds				
Saturdays	Median (IQR) number of nurses	3 (2-5)	2 (1-3)	2 (1-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.4 (0.8-1.7)	2.5 (1.7-3.3)	1.0 (0.6-1.6)	1.3 (0.8-1.8)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of nurses	3 (2-5)	2 (1-3)	2 (1-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.3 (0.8-1.7)	2.5 (1.7-3.3)	1.0 (0.6-1.6)	1.3 (0.8-1.8)
	Your site per 10 beds				

Nurses trained in **stroke assessment and management** usually on duty at 10am (2.9(ii), 2.15(ii) & 2.25(ii))		Total stroke units (183 sites)	Type 1 beds (75 sites)	Type 2 beds (99 sites)	Type 3 beds (109 sites)
Weekdays	Median (IQR) number of nurses	4 (2-6)	2 (1-3)	2 (2-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.5 (1.1-2.0)	2.5 (1.8-4.0)	1.3 (0.8-1.7)	1.5 (1.0-2.0)
	Your site per 10 beds				
Saturdays	Median (IQR) number of nurses	4 (2-6)	2 (1-3)	2 (1-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.5 (1.0-1.9)	2.5 (1.8-4.0)	1.2 (0.8-1.6)	1.5 (1.0-1.8)
	Your site per 10 beds				
Sundays / Bank Holidays	Median (IQR) number of nurses	4 (2-5)	2 (1-3)	2 (1-3)	3 (2-4)
	Median (IQR) number per 10 beds	1.5 (1.0-1.9)	2.5 (1.8-4.0)	1.2 (0.8-1.6)	1.5 (1.0-1.8)
	Your site per 10 beds				

Comment: Nursing staffing levels in hospital are important and associated with patient safety and mortality. There has been much discussion about 'safe' or 'minimum' numbers of nursing staff by NICE (http://www.nice.org.uk/Guidance/InDevelopment/gid-safenursestaffingadultwardsacutehospitals) and we have recently published that in acute stroke units there is an association between higher nursing numbers and lower mortality (http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1001705). Due to the complexity of stroke patients it should be expected that nursing levels should be above the average for acute hospitals. The difference at national level in registered nursing levels in Type 1 beds between 10am and 10pm seen in the audit may be cause for concern. The fact that nursing levels are approximately the same across days of the week and public holidays is

reassuring. Units with below average stroke unit staffing should urgently address this issue and increase their establishment. Poor care resulting from low nursing levels is clearly unacceptable and should be an issue addressed by commissioners and the Care Quality Commission.

Breakdown of total stroke unit nursing establishment by band for each type of stroke unit bed (Q2.11, Q2.17 and Q2.27)

Following the interest in the influence of nurse ratios to stroke beds on duty at weekends and to obtain further detail of the skill mix this question was broken down by Bands. There are no comparisons to previous years. There is good evidence about how structure in stroke services predicts outcomes and we are aware when visiting units that there is great pressure on nursing levels. In the London reconfiguration a minimum of 3 nurses per 10 beds was recommended and the recent paper by Bray et al (http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.1001705) supports this sort of level of nurse staffing to minimise stroke mortality. These data should be of help to commissioners who are looking at reconfiguring services.

Total establishment of WTE nurses (bands 1-8c) for all stroke beds (Q2.11, 2.17 & 2.27)		Total stroke unit beds (183 Sites)	Type 1 beds (75 Sites)	Type 2 beds (99 Sites)	Type 3 beds (109 Sites)
Band 1	Median (IQR) number of nurses	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Median (IQR) number per 10 beds	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Your site per 10 beds				
Band 2	Median (IQR) number of nurses	12.1 (8.6-17.5)	3.5 (1.5-7.0)	10.0 (6.0-13.0)	10.8 (6.1-14.0)
	Median (IQR) number per 10 beds	4.6 (3.7-5.8)	5.3 (1.6-6.7)	4.6 (3.7-5.7)	4.8 (3.6-6.2)
	Your site per 10 beds				
Band 3	Median (IQR) number of nurses	1.0 (0.0-3.0)	0.0 (0.0-1.0)	0.0 (0.0-2.0)	1.0 (0.0-3.0)
	Median (IQR) number per 10 beds	0.4 (0.0-1.2)	0.0 (0.0-0.9)	0.0 (0.0-1.1)	0.5 (0.0-1.2)
	Your site per 10 beds				
Band 4	Median (IQR) number of nurses	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Median (IQR) number per 10 beds	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Your site per 10 beds				
Band 5	Median (IQR) number of nurses	18.0 (13.3-27.2)	9.8 (4.5-14.4)	14.0 (10.3-17.8)	14.8 (10.9-18.0)
	Median (IQR) number per 10 beds	7.3 (5.9-8.7)	10.3 (7.5-16.5)	6.8 (5.2-7.9)	6.9 (5.8-8.2)
	Your site per 10 beds				
Band 6	Median (IQR) number of nurses	3.0 (2.0-6.0)	2.5 (0.7-5.4)	2.0 (1.0-3.0)	2.0 (1.0-4.0)
	Median (IQR) number per 10 beds	1.2 (0.7-2.0)	2.7 (0.9-6.7)	0.9 (0.6-1.3)	0.9 (0.6-1.7)
	Your site per 10 beds				
Band 7	Median (IQR) number of nurses	1.0 (1.0-2.0)	0.5 (0.0-1.0)	1.0 (0.5-1.0)	1.0 (0.8-1.0)
	Median (IQR) number per 10 beds	0.4 (0.4-0.6)	0.6 (0.0-1.3)	0.4 (0.3-0.5)	0.4 (0.3-0.6)
	Your site per 10 beds				
Band 8a	Median (IQR) number of nurses	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Median (IQR) number per 10 beds	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Your site per 10 beds				
Band 8b	Median (IQR) number of nurses	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Median (IQR) number per 10 beds	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Your site per 10 beds				
Band 8c	Median (IQR) number of nurses	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Median (IQR) number per 10 beds	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
	Your site per 10 beds				

Establishment and working pattern of qualified and support staff by discipline (Q3.3)

Whole Time Equivalents (WTE) (Q3.3)		Qualified staff (183 sites)	Support staff (183 sites)	**Your site WTE per 10 beds**
Clinical psychology	% (N YES)	54% (98)	11% (21)	
	% (N 6 day service)	0% (0/98)	0% (0/21)	
	% (N 7 day service)	1% (1/98)	5% (1/21)	
	Median (IQR)	0.1 (0.0-0.5)	0.0 (0.0-0.0)	
	Median (IQR) per 10 beds	0.0 (0.0-0.2)	0.0 (0.0-0.0)	
Dietetics	% (N YES)	98% (179)	21% (38)	
	% (N 6 day service)	1% (2/179)	5% (2/38)	
	% (N 7 day service)	1% (2/179)	8% (3/38)	
	Median (IQR)	0.5 (0.3-0.8)	0.0 (0.0-0.0)	
	Median (IQR) per 10 beds	0.2 (0.1-0.3)	0.0 (0.0-0.0)	
Occupational therapy:	% (N YES)	100% (183)	91% (167)	
	% (N 6 day service)	13% (24/183)	7% (12/167)	
	% (N 7 day service)	22% (40/183)	21% (35/167)	
	Median (IQR)	3.0 (2.0-4.1)	1.0 (0.5-1.8)	
	Median (IQR) per 10 beds	1.1 (0.8-1.5)	0.4 (0.2-0.6)	
Physiotherapy	% (N YES)	100% (183)	95% (173)	
	% (N 6 day service)	16% (29/183)	10% (18/173)	
	% (N 7 day service)	28% (52/183)	24% (41/173)	
	Median (IQR)	3.4 (2.5-5.0)	1.2 (0.9-1.9)	
	Median (IQR) per 10 beds	1.3 (1.1-1.6)	0.5 (0.3-0.7)	
Speech and language therapy	% (N YES)	98% (180)	52% (95)	
	% (N 6 day service)	3% (5/180)	2% (2/95)	
	% (N 7 day service)	5% (9/180)	8% (8/95)	
	Median (IQR)	1.4 (0.8-2.1)	0.1 (0.0-0.5)	
	Median (IQR) per 10 beds	0.5 (0.3-0.8)	0.0 (0.0-0.2)	
Pharmacy	% (N YES)	92% (169)	66% (120)	
	% (N 6 day service)	4% (6/169)	4% (5/120)	
	% (N 7 day service)	9% (16/169)	8% (10/120)	
	Median (IQR)	0.4 (0.2-0.7)	0.2 (0.0-0.4)	
	Median (IQR) per 10 beds	0.2 (0.1-0.2)	0.1 (0.0-0.2)	
Nursing:	N (% YES)	100% (183)	99% (182)	
	N (% 6 day service)	0% (0/183)	0% (0/182)	
	N (% 7 day service)	97% (178/183)	98% (178/182)	
	Median (IQR)	23.0 (17.9-35.0)	14.8 (10.9-20.8)	
	Median (IQR) per 10 beds	9.2 (7.6-10.9)	5.4 (4.6-6.7)	

Thirty-four percent of (62/183) sites have 6 or 7 day working for at least two of physiotherapy, occupational therapy and speech and language therapy (increase from 23% in 2012).

Comment: There has been an increase in whole time equivalent (WTE) clinical psychology posts such that now 54% of sites have some clinical psychology service however when compared to absolute numbers of staff per stroke unit, clinical psychology input remains pitiably small with a median of 0.04 WTE per ten beds. Otherwise multidisciplinary staffing, in terms of median numbers per 10 beds, has not greatly changed in the face of a further small increment in delivering weekend occupational and physiotherapy services. Units moving to provide 7 day a week therapy services need to ensure that this does not come at a cost of reducing therapy services within normal working hours.

Junior doctor sessions (Q3.6)

Junior doctor time(sessions) per week for all stroke units beds: (Q3.6)	National (183 sites)	**Your site**
Specialist trainee 3(ST3)/registrar grade or above	7 (2-10), 1579	
Foundation years/core training/ST1/ST2 or below	20 (10-30), 3743	
Non training grade junior doctor	0 (0-8), 1014	
Total junior doctor sessions	30 (19-42), 6335	

Comment: Junior doctor support for stroke units is provided predominantly by early years trainees with relatively little registrar grade input. Training specialist registrars in stroke is crucial to meeting the unmet demand for stroke specialist consultants and training posts need to be reviewed and increased to match current and future consultant demand.

Access to clinical psychology (Q3.1 and Q3.2)

Stroke unit has access within 5 days to (Q3.1):	National (183 sites)		**Your site**
• Social work expertise	97%	(178)	
• Orthotics	86%	(157)	
• Orthoptics	85%	(155)	
• Podiatry / Foot health	60%	(110)	

Access to clinical psychologist(s) (Q3.2)	National (183 sites)		**Your site**
Access to Clinical Psychologist(s)	61%	(112)	
• If yes, within 5 days	81%	(91/112)	

• Aspects of care are provided by the clinical psychologist:	Inpatients (112 sites)		Outpatients (112 sites)		**Inpatients**	**Outpatients**
• Mood assessment	84%	(94)	70%	(78)		
• Mood treatment	82%	(92)	72%	(81)		
• Higher cognitive function assessment	86%	(96)	73%	(82)		
• Higher cognitive function treatment	78%	(87)	71%	(79)		
• Non cognitive behavioural problems assessment and/or treatment	84%	(94)	72%	(81)		

Comment: Access to clinical psychology has increased with the further investment in staffing from 52% in 2012 to 61% in 2014. This makes the lack of access to such support seem even more inequitable for the 39% of units that have no clinical psychology input. Access to social work expertise remains high but key services for stroke patients such as orthotics, orthoptics and in particular podiatry, are still shamefully lacking in a number of units. Commissioners should look towards using service specifications with providers to ensure stroke patients who require these key services have timely access or expect a negative impact on quality of care and likely prolonged length of stroke unit stay.

3.4.4 Other aspect of stroke care across ALL stroke units (Type 1, 2 and 3)

The denominator for this section is 183 sites with a stroke unit i.e. it is not broken down by different 'types' of stroke unit beds.

Early mobilisation (Q3.5)

National Clinical Guideline: People with acute stroke should be mobilised within 24 hours of stroke onset, unless medically unstable, by an appropriately trained healthcare professional with access to appropriate equipment.

The AVERT trial will be reporting this year with RCT evidence on early mobilisation. The current guidelines recommend early mobilisation as good practice.

Patient mobilisation (Q3.5)	National (183 sites)		Your site
Patients stays in bed until assessed by a physiotherapist	13%	(23)	

Comment: The practice of keeping stroke patients in bed until reviewed by a therapist remains at the same level as in 2012 (22 sites 2012, 23 sites 2014). We would strongly recommend those trusts with this policy to provide training and competencies for stroke unit nursing staff to be able to make this key early management decision. Even with an increase in 7 day therapy, many patients will arrive outside of normal working hours and a clinical decision about early mobilisation is required to prevent patients who are medically stable otherwise being inappropriately kept on bed rest.

Multidisciplinary team meetings (Q3.7a-d)

Patients who need ongoing rehabilitation should be treated in a specialist stroke rehabilitation unit which should have a coordinated multidisciplinary team that meets at least once a week for the interchange of information about individual patients. This requirement is part of the Stroke Unit Trialists' Collaboration (SUTC) Key Characteristics of All Stroke Units (please refer to page 49).

Team meetings		National (183 sites)		Your site
Frequency of formal team meetings for the interchange of information about individual patients on the stroke unit (Q3.7)	Less than once a week	0%	(0)	
	Once a week	20%	(37)	
	Twice a week	10%	(19)	
	More than twice a week	69%	(127)	
Disciplines that regularly attend the team meetings (Q3.7a)	Clinical Psychology	31%	(57)	
	Dietetics	62%	(113)	
	Medicine (Senior Doctor)	98%	(179)	
	Nursing	99%	(182)	
	Occupational Therapy	100%	(183)	
	Physiotherapy	100%	(183)	
	Social Work	57%	(105)	
	Speech & Language Therapy	88%	(161)	
All stroke unit patients are discussed in the meetings (Q3.7b)		99%	(181)	
Stroke inpatients on other wards ever discussed in these meetings (Q3.7c)*		77%	(105/137)	
ALL stroke patients on other wards discussed in these meetings (Q3.7d)		59%	(81/137)	

* 46/183 sites (25%) answered 'Not applicable' as all stroke patients are always on the stroke unit and never on other wards.

Comment: The composition of multidisciplinary stroke team meetings has not greatly changed from 2014 other than a small increase in clinical psychology participation (31% from 26%). More teams than before (69% from 61%) are meeting more than twice a week indicative of the importance placed by hospitals on formal multidisciplinary team communication in order to optimise stroke unit care.

Palliative care (Q3.8)

National Clinical Guidelines:
Teams providing care for patients after stroke should be taught how to recognise patients who might benefit from palliative care. All staff caring for people dying with a stroke should be trained in the principles and practice of palliative care. All patients who are dying should have access to specialist palliative care expertise when needed. All patients who are dying should be given the opportunity of timely/fast-track discharge home or to a hospice or care home according to wishes of the patient and/or carers.

Palliative care (3.8)	National (183 sites)		Your site
Palliative care patients treated on stroke units	100%	(183)	
If YES:			
• Hospital has documented policy/guidance for clinicians on palliative and end of life care	96%	(175/183)	

Comment: Palliative care treatment remains an important aspect of stroke unit care and in the aftermath of the controversy surrounding the withdrawal of the Liverpool Care Pathway from hospitals in 2013, it is reassuring that hospital guidance on end of life care is still in place for 96% of stroke units. The eight sites that do not have such guidance should urgently address this.

Venous thromboembolism prevention (Q3.9)

In 2012 the University of Edinburgh carried out the CLOTS 3 trial with the aim of establishing whether Intermittent Pneumatic Compression (IPC) reduces the risk of a person admitted to hospital with a stroke developing a deep vein thrombosis (DVT). The trial results showed a 3.6% decrease in absolute risk reduction in the incidence of DVT and that IPC improves overall survival of stroke patients until 6 months. Following publications of the results in August 2013 NHS England and the NHS Improving Quality (NHS IQ) put forward a bid to supply approximately 6 months' worth of IPC sleeves to all stroke units in an effort to realise the benefits in every day practice.

In order to establish what preventative methods stroke units are using since the results of this trial and the distribution of the IPC sleeves the following question was included in the 2014 organisational audit proforma.

First line treatment for preventing venous thromboembolism (Q3.9)	National (183 sites)	Your site
Short or long compression stockings	1% (1)	
Intermittent pneumatic compression device	42% (77)	
Low molecular weight heparin	35% (64)	
None of the above	22% (41)	

Comment: We now have good RCT evidence not to use compression stockings after stroke and the single unit where this is still practiced should stop. Since 2012 there is new RCT evidence to support intermittent pneumatic compression device use in selected stroke patients. We will look to monitor the implementation of this at a patient level in SSNAP although already 42% of units state they are using such devices. The patient level audit suggests that the proportion of patients actually receiving intermittent pneumatic compression treatment currently is very small.

Stroke Unit Trialists' Collaboration (SUTC) Key Characteristics of All Stroke Units

National Clinical Guideline recommendations: Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment should be treated in a specialist stroke rehabilitation unit, which should fulfil the following criteria:

- it should be a geographically identified unit
- it should have a coordinated multidisciplinary team that meets at least once a week for the interchange of information about individual patients
- the staff should have specialist expertise in stroke and rehabilitation
- educational programmes and information are provided for staff, patients and carers
- it has agreed management protocols for common problems, based on available evidence.

This section refers to all 183 stroke units. The Stroke Unit Trialists' Collaboration (SUTC) and subsequent papers produced by members of the group identified a number of features common to units participating in the randomised controlled trials of stroke unit care. In an attempt to identify whether hospitals describing themselves as having stroke units are meeting a basic standard, five features were included in the audit to define how such units are organised. These are listed in the next table.

Number of SUTC characteristics achieved	National		
	2010 (198 sites)	2012 (189 sites)	2014 (183 sites)
2	1% (1)	2% (3)	1% (2)
3	11% (21)	11% (21)	10% (18)
4	51% (101)	44% (83)	45% (83)
5	38% (75)	43% (82)	44% (80)

Comment: The aspiration for all stroke units must be to fulfil all 5 of the SUTC key characteristics. With the enormous investment and the many improvements in all aspects of stroke care nationally, it is then hugely disappointing that we have not made more significant improvements over time here. The shortfalls are in particular in providing formal links with patients and carers, patient information and a programme of continuing education for the stroke MDT staff. The fact that formal links with patients and carers has decreased is concerning particularly as the 2012 SSNAP acute organisational report called for an improvement in this area by stating '*This may be considered a less important component of care than some of the others but we would suggest this it is critical for a stroke unit to perform effectively. Without direct involvement of patients and carers it is very unlikely that the unit will address their needs adequately. We consider this to be one of the major areas for improvement over the next 12 months*.' We would like to reiterate this for 2014. These criteria do not necessarily require financial resource and should be considered as fundamental for all stroke units. If your site does not meet all 5 criteria, then you should consider addressing the deficiencies as a priority.

SUTC key characteristics		National			Your site
		2010 (198 sites)	2012 (189 sites)	2014 (183 sites)	2014
Clinician: (Q6.1)	There are clinicians with specialist knowledge of stroke who are formally recognised as having principal responsibility for stroke services	100% (198)	100% (189)	99% (181)	
Formal links with patients and carers: (Q8.4i,ii,iii)	Stroke service has formal links with patients and carers organisations for communication on ALL of the following: • Service provision • Audit • Service reviews & future plans	43% (85)	53% (100)	51% (93)	
Multidisciplinary Team meetings: (Q3.7)	Formal team meetings, on average at least once a week for the interchange of information about individual patients on the stroke unit	99% (197)	100% (189)	100% (183)	
Patient information: (Q8.2a or Q8.2b)	Patient information literature displayed in unit/ward on the following: Patient versions of national or local guidelines/standards OR Patient information literature displayed in unit/ward on the following: Social Services local Community Care arrangements	93% (185)	95% (179)	94% (172)	
Continuing education: (Q7.4, 7.4a)	There is funding for external courses available for nurses and therapists AND At least ONE staff day was paid for between 1 April 2013 and 31 March 2014	88% (174)	81% (154)	88% (161)	
All 5 SUTC Key Characteristics		38% (75)	43% (82)	44% (80)	

The percentages in this table show how many sites, of those achieving a given number of the SUTC characteristics, are achieving each individual characteristic. The shading shows cells with less than 75% of sites achieving the characteristic

Number of SUTC characteristics	Number of sites (183)	Clinical lead	Links to patients and carers	Team meeting	Patient info	Continuing education
2	2 (1%)	0 (0%)	0 (0%)	2 (100%)	2 (100%)	0 (0%)
3	18(10%)	18 (100%)	1 (6%)	18 (100%)	9 (50%)	8 (44%)
4	83(45%)	83 (100%)	12 (14%)	83 (100%)	81 (98%)	73 (88%)
5	80(44%)	80 (100%)	80 (100%)	80 (100%)	80 (100%)	80 (100%)

From this table,

- Having a clinical lead and holding a multidisciplinary team meeting at least once a week appear to be most readily achievable characteristics.
- Formal links with patients and carers appears to be the most difficult characteristic to achieve.

3.5 Management of stroke services

This section includes all 183 sites which participated in the audit.

3.5.1 Investment in stroke specialist staff (Q6.2 – Q6.6, Q7.4-Q7.8)

This section reports on the number of whole time equivalents (WTEs) of staff.

WTE of stroke specialist staff (Q6.3)	Band 7 (183 sites)				Band 8a (183 sites)			
	Median (IQR)	YES (>0)		**Your site**	Median (IQR)	YES (>0)		**Your site**
Clinical Psychologists	0.0 (0.0-0.0)	14%	(25)		0.0 (0.0-0.1)	27%	(49)	
Dietitian	0.0 (0.0-0.3)	29%	(53)		0.0 (0.0-0.0)	2%	(3)	
Nurses	1.0 (1.0-2.0)	93%	(170)		0.0 (0.0-0.0)	22%	(41)	
Occupational Therapists	1.0 (0.4-1.0)	78%	(142)		0.0 (0.0-0.0)	12%	(22)	
Physiotherapists	1.0 (0.7-1.6)	86%	(158)		0.0 (0.0-0.0)	25%	(45)	
Speech and Language Therapists	0.6 (0.0-1.0)	69%	(126)		0.0 (0.0-0.0)	16%	(29)	

WTE of stroke specialist staff Q6.3)	Band 8b* (183 sites)			Band 8c* (183 sites)		
	YES (>0)		**Your site**	YES (>0)		**Your site**
Clinical Psychologists	8%	(15)		8%	(15)	
Dietitian	0%	(0)		0%	(0)	
Nurses	10%	(19)		2%	(3)	
Occupational Therapists	3%	(5)		0%	(0)	
Physiotherapists	2%	(4)		2%	(3)	
Speech and Language Therapists	2%	(3)		1%	(1)	

*Note that the median (IQR) WTE was 0 (0-0) for all staff in Bands 8b and 8c.

Comment: Other than clinical psychology there has been little increase (absolute numbers or relative by site) in stroke specific ***senior*** multidisciplinary team (MDT) resource since 2012. Indeed only clinical psychology has expanded whilst physiotherapy, occupational and speech and language therapy have all decreased in absolute numbers. This may be explained by changes to skill mix seniority in order to finance seven day therapy services. The most senior posts (8b and 8c) remain predominantly within clinical psychology. According to this audit there is still no stroke specific 8c OT post. Overall it appears that investment in senior stroke MDT posts has plateaued and if anything is decreasing in keeping with the recent fallow period in NHS investment.

Specialist nursing across stroke service

This question was included for 2014 at the request of the National Stroke Nursing Forum to identify the number of specialist nurses in the stroke workforce. Sites were asked to provide information for every individual nurse (band 7-8c) working in their stroke service in order to determine whether these nurse were part of or supernumerary to the general stroke unit establishment.

Number and working pattern of specialist nurses (band 7-8c) across stroke services (Q3.4)

Specialist nurse numbers and working pattern (Q3.4)		National (183 sites)	**Your site (per 10 beds)**
Band 7	Number of *individuals* in band (median (IQR)), Total)	2 (1-3), 395	
	Number of *WTE* (median (IQR))	2.0 (2.0-3.0)	
	Proportion of nurses whose shift pattern includes nights	16% (62/395)	
	Proportion of nurses who shift pattern includes weekends	49% (195/395)	
	% nurses routinely on duty on stroke unit*	43% (168/395)	
Band 8a	Number of *individuals* in band (median (IQR)), Total)	0 (0-1), 54	
	Number of *WTE* (median (IQR))	1.0 (1.0-1.0)	
	Proportion of nurses whose shift pattern includes nights	9% (5/54)	
	Proportion of nurses who shift pattern includes weekends	26% (14/54)	
	% nurses routinely on duty on stroke unit*	6% (3/54)	
Band 8b	Number of *individuals* in band (median (IQR)), Total)	0 (0-0), 20	
	Number of *WTE* (median (IQR))	1.0 (0.6-1.0)	
	Proportion of nurses whose shift pattern includes nights	5% (1/20)	
	Proportion of nurses who shift pattern includes weekends	15% (3/20)	
	% nurses routinely on duty on stroke unit*	5% (1/20)	
Band 8c	Number of *individuals* in band (median (IQR)), Total)	0 (0-0), 2	
	Number of *WTE* (median (IQR))	0.6 (0.2-1.0)	
	Proportion of nurses whose shift pattern includes nights	0% (0/2)	
	Proportion of nurses who shift pattern includes weekends	0% (0/2)	
	% nurses routinely on duty on stroke unit*	0% (0/2)	

* sites were asked to specify if each individual nurse was included in their earlier response to the question about the number of nurses on duty at 10am/pm (Q2.8, 2.10, 2.14, 2.16, 2.24 & 2.26)

Comment: Overridingly the numbers of senior stroke nurse posts reported to the audit are small given the move towards 7 day services.
The practice of the most senior nurses not working nights or weekends will likely need to be reviewed although with such a rare resource, stroke services will need to consider carefully how best to use – especially the band 8, stroke specialist nurses.

Specialist registrars (Q6.2)	National (183 sites)	Your site
Accredited specialist registrar in post registered for stroke specialist training (Q6.2)	29% (53)	

Physician Associates (Q6.8)	National (183 sites)	Your site
Physician Associates as part of your clinical team (Q6.8)	Yes 11% (21) No 89%(162)	
If yes		
How many whole time equivalents do these Physician Associates work across your stroke service? (Q6.8(a))	1.0 (0.6-1.0)	

Comment: Over one in ten stroke services have now made appointments of the new allied health professional group of physician associates – predominantly to make up for shortfalls in junior doctors (or senior nurses). Physician associates are likely to expand and play an important role, in particular, in future hospital stroke services.

Education for staff (Q7.4)	National (183 sites)	Your site
Funding for external courses available for nurses and therapists (Q7.4)	91% (167)	
Number of staff days paid for between 1 April 2013 and 31 March 2014 (Q7.4a)	Median (IQR): 20 (9-40), Total: 7168	
At least 10 study days funded between 1 April 2013 - 31 March 2014	66% 121	

Workforce planning (Q6.5, Q6.6 and Q6.7)

This section reports on the number of Programmed Activities (PAs) assigned to unfilled, existing and new/additional stroke consultant physician posts.

Unfilled stroke consultant posts (Q6.5)		National (183 sites)	Your site
Number of unfilled stroke consultant posts (Q6.5)	% Yes	26% (48)	
If yes:		National (48 sites)	Your site
How many PAs do these posts cover	Median (IQR), Total	10 (6-11), 454	
For how many months have these posts been funded but unfilled?	M (IQR)	8 (2-19)	

The remainder of this section is new and aims to ascertain the type of consultant workforce that is, and may in the future, be in post nationally and at site level. The aim is to improve both national planning for training of future consultant physicians working in stroke medicine and their equitable distribution. The results will be used in inform a study being undertaken by the British Association of Stroke Physicians (BASP).

Distribution of PAs and allocation of Direct Clinical Care (DCC) for existing and any planned future posts (6.6, 6.7)

Existing stroke consultant posts (Q6.6)		National (183 sites)	Your site
Number of PAs for Stroke Consultant Physicians (Q6.6)	Median (IQR), Total	22 (14-34), 4671	
Number of consultants PAs are divided between (Q6.6(a))	Median (IQR), Total	3 (2-4), 656	
Number of PAs which are allocated to DCC (Q6.6(b))	Median (IQR), Total	17 (10-27), 3588	

Existing posts: -distribution of Direct Clinical Care PAs (Q6.6(c))		National (656 consultants)	Your site
Accredited speciality	Geriatrics (% yes)	72% (470)	
	Neurology (% yes)	16% (108)	
	Internal medicine (% yes)	6% (40)	
	Other (% yes)	6% (38)	
Estimate of consultants Direct Clinical Care (DCC) PAs for stroke	Median (IQR)	6 (3-8)	
Contributions of consultant	Stroke unit (% yes) (N)	92% (606)	
	TIA clinic (% yes) (N)	90% (590)	
	Stroke out of hours (% yes) (N)	81% (529)	
Time period for which consultant is likely to continue role	>10 yrs (% yes) (N)	67% (441)	
	6-10 yrs (% yes) (N)	11% (74)	
	3-5 yrs (% yes) (N)	10% (68)	
	<3 yrs (% yes) (N)	11% (73)	
Accredited CCST in Stroke Medicine after Stroke Training when SpR or equivalent	Yes (%)(N)	36% (235)	

Future planned posts (Q6.7)		National (183 sites)	Your site
Number of sites with new/additional posts for Stroke Consultant Physicians	% yes (N)	48% (87)	
If yes:		National (87 sites)	Your site
Number of PAs planned for new/additional Stroke Consultant Physicians (Q6.7)	M (IQR), T	10 (5-10), 829	
Number of new/additional consultants (individuals) will these PAs be divided between (Q6.7(a))	M (IQR), T	1 (1-2), 118	
Number of new/additional PAs which will be for Direct Clinical Care (DCC) for Stroke (Q6.7(b))	M (IQR), T	7 (4-9), 653	

Future planned posts: -distribution of Direct Clinical Care PAs (Q6.7(c))		National (118 consultants)	Your site
Accredited speciality	Geriatrics (% yes (N))	64% (75)	
	Neurology (% yes (N))	15% (18)	
	Internal medicine (% yes (N))	6% (7)	
	Other (% yes (N))	15% (18)	
Estimate of consultants Direct Clinical Care (DCC) PAs for stroke	Median (IQR)	6 (4-8)	
Contributions of consultant	Stroke unit (% yes (N))	97% (114)	
	TIA clinic (% yes (N))	95% (112)	
	Stroke out of hours (% yes (N))	84% (99)	

Comment: One in four hospitals currently has full time vacancies for stroke consultants whilst almost half of all hospitals plan to increase their current stroke consultant sessions. This highlights a concern in terms of shortfall in appropriately trained stroke consultants. The median number of stroke consultants per hospital is three with 72% coming from the speciality of geriatric medicine. Only 53 hospitals (29%) currently have specialist registrar training posts in stroke and this has not changed greatly from the 49 hospitals (26%) from 2012.

3.5.2 Quality Improvement (Q7.1-7.3, Q7.5-7.8)

National Clinical Guideline: Clinical services should take responsibility for all aspects of data collection: keeping a stroke register of all patients admitted to their organisation with a stroke, and providing leadership in clinical audit. Clinicians in all settings should continue to participate in national stroke audit so that they can compare the clinical and organisational quality of their services against national data and use the results to plan and deliver service improvements.

Quality Improvement – Management		National (183 sites)		Your site
Stroke service report prepared for trust board between 1 April 2013 and 31 March 2014 (Q7.1)		89%	(162)	
Level of management that takes responsibility for follow-up of results and recommendations of the National Sentinel Stroke Audit (Q7.2)	• Executive on the Board	70%	(129)	
	• Non-executive on the Board	18%	(33)	
	• Chairman of Clinical Governance (or equivalent)	40%	(73)	
	• Directorate Manager	85%	(156)	
	• Stroke Clinical Lead	93%	(170)	
	• Other	31%	(56)	
	• No specific individual	0%	(0)	
	• Not known	0%	(0)	
Strategic group responsible for stroke (Q7.3):		96%	(176)	
What does it include (Q7.3a)	• Ambulance trust representative	55%	(97/176)	
	• Clinician	100%	(176/176)	
	• Patient Representative	66%	(117/176)	
	• Commissioner	65%	(115/176)	
	• Social Services	47%	(82/176)	
	• Stroke Network Representative	56%	(99/176)	
	• Trust board member	44%	(77/176)	
Total number of professionals in the group	• One*	9%	(16/176)	
	• Two	9%	(16/176)	
	• Three	11%	(19/176)	
	• Four	22%	(38/176)	
	• Five	21%	(37/176)	
	• Six	16%	(29/176)	
	• Seven	12%	(21/176)	
Median number included in group		4		

*These 16 groups were comprised of clinicians.

Quality Improvement – Management	National (167 sites*)		Your site
System in place that provides feedback on individual cases to the referring ambulance clinicians (Q7.5)	52%	(87)	

*16 sites which do not provide care for patients in the first 72 hours are excluded from this denominator.

Quality improvement – patient views		National (183 sites)		Your site
Frequency of a formal survey seeking patient/carer views on stroke services (Q7.6)	Never	5%	(10)	
	Less than once a year	13%	(23)	
	1-2 times a year	20%	(36)	
	3-4 times a year	2%	(4)	
	More than 4 times a year	10%	(19)	
	Continuous (every patient)	50%	(91)	
Report produced between 1 April 2013 and 31 March 2014 which analysed the views of stroke patients (Q7.7)		71%	(130)	
Patient surveys and/or reports discussed in a formal meeting and plans devised to act upon findings (Q7.8)		85%	(155)	

Comment: Over 95% of hospitals have a strategic multidisciplinary group responsible for stroke, and 89% of sites have regular reporting to trust boards. Commissioner involvement in such groups has reduced in relative terms since the advent of Clinical Commissioning Groups from 76% in 2012 to 65% in 2014. This is understandable perhaps given the organisation change in commissioning within England but is important for CCGs to address going forward to ensure the full implementation of the 10 year National Stroke Strategy for England published in 2007**.** Patient involvement has also not improved with 66% in 2014 compared with 73% in 2012. Putting the patient voice at the heart of service improvement needs to be a consideration for all such groups that currently do not include lay representation, particularly as there has been in the same period a significant increase in patient surveys of stroke services - with now half of hospitals implementing continuous patient surveys (compared to 36% in 2012).

3.5.3 Leadership (Q6.1)

	National (183 sites)		Your site
Clinician with specialist knowledge of stroke formally recognised as having principal responsibility for stroke services (Q6.1)	99%	(181)	
• Doctor	97%	(176/181)	
• Nurse	2%	(4/181)	
• Therapist	1%	(1/181)	

Comment: Doctors continue to be the dominant profession leading hospital stroke services. However, successful stroke teams are multidisciplinary and with the advent of an increase in consultant grade posts in nursing, therapies and allied health professions, this need not be the case. Given the issues with current shortfalls in consultant stroke physicians (see section 3.10) Trusts should be encouraged to develop multidisciplinary leadership of stroke services.

3.5.4 Research capacity (Q7.10 – 7.11)

Stroke research studies	National (183 sites)			Your site
	Median (IQR)	1 or more	3 or more	
Number of stroke studies registered with your Research & Development Department (on 1 July 2014) (Q7.10)	4 (2-7)	89% (162)	70% (129)	

27/183 sites (15%) have 0 WTEs for stroke data collection.

Comment: With the organisational changes associated with the Stroke Research Network (www.uk**srn**.ac.uk) being integrated into the Comprehensive Research Network in April 2014, it is reassuring that at least at the current time, there has been little evident impact in stroke research activity with the median number of stroke studies and WTE allotted for stroke data collection remaining unchanged from 2012.

Stroke data collection (Q7.11)

Total number of WTEs allotted for stroke data collection (Q7.11)	National (183 sites)		**Your site**
Median (IQR), Total	0.9 (0.4-1.2),188		
WTEs for stroke data collection (Q7.11(a))	National (156 sites)		**Your site**
Doctor	16%	(25)	
Manager	11%	(17)	
Nurse	47%	(73)	
Therapist	17%	(27)	
Clinical Audit/Clinical Governance	13%	(21)	
Data clerk/analyst with specific stroke responsibilities	72%	(113)	
Data clerk/analyst with general audit responsibilities	11%	(17)	

Comment: Whilst clinical ownership is vital for validation of clinical research and data collection there has been a reassuring relative increase in administrative support for such activity with a relative reduction in the time spent by doctors and nurses.

3.6 Patient support and communication

National Clinical Guideline:
Hospital services should have a protocol, locally negotiated, to ensure that before discharge occurs:

- patients and carers are prepared, and have been fully involved in planning discharge
- general practitioners, primary healthcare teams and social services departments (adult services) are all informed before, or at the time of, discharge
- all equipment and support services necessary for a safe discharge are in place
- any continuing specialist treatment required will be provided without delay by an appropriate coordinated, specialist multidisciplinary service
- patients and carers are given information about and offered contact with appropriate statutory and voluntary agencies.

Patient and carer communication and involvement (Q8.3, Q8.4 and Q8.5)

Discharge planning (Q8.3 – 8.5)	National (183 sites)		Your site
Patients given a personalised rehabilitation discharge plan	86%	(157)	
Stroke service has formal links with patients and carers organisations for communication on any of the following:	91%	(167)	
• Service provision	86%	(157)	
• Audit	52%	(95)	
• Service reviews and future plans	79%	(144)	
Communication on all 3 of the above	51%	(93)	
• Developing research	52%	(96)	
Stroke service has formal links with community user groups for stroke	92%	(168)	

Comment: Patient involvement in discharge planning is largely unchanged from 2012. It is routine in the majority but not all stroke services. Services that do not positively report on the patient involvement in discharge planning should consider why they are at odds with the majority of providers.

NICE Quality Standard: Carers of people with stroke are provided with written information about the patient's diagnosis and management plan, and sufficient practical training to enable them to provide care

Communication with patients and carers (Q8.1-8.2)	Stroke unit (183 sites)	**Stroke unit (Your site)**	Outpatients (183 sites)	**Outpatients (Your site)**
The organisation of the ward/unit enables patients to have access to their management plan	86% (158)		74% (136)	
Patient information literature displayed in ward/unit:				
• Patient versions of national or local guidelines/standards	77% (140)		61% (111)	
• Social services local community care arrangements	89% (162)		70% (128)	
• The Benefits Agency	85% (155)		73% (133)	
• Information on stroke	100% (183)		90% (164)	
• Secondary prevention advice	99% (181)		90% (165)	

Support for working age patients (Q6.4)

Support for working age patients	National (183 sites)	**Your site**
Provision of service which actively supports stroke patients to remain in, return to or withdraw (if appropriate) from work? (Q6.4a)	77% (140)	
Provision of service which actively provides educational or vocational training? (Q6.4b)	47% (86)	

Comment: Clinicians working with stroke patients know that there is lamentable access to vocational rehabilitation for patients with neurological deficits such as aphasia. The data reported does not have face validity and should not induce complacency from commissioners there is not an issue that needs to be dealt with. It more than likely represents a very loose definition of vocational rehabilitation than anything else.

3.7 Pathway at discharge

NICE Quality Standard: All patients discharged from hospital who have residual stroke-related problems are followed up within 72 hours by specialist stroke rehabilitation services for assessment and ongoing management.

3.7.1 Specialist Early Supported Discharge Team (ESD) (Q4.1)

National Clinical Guideline: Provide early supported discharge to patients who are able to transfer independently or with the assistance of one person. Early supported discharge should be considered a specialist stroke service and consist of the same intensity and skill mix as available in hospital, without delay in delivery.

An early supported discharge team is a multidisciplinary team which provides rehabilitation and support in a community setting with the aim of reducing the duration of hospital care for stroke patients. A stroke/neurology specific team is one which treats stroke patients either solely or in addition to general neurology patients.

Specialist early supported discharge (ESD) (Q4.1, 4.1a, 4.1b)		National (183 sites)	Your site
Access to stroke / neurology specific ESD multidisciplinary team		74% (135)	
If yes, percentage of catchment area with access to this team		M 100% IQR 85-100% 91/135 with 100%	
The team treats	Only stroke patients	85% (115/135)	
	Stroke and general neurology patients	15% (20/135)	

Comment: Access to stroke-specific Early Supported Discharge (ESD) has continued to increase from 44% in 2010, to 66% in 2012 and now 74% in 2014. Commissioners in the quarter of the country where there is no stroke-specific ESD team should consider themselves now in a minority and not offering best and evidence-based services. In the SSNAP clinical audit currently around one in four patients discharged alive from stroke units are already being discharged with ESD.

3.7.2 Non-Specialist Early Supported Discharge Team (Q4.2)

Non-specialist early supported discharge (ESD) (Q4.2, 4.2a)	National (183 sites)	Your site
Access to non - specialist early supported discharge multidisciplinary team	36% (66)	
If yes, percentage of catchment area with access to this team	M 100% IQR 80-100% 45/66 with 100%	

Comment: Access to non-specialist ESD has also increased from 2012 from 26% to 36% in keeping with the impetus to reduce length of stay for all hospitalized patients. As highlighted in 2012 this is an unproven intervention in the context of stroke where for the vast majority of cases a stroke specific service will produce the best outcome.

Of the 66 sites with non-specialist ESD teams, 53 sites also have access to a specialist team. Thirteen sites use a non-specialist team exclusively.

3.7.3 Longer Term Specialist Community Rehabilitation Team (Q.4.3)

Specialist community rehabilitation team (Q4.3, 4.3a, 4.3b)		National (183 sites)		Your site
Access to stroke / neurology specialist community rehabilitation team for longer-term management		72%	(131)	
If yes, percentage of catchment area with access to this team		M 100% IQR 80-100% 88/131 with 100%		
The team treats	Only stroke patients	36%	(47/131)	
	Stroke and general neurology patients	64%	(84/131)	

Comment: Access to a specialist community rehabilitation team has increased significantly from 2012 – with 131 hospitals (72%) having access compared with 108 (57%) in 2012. As length of stay in hospital decreases this is increasingly important to good outcome after stroke and commissioners should be aiming to provide this for all stroke patients. Almost 30% of hospitals patients have no access to specialist community stroke rehabilitation.

3.7.4 Longer Term Non-Specialist Community Rehabilitation Team (Q4.4)

Non - specialist community rehabilitation team (Q4.4, 4.4a)	National (183 sites)		Your site
Access to non-specialist community rehabilitation team for longer-term management	70%	(128)	
If yes, percentage of catchment area with access	M 100% IQR 100-100% 98/128 with 100%		

Comment: Access to non-specialist community rehabilitation has increased since 2012 (49% to 70%) but perhaps at the expense of developing specialist community stroke services in the community which are still lacking in 28% of the country (see above). In future rounds of the SSNAP clinical audit it may become clearer as to whether this influences clinical outcome and such therapy should be seen as additional as opposed to an alternative to specialist neurological rehabilitation for those recovering with the effects of stroke.

Of the 128 sites with a non-specialist community rehabilitation team, 86 sites also have access to a specialist team. 42 sites use a non-specialist team exclusively.

3.8 Transient Ischaemic Attack (TIA) / neurovascular service (Q5.1-5.5)

National Clinical Guidelines: All patients whose acute symptoms remit within 24 hours (ie TIA) should be seen by a specialist physician (eg in a specialist neurovascular clinic or an acute stroke unit) within the time determined by their clinical features.

Neurovascular service (Q5.1)	National (183 sites)	Your site
Neurovascular Clinic (Q5.1) %YES	98% (179)	
If no (4 sites) , who provides this for your patients (Q5.1(a))		
• Another site within our trust	(4/4)	
• Another trust	(0/4)	

Neurovascular service		National (179 sites)	Your site
Number of clinics within 4 week period (Q5.1(b))	Median (IQR), Total % more than 4 clinics	24 (20-28), 4518 95% (170/179)	
Number of new patients seen in past 4 weeks (Q5.1(c))	Median (IQR), Total	54 (38-79), 10530	
Current average waiting time in days for an appointment for clinic (Q5.1(d))	Median (IQR) % more than 7 days	2 (1-3) 4% (7/179)	

*National figures are calculated out of the 179 sites providing a neurovascular service. However, for the 4 sites without a service, the results from the other site within the trust are provided.

Comment: Rapid access TIA clinics are now well established. The median number of neurovascular clinics has increased from 20 in 2012 to 24 per 4 week period with more patients being seen on average (median 54 patients seen in last 4 weeks in 2014 compared with 46 in 2012), although there remains a differential of service between 5 day and 7 day services in terms of access to vascular imaging for high risk TIA patients.

The denominator for the remainder of this section relating to low-risk TIA patients is 183. This comprises 179 sites with an onsite TIA clinic and 4 sites with access to a TIA clinic within their trust. The 4 sites which do not have a neurovascular clinic have been assigned the result of the site within their trust which provides this service for their patients.

The denominator for the high-risk TIA results is 179. This is because 4 of the 183 sites stated that they do not provide a high-risk TIA service.

Usual waiting time for carotid imaging (Q5.2):	**High**-risk TIA patients (ABCD^2 score of 4 or more)			**Low**-risk TIA patients (ABCD^2 score of less than 4)		
	National (179* sites)		Your site	National (183 sites)		Your site
The same day (7 days a week)	42%	(75)		10%	(19)	
The same day (5 days a week)	44%	(79)		40%	(74)	
The next day	9%	(16)		1%	(2)	
The next weekday	4%	(7)		4%	(7)	
Within a week	1%	(2)		40%	(73)	
Longer than a week	0%	(0)		4%	(8)	

** 4 sites of the 183 only treated low-risk TIA patients.*

Timescale to see, investigate and initiate treatment for all TIA inpatients (Q5.3, 5.4):	**High**-risk patients (ABCD^2 score of 4 or more)			**Low**-risk patients (ABCD^2 score of less than 4)		
	National (179* sites)		**Your site**	National (183 sites)		**Your site**
Service provided for **INPATIENTS**	86% (154/179)			57% (104/183)		
If YES as an **Inpatient**						
The same day (7 days a week)	60%	(93/154)		40%	(42/104)	
The same day (5 days a week)	26%	(40/154)		33%	(34/104)	
The next day	8%	(12/154)		7%	(7/104)	
The next weekday	5%	(8/154)		10%	(10/104)	
Within a week	1%	(1/154)		11%	(11/104)	
Within a month	0%	(0/154)		0%	(0/104)	
Longer than a month	0%	(0/154)		0%	(0/104)	
Service provided for **OUTPATIENTS**	97% (174/179)			99% (182/183)		
IF YES as an **Outpatient**						
The same day (7 days a week)	45%	(79/174)		5%	(10/182)	
The same day (5 days a week)	32%	(56/174)		17%	(31/182)	
The next day	13%	(22/174)		2%	(3/182)	
The next weekday	8%	(14/174)		7%	(13/182)	
Within a week	2%	(3/174)		63%	(115/182)	
Within a month	0%	(0/174)		5%	(10/182)	
Longer than a month	0%	(0/174)		0%	(0/182)	

** 4 sites of the 183 only treated low-risk TIA patients.*

75% of sites can see, investigate and treat their high risk TIA patients (inpatients or outpatients) on same or next day (7 days a week).

95% of sites can see, investigate and treat their low risk TIA patients (inpatients or outpatients) within a week.

TIA patients

The following table relates to the number and location of TIA patients on the day of the audit (1 July 2014)

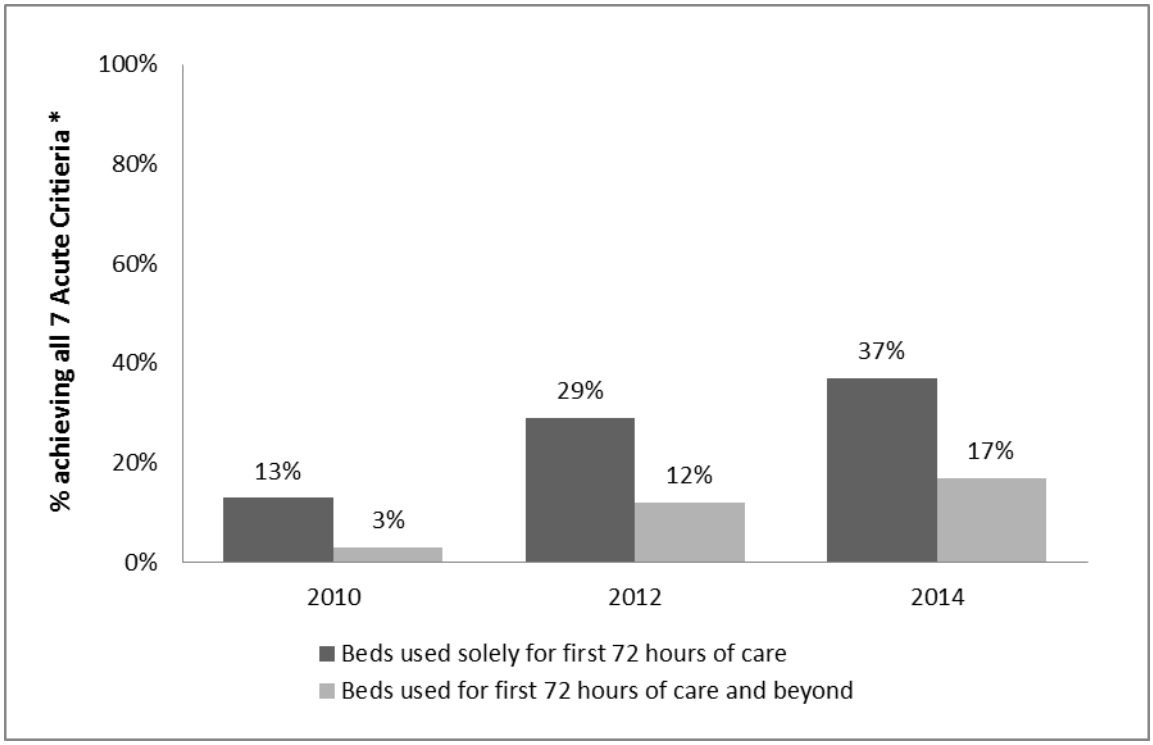
Location of TIA patients	National						**Your site**
	Sites		Patients per site		Patients nationally		
	N	%	Median	IQR	Total	%	N patients
Total (5.5)	179	46% (83/179)	0	0-1	258	-	
In stroke unit beds(5.5a)	73	88% (73/83)	1	1-2	101	39%	

Section 4: Audit Results over Time - Change between 2006, 2008, 2009, 2010, 2012 and 2014

This section shows changes over time since 2006. Results for 2006 to 2010 relate to data collected for the National Sentinel Stroke Audit (NSSA); 2012 and 2014 data is from the SSNAP acute organisational audit. The section broadly follows the 6 domains of stroke care; however not all elements of each domain are included due to incomparability between rounds.

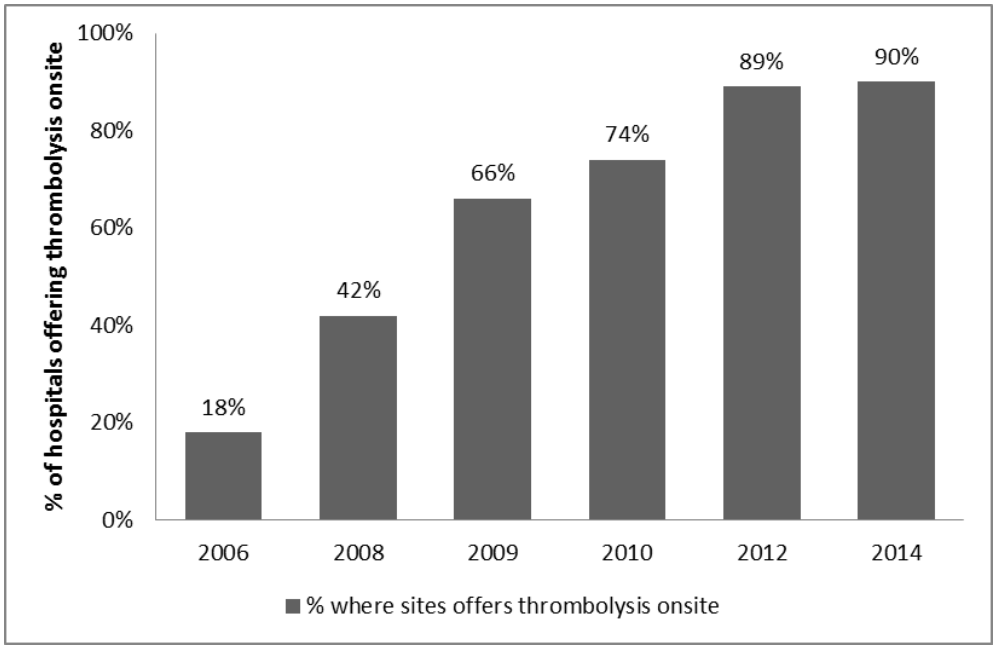
4.1 Acute stroke care organisation (Domain 1)

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
% of sites with Type 1 beds achieving all 7 acute criteria	NA	NA	NA	13%	29%	37%
% of sites with Type 3 beds achieving all 7 acute criteria	NA	NA	NA	3%	12%	17%



Comment: There have been some positive but modest improvements in terms of increased quality in acute stroke care organisation, as judged by the proportion of sites fulfilling all 7 acute criteria. However, Type 1 beds should be commissioned to provide all 7 criteria within a service specification. The shortfall in specialist weekend ward rounds in over one-third of such units is a concern.

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
% where sites offers thrombolysis onsite (Q1.5)	18%	42%	66%	74%	89%	90%



Comment: Although the proportion of hospitals sites offering thrombolysis onsite has remained similar since 2012, the number of sites where this is the case has decreased which may reflect the advent of centralised models of hyperacute care. The numbers of potentially eligible patients for thrombolysis and their outcomes is being prospectively recorded as part of SSNAP clinical audit, which will help judge the success of any future organisational changes in terms of effectiveness of thrombolysis treatment by population.

4.2 Team working (Domain 2)

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Team meetings (at least) once weekly % (Q3.7)	100	100	100	99.5	100	100
Team meetings (at least) twice weekly %	NA	NA	NA	51	76	80
Disciplines who regularly attend team meetings % (Q3.7a)						
Clinical Psychology	18	19	18	22	26	31
Dietetics	61	59	64	65	60	62
Medicine (Senior Doctor)	98	98	99	96	98	98
Nursing	100	99.5	100	99	99	99
Occupational Therapy	99	100	99.5	100	99	100
Physiotherapy	100	100	100	100	99	100
Social Work	77	79	82	78	66	57
Speech & Language Therapy	82	86	82	84	89	88

Comment: Whilst the audit continues to demonstrate regular MDT meetings with multidisciplinary representation, the frequency of multiple weekly meetings seems now to have plateaued across sites at around 80%. This is likely to reflect the differences between patterns of working between units with Type 1 beds (for the first 72 hours of care), Type 2 beds (for post-72 hour care) and Type 3 beds (for 72 hour care and beyond).
Given the importance of joint health and social care planning in transfers of care of stroke patients into the community, the diminishing provision of social work representation at MDT meetings is a major concern. Social workers were present at MDT meetings in 78% of sites in 2010 and now in only 57% in 2014.

4.3 Specialist roles (Domain 2)

	NSSA	SSNAP	
	2010	2012	2014
Consultant ward rounds 7 days per week			
• Type 1* beds (Q2.5)	29%	53%	64%
• Type 3** beds (Q2.21)	11%	30%	30%
Band 7 Nurse on stroke unit (Q6.3)	84%	92%	93%
Palliative care patients treated on stroke unit (Q3.8)	99%	99%	100%
Access within 5 days to social work (Q3.1a)	95%	97%	97%
Access to psychologists (Q3.2)	49%	52%	61%
Vocational training (Q6.4b)	45%	50%	47%
Stay in bed until assessed by physiotherapist (Q3.5)	17%	12%	13%

**Type 1: Beds solely for first 72 hours of care*
**Type 3: Beds for both first 72 hours of care and post 72 hour care

Comment: Access to psychology has improved from 52% in 2012 to 61% of sites in 2014, which means patients in approximately 40% of sites do not access this key component of specialist stroke care. More 7 day ward rounds are taking place on Type 1 beds in keeping with the general increase in consultant weekend ward rounds in acute hospitals. However, this does not take place in 36% of hospitals sites with Type 1 beds, which means that patients being admitted at weekend in such units are not being reviewed by stroke consultants – as they are on weekdays. The neurological diagnosis of stroke and its differentials is best made by consultants with training and experience in stroke. All patients admitted to hospital with a suspected stroke should have the expectation of being reviewed by a stroke specialist consultant within 24 hours of admission. It is very unlikely that a patient with acute myocardial infarction admitted to a coronary care unit would not be seen over a weekend by a cardiologist. Why should stroke be different?

4.4 Inter disciplinary services (for sites with a stroke unit) (Domain 3)

Registered nurse/care assistants at 10am on normal weekdays (Q2.8, 2.14, 2.24)	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Median (IQR)	7 (6-11)	8 (6-12)	8 (6-12)	8 (7-12)	8 (7-11)	9 (7-12)
Staff establishment: % YES (Q3.3)						
Clinical Psychology	31%	36%	35%	39%	46%	54%
Dietetics	85%	96%	95%	96%	99%	98%
Occupational Therapy	99.5%	100%	99%	99%	100%	100%
Physiotherapy	99.5%	100%	99%	99%	100%	100%
Speech and Language Therapy	94%	99%	98%	98%	99%	98%
Pharmacy	75%	86%	89%	88%	93%	92%

	NSSA	SSNAP	
	2010	2012	2014
Access to Orthotics within 5 days (Q3.1)	76%	83%	86%
Access to Foot health within 5 days (Q3.1)	58%	57%	60%

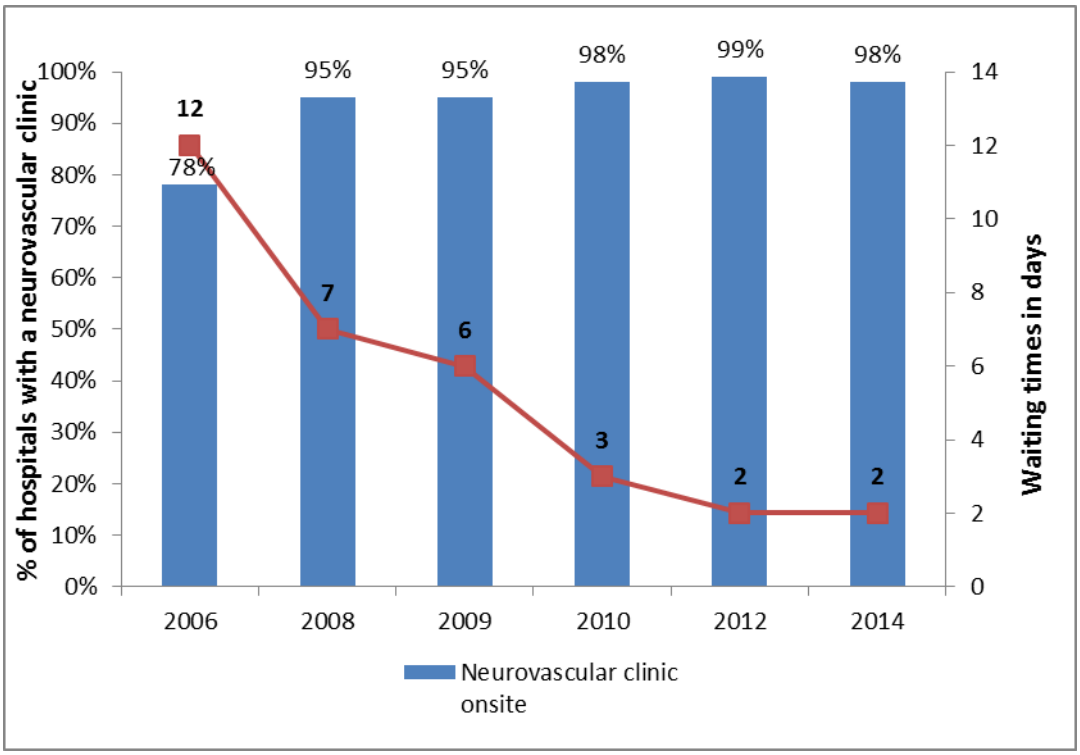
% of qualified 7 day therapy working (Q3.3)	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Occupational Therapy	NA	4	4	4	16	22%
Physiotherapy	NA	4	7	12	25	28%
Speech and Language Therapy	NA	1	0	0.5	3	5%

Comment: Multidisciplinary care is integral to stroke unit care and whilst there has been steady improvements towards 100% access to all the allied health professions reported there are still significant deficiencies. This should be picked up using service specifications by commissioners in order to provide the very best stroke care for patients.

We know that nursing numbers are key to patient safety in hospital and whilst the median number of nursing staff (trained and untrained) had previously between 2008-2012 been steady at eight at 10am on weekdays, it is encouraging to see this has increased to a total of nine in the 2014 audit. The provision of 7 day a week physiotherapy and occupational therapy remains low at 28% and 22% respectively with speech and language therapy available 7 days a week in only 5% of sites.

4.5 Transient Ischaemic Attack (TIA) / neurovascular service (Domain 4)

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Neurovascular clinic onsite (Q5.1)	78%	95%	95%	98%	99%	98%
Clinics within a 4 week period (Q5.1b)	5 (4-8)	8 (4-12)	12 (6-20)	20 (9-20)	20 (20-28)	24 (20-28)
Average waiting time in days (Q5.1d)	12 (7-17)	7 (5-12)	6 (3-10)	3 (2-7)	2 (1-3)	2 (1-3)



	NSSA	SSNAP	
	2010	2012	2014
See investigate & initiate treatment HIGH risk patients same day 7 days a week (Q5.3)			
• Inpatients	33%	53%	60%
• Outpatients	10%	37%	45%
LOW risk patients same day 7 days a week (Q5.4)			
• Inpatients	17%	31%	40%
• Outpatients	2%	6%	5%
Carotid Imaging same day 7 days a week (Q5.2)			
• HIGH risk	10%	36%	42%
• Low risk	2%	14%	10%

Comment: Neurovascular clinics are now well established throughout the audit with almost all sites offering such services with average waiting times of 2 days. Seven day a week services have increased modestly but it is surprising that high risk TIA patients admitted to 40% of hospital sites are still ***not*** investigated and treated on the same day. High risk TIA patients are by definition at risk of early recurrence of stroke symptoms and should be treated urgently. After all, patients with unstable angina admitted acutely to hospital would not be left without same day investigation and initiation of preventative treatment.

4.6 Quality improvement and research (Domain 5)

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Stroke service report produced for trust board (Q7.1)	NA	NA	NA	88%	93%	89%
Strategic group responsible for stroke (Q7.3)	NA	NA	NA	98%	93%	96%
Funding for external courses available for nurses and therapists (Q7.4)	NA	NA	NA	90%	88%	91%
1 or more research studies (Q7.10)	56%	68%	72%	81%	92%	89%

Comment: With all the changes to NHS organisations it is reassuring that there has been no decline in the elements of quality improvement and in particular stroke research. Whilst nationally the responses to each of the items within Domain 5 is 89% or more we should aspire to 100% for all four of them.

4.7 Communication with patients and carers (Domains 5 and 6)

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Formal links with patients and carers organisations for communication on service provision, audit or future plans (Q8.4)*	74	81	86	90	88	91
Community user group for stroke (Q8.5)	68	75	81	92**	89**	92

*In 2012, 53% of sites had formal links on all of the three topics. In 2014, this figure is 51%.

** In 2010 and 2012 we asked for formal links with community user groups for stroke.

	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Patient access to management plan % (Q8.1)	73	80	79	79	82	86
Patient information literature displayed in unit/ward on: (Q8.2)						
• Patient versions of national or local guidelines/standards	59	77	84	81	82	77
• Social Services local Community Care arrangements	82	81	92	86	88	89
• The Benefits Agency	76	80	88	84	86	85
• Secondary prevention advice			99	98	98	99
Patients given a personalised rehabilitation discharge plan (Q8.3)	NA	NA	NA	60	86	86
Patients views sought on stroke services (Q7.6)	86	88	89	88	92	95
Report produced in past 12 months which analysed patient views (Q7.7)	42	44	51	54	68	71

Comment: Communication with patients and carers has generally improved with each audit which has to be congratulated. Sites where this is not happening are firmly in the minority and should be looking to address this aspect of their service as a priority. The expectation is that we should see 100% positive responses to the same questions in the next audit.

4.8 Planning and access to specialist support (Domain 6)

(Q2.1)	NSSA				SSNAP	
	2006	2008	2009	2010	2012	2014
Median (IQR) number of stroke beds	24 (16-30)	25 (20-34)	26 (20-36)	26 (20-34)	25 (20-34)	26 (20-36)

(Q4.1, 4.3)	NSSA	SSNAP	
	2010	2012	2014
Access to a stroke specific ESD team	44%	66%	74%
Access to specialist community rehab	55%	57%	72%

Comment: The median number of stroke unit beds per site has remained reasonably constant over time since 2008, at 26 beds. Access to Early Supported Discharge (ESD) has increased but still a quarter of sites do not transfer care into the community using this evidence based approach. Access to specialist community neurorehabilitation has improved from 57% in 2012 to 72% of sites in 2014, but still 28% of sites have no access at all.

Section 5: Audit results by country

This section gives national figures for the organisation of stroke care in England, Wales and Northern Ireland at 1 July 2014.

Denominators vary within tables because of differing site characteristics. 183 is the total number of sites that participated in the audit in England, Wales, Northern Ireland and the Islands. There are 15 sites in England and 1 in Northern Ireland which do not provide care to patients in the first 72 hours. These sites are excluded from the analysis of measures relating to this phase of acute care. Please refer to page 27 for more details on denominators.

The 'All sites' column reflects the national figures including the results from the Isle of Man. However, the regional breakdowns relate to results from England, Wales and Northern Ireland only.

5.0 Type of service overall

Care in the first 72 hours after stroke (Q1.1)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Care provided for ALL patients in the first 72 hours after stroke	83% (152)	82% (128)	100% (14)	82% (9)
Care provided for SOME patients in first 72 hours after stroke	8% (15)	9% (14)	0% (0)	9% (1)
Care is NOT provided for patients within first 72 hours of stroke	9% (16)	10% (15)	0% (0)	9% (1)

5.1 Presentation and initial assessment

	All sites (167 sites)	England (142 sites)	Wales (14 sites)	Northern Ireland (10 sites)
There are NO arrangements in place with local ambulance services to FAST- Track (rapid blue light transfer to hospital) patients presenting with acute stroke who may be appropriate for thrombolysis (Q1.2)	1% (2/167)	1% (1/142)	0% (0/14)	0% (0/10)

5.2 Thrombolysis provision

Thrombolysis in your hospital(s)	All sites (167 sites)	England (142 sites)	Wales (14 sites)	Northern Ireland (10 sites)
% of sites currently providing an on-site 24/7 thrombolysis service (Q1.6)	83% (138)	82% (116)	93% (13)	90% (9)
% of sites currently providing a 24/7 thrombolysis service, on-site only or in collaboration with neighbouring sites (Q1.11d)	99% (165)	99% (141)	100% (14)	100% (10)

Comment: We are pleased to report that there is now effectively 100% access to thrombolytic treatment for acute ischaemic stroke across England, Wales and Northern Ireland. Over half of sites have access to intra-arterial treatments and 93% of sites in Wales reported that they use inter-arterial treatments for acute stroke.

Telemedicine (Q1.4)	All sites (167 sites)	England (142 sites)	Wales (14 sites)	Northern Ireland (10 sites)
% of sites currently using telemedicine to allow remote access for management of acute stroke care	70% (117)	69% (98)	86% (12)	70% (7)

Interventional Neuroradiology (Q1.12)	All sites (167 sites)	England (142 sites)	Wales (14 sites)	Northern Ireland (10 sites)
% of sites currently using intra-arterial treatment (eg thrombectomy) to treat patients with acute stroke*	54% (91)	51% (72)	93% (13)	60% (6)

*On site or by referral to another site

5.2.1 Venous thromboembolism prevention

First line treatment for preventing venous thromboembolism for patients with reduced mobility (Q3.9)	All sites (167 sites)	England (142 sites)	Wales (14 sites)	Northern Ireland (10 sites)
Short or long compression stockings	1%(1)	1% (1)	0% (0)	0% (0)
Intermittent pneumatic compression device	42% (77)	45% (71)	7% (1)	45% (5)
Low molecular weight heparin	35% (64)	34% (54)	29% (4)	45% (5)
None of the above	22% (41)	20% (31)	64% (9)	9% (1)

Comment: The evidence base for prevention of venous thromboembolism after stroke has been transformed by the CLOTS trials and it is good to see very little variation in the audit in the use of compression stockings, which has effectively disappeared from clinical practice. Use of Intermittent Pneumatic Compression (IPC) may well increase in England after review and recommendation by NICE. Currently there is low take up of IPC in Wales compared to England and Northern Ireland.

5.3 Stroke unit provision

100% of sites in England, Wales and Northern Ireland have designated stroke unit beds.

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Median (IQR) number of stroke beds in stroke units per site 2014 (Q2.1)	26 (20-36)	27 (22-36)	20 (12-23)	12 (10-19)

Comment: The median number of beds in a stroke unit varies considerably by country and will relate to catchment area and demographics. However, the need for stroke units to be geographically distinct clinical areas with dedicated and 7 day specialist multidisciplinary staffing, means that small units may struggle to be affordable and be prey to economies of scale.

5.3.1 Stroke care in the first 72 hours

This section includes:

- Sites with beds used solely for the first 72 hours after stroke (Type 1 beds)
- Sites with beds used for both pre and post 72 hour stroke care (Type 2 beds)

The 7 acute criteria for stroke units with type 1 and type 3 beds are:

- Continuous physiological monitoring (ECG, oximetry, blood pressure)
- Immediate access to scanning for urgent stroke patients
- Direct admission from A&E/front door
- Specialist ward rounds on 7 days a week
- Acute stroke protocols/guidelines
- Nurses trained in swallow screening
- Nurses trained in stroke assessment and management

Stroke units with Type 1 beds	All sites (n=75) (45% of 167 sites)	England (n=73) (51% of 142 sites)	Wales (n=2) (14% of 14 sites)	Northern Ireland (n=0) (0% of 10 sites)
Median (IQR) number of type 1 stroke unit beds (Q2.1c)	6 (4-12)	6 (4-12)	8 (4-12)	-
% stroke units beds with all 7 criteria	37% (28/75)	38% (28/73)	0% (0/2)	-
% stroke units beds with 6 or more criteria	68% (51/75)	68% (50/73)	50% (1/2)	-

Comment: There are currently no Type 1 beds in Northern Ireland. In both England and Wales the aspiration must be that all 7 criteria for acute stroke units are met in such units and this is not happening at all in the current two Welsh units and in only 38% of English units. The median number of Type 1 beds per site in England remains six but has increased in Wales from five to eight since 2012. The increase in Type 1 beds has to be accompanied with the quality assurance of meeting all 7 acute criteria.
In Type 3 stroke unit beds there is also a marked difference by country in acute criteria being met, with units in England achieving six or more criteria in 63% of sites compared with 25% of units in Wales and 30% of units in Northern Ireland.

Stroke units with Type 3 beds	All sites (n=109) (65% of 167 sites)	England (n=86) (61% of 142 sites)	Wales (n=12) (86% of 14 sites)	Northern Ireland (n=10) (100% of 10 sites)
Median (IQR) number of Type 3 stroke unit beds (Q2.1e)	22 (17-26)	23 (18-27)	20 (15-22)	13 (10-19)
% stroke units beds with all 7 criteria	17% (18/109)	21% (18/86)	0% (0/14)	0% (0/10)
% stroke units beds with 6 or more criteria	55% (60/109)	63% (54/86)	25% (3/14)	30% (3/10)

5.3.2 Stroke care across all 'types' of stroke unit

This section includes all 183 sites which have a stroke unit. It is not broken down into different 'types' of stroke unit bed.

The 5 SUTC characteristics for all stroke units (type 1, type 2 and type 3 beds) are:

- Consultant physician with responsibility for stroke
- Formal links with patient and carer organisations
- Multidisciplinary meetings at least weekly to plan patient care
- Provision of information to patients about stroke
- Funding for training (study leave and days taken)*

* The SUTC characteristic is defined as 'a programme for continuing education of staff'.

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
% of sites with stroke units who have all 5 SUTC Key Characteristics	44% (80/183)	41% (65/157)	86% (12/14)	18% (2/11)

Comment: With respect to the 5 SUTC criteria which should be present in all stroke units there is again marked variation by country. Welsh stroke units report meeting all five criteria in 86% of sites, whilst English units only report all five being met in 41% of sites and the percentage is even lower in Northern Ireland at 18%. This variation is unacceptable and should be addressed by commissioners through service specifications.

5.3.3 Whole Time Equivalents (WTE) of staff across all stroke units

The data for nurses/assistants at 10am and 10pm, specialist nurses and qualified staff within this section are presented as rations of staff per 10 stroke unit beds.

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Median (IQR) number of registered nurses/assistants usually on duty at 10am weekdays per 10 beds	3.46 (3.04-3.89)	3.46 (3.06-3.89)	3.02 (2.92-4.17)	3.64 (3.33-3.89)
Median (IQR) number of registered nurses/assistants usually on duty at 10pm weekdays per 10 beds	2.22 (1.88-2.61)	2.22 (1.92-2.63)	1.67 (1.43-2.50)	2.14 (2.00-2.73)

Median (IQR) WTE per 10 stroke unit beds for specialist nurses across stroke service per 10 beds (Q3.4)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Band 7	0.67 (0.44-1.00)	0.64 (0.43-0.94)	0.89 (0.53-1.25)	0.71 (0.38-1.58)
Band 8a	0.35 (0.20-0.45)	0.33 (0.19-0.45)	0.43 (0.21-0.83)	0.00 (0.00-0.00)
Band 8b	0.24 (0.13-0.38)	0.24 (0.13-0.38)	0.00 (0.00-0.00)	0.00 (0.00-0.00)
Band 8c	0.23 (0.04-0.42)	0.23 (0.04-0.42)	0.00 (0.00-0.00)	0.00 (0.00-0.00)

Junior doctor time per week for all stroke units beds (Q3.6)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Specialist trainee 3(ST3)/registrar grade or above	7 (2-10)	8 (2-10)	4 (3-10)	0 (0-5)
Foundation years/core training/ST1/ST2 or below	20 (10-30)	20 (10-30)	10 (10-20)	9 (1-15)
Non training grade junior doctor	0 (0-8)	0 (0-9)	3 (0-5)	0 (0-5)
Total junior doctor sessions	30 (19-42)	30 (20-44)	22 (13-28)	15 (8-26)

Median (IQR) WTE per 10 stroke unit beds for qualified staff: (Q3.3)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Clinical Psychology	0.04 (0.00-0.19)	0.04 (0.00-0.19)	0.01 (0.00-0.13)	0.06 (0.00-0.42)
Dietetics	0.19 (0.11-0.29)	0.19 (0.12-0.28)	0.13 (0.07-0.42)	0.20 (0.11-0.29)
Occupational Therapy	1.13 (0.83-1.50)	1.18 (0.92-1.53)	0.89 (0.80-1.13)	0.83 (0.64-1.36)
Physiotherapy	1.33 (1.11-1.63)	1.36 (1.17-1.64)	1.11 (0.93-1.26)	1.15 (0.77-1.60)
Speech & Language Therapy	0.52 (0.34-0.75)	0.54 (0.34-0.76)	0.48 (0.43-0.67)	0.45 (0.26-0.50)
Pharmacists	0.16 (0.09-0.24)	0.16 (0.10-0.25)	0.10 (0.07-0.17)	0.21 (0.13-0.30)
Nurses	9.17 (7.58-10.87)	9.22 (7.61-10.96)	8.48 (7.00-9.83)	9.46 (7.57-10.49)

% with 6 or 7 day working for therapists (Q3.3)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Occupational Therapy	35% (64/183)	41% (64/157)	0% (0/14)	0% (0/11)
Physiotherapy	44% (81/183)	50% (79/157)	14% (2/14)	0% (0/11)
Speech & Language Therapy	8% (14/180)	9% (14/154*)	0% (0/14)	0% (0/11)

* 3 sites in England do not have any speech and language therapists

% with 5 day access on stroke unit to and team meetings: (Q3.1-3.2)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Social work expertise	97% (178)	97% (152)	100% (14)	100% (11)
Orthotics	86% (157)	89% (139)	100% (14)	36% (4)
Orthoptics	85% (155)	85% (133)	93% (13)	73% (8)
Podiatry / Foot health	60% (110)	58% (91)	86% (12)	55% (6)
Clinical Psychologists	61% (112)	62% (98)	57% (8)	55% (6)
Multidisciplinary team meetings (Q3.7)				
Take place more than twice a week	69% (127)	74% (116)	79% (11)	0% (0)

Comment: The median number of nurses per 10 beds on duty at 10am is between three and four across all 3 countries. The median total WTE equivalent of trained nurses per 10 stroke beds is nine in England and Northern Ireland and eight in Wales. Only England has senior 8b or 8c stroke nurse consultant posts. There are no senior (band 8) nursing posts at all in Northern Ireland.

Junior doctor time is also variable across countries with England having twice as many (30) junior sessions than Northern Ireland (15). This picture has not changed significantly from 2012 and has implications for training of future stroke consultants by country.

The median WTE of MDT staff is broadly similar across all three countries but weekend therapy provision is mainly happening in England, with two sites in Wales offering weekend stroke physiotherapy and no weekend therapy working in Northern Ireland at all reported currently.

5.4. Management of stroke services

5.4.1 Investment in staff

WTE of Band 7 or above stroke specialist staff (Q6.3)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Clinical Psychologists	0.0 (0.0-0.7)	0.0 (0.0-0.6)	0.1 (0.0-0.4)	0.2 (0.0-1.0)
Dietitian	0.0 (0.0-0.4)	0.0 (0.0-0.5)	0.0 (0.0-0.0)	0.0 (0.0-0.0)
Nurses	2.0 (1.0-2.0)	2.0 (1.0-2.7)	1 (0.6-1.0)	1 (0.4-2.0)
Occupational Therapists	1.0 (0.5-1.2)	1.0 (0.6-1.3)	0.6 (0.0-1.9)	0.0 (0.0-1.0)
Physiotherapists	1.0 (0.8-2.0)	1.0 (1.0-2.0)	1.0 (0.8-2.6)	0.0 (0.0-1.0)
Speech and Language Therapists	0.6 (0.0-1.0)	0.7 (0.2-1.0)	0.4 (0.0-1.0)	0.0 (0.0-0.9)

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Accredited specialist registrar in post registered for stroke specialist training (Q6.2)	29% (53)	31% (48)	36% (5)	0% (0)
Number of PAs for stroke consultant physicians: Median (IQR) (Q6.6)	22 (14-34)	23 (15-35)	10 (7-20)	15 (5-22)
Number of PAs for direct clinical care for stroke: Median (IQR) (Q6.6b)	17 (10-27)	19 (13-28)	10 (7-11)	5 (4-16)
Number of new/additional PAs for stroke consultant physicians: Median (IQR) (Q6.7)	0 (0-10)	0 (0-10)	0 (0-7)	0 (0-3)
Number of new/additional PAs for direct clinical care for stroke: Median (IQR) (Q6.7b)	7 (4-9)	7 (4-9)	6 (5-7)	3 (2-6)

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Number of unfilled stroke consultant posts (Q6.5)	26% (48)	27% (42)	14% (2)	36% (4)
Number of PAs these posts cover (Q6.5a)	10 (6-11)	10 (8-11)	8 (5-10)	2 (0-7)

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Funding for external courses available for nurses and therapists (Q7.4)	91% (167)	91% (142)	100% (14)	91% (10)
Number of staff days paid for between 1 April 2011 and 31 March 2012: Median (IQR) (Q7.4a)	20 (9-40)	21 (10-45)	9 (1-17)	9 (3-33)

Comment: There has been a large increase in accredited registrar stroke training posts in Wales to five in 2014 from one in 2012. At the same time Northern Ireland has now lost its single training post, which does not bode well for the speciality going forward. Variations in direct clinic consultant time exist between countries between a median of 19 programmed activity (PAs) per site in England and five PAs per hospital in Northern Ireland. These numbers are not however adjusted for total numbers of stroke unit beds - which we know are much smaller in Northern Ireland. All countries are looking to invest in additional stroke consultant clinical time in the future but a quarter of stroke consultant posts across all three countries remain unfilled currently. The situation appears worst in Northern Ireland where 36% of sites have unfilled posts and with no current recognised training post in Northern Ireland recruitment will be dependent on overseas applicants it now seems. Hopefully this apparent workforce crisis will be addressed by the recent stroke services review in Northern Ireland.

5.4.2 Quality improvement

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
% of sites with a strategic group responsible for stroke (Q7.3)	96% (176)	96% (150)	100% (14)	100% (11)
Stroke service report prepared for trust board between 1 April 2013 – 31 March 2014 (Q7.1)	89% (162)	91% (142)	100% (14)	45% (5)
Report produced between 1 April 2013 – 31 March 2014 which analysed the views of patients (Q7.7)	71% (130)	72% (113)	79% (11)	45% (5)

Comment: As in 2012, Wales is leading the way in terms of Quality Improvement initiatives including preparing reports for Trust boards - in stark contrast to the situation in Northern Ireland, where such reports have been presented in less than half of sites.

5.4.3 Leadership of stroke services

	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
% of sites with clinicians with specialist knowledge of stroke formally recognised as having principal responsibility for stroke services (Q6.1)	99% (181)	99% (155)	100% (14)	100% (11)

5.4.4 Research studies

Stroke studies registered with your Research & Development department (Q7.10)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
% of sites with ONE or more research studies	89% (162)	92% (144)	71% (10)	73% (8)
% of sites with THREE or more research studies	70% (129)	77% (121)	29% (4)	36% (4)

Comment: Most countries remain research active although sites in England have a greater proportion of sites with 3 or more research studies and this number in Northern Ireland has fallen from 64% in 2012 to 36% in 2014.

5.5 Patient support and communication

Discharge planning (Q8.3 – 8.5)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Patients given a personalised rehabilitation discharge plan	86% (157)	88% (138)	100% (14)	36% (4)
Stroke service has formal links with patients and carers organisations for communication on ALL of the following: service provision, audit , and service reviews and future plans	51% (93)	47% (74)	100% (14)	36% (4)
Stroke service has formal links with community user groups for stroke	92% (168)	90% (142)	100% (14)	100% (11)

Support for working age patients (Q6.4)	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
Provision of a service which actively supports stroke patients to remain in, return to or withdraw (if appropriate) from work? (Q6.4a)	77% (140)	75% (118)	100% (14)	73% (8)
Provision of a service which actively provides educational or vocational training? (Q6.4b)	47% (86)	46% (72)	57% (8)	55% (6)

Comment: Wales continues to perform well compared to the other countries in respect to patients support and communication and performance in Northern Ireland has seemingly deteriorated significantly from the audit results of 2012. Disseminating national audit report to patient and carer groups has never been easier with 'easy access' versions of quarterly SSNAP reports being readily available including 'powerpoint' slide shows. https://www.strokeaudit.org/results/national-results.aspx.

5.6 Pathway at discharge

Early supported discharge team refers to a multidisciplinary team which provides rehabilitation and support in a community setting with the aim of reducing the duration of hospital care for stroke patients.

Access to Early Supported Discharge (ESD) Teams and Community Rehabilitation Teams

% (n) with access to:	All sites (183 sites)	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
A stroke/neurology specific early supported discharge multidisciplinary team (Q4.1)	74% (135)	80% (125)	14% (2)	73% (8)
A non-specialist early supported discharge multidisciplinary team (Q4.2)	36% (66)	34% (53)	36% (5)	64% (7)
A stroke/neurology specific community rehabilitation team for longer-term management (Q4.3)	72% (131)	76% (120)	0% (0)	91% (10)
A non-specialist community rehabilitation team for longer-term management (Q4.4)	70% (128)	68% (106)	93% (13)	73% (8)

Comment: Stroke specific ESD is still significantly under provided in Wales, where there is also no stroke or neurology specific community rehabilitation provision (there was one reported in 2012).

5.7 Distribution of scores for England, Wales and Northern Ireland

In England, the median total organisational score was 76.4, 157 sites. In Wales, the median total organisational score was 65.4, 14 sites. In Northern Ireland, the median total organisational score was 63.0, 11 sites.

Band	England (157 sites)	Wales (14 sites)	Northern Ireland (11 sites)
A	7% (12)	0%	
B	29% (46)	0%	
C	38% (59)	7% (1)	18% (2)
D	18% (28)	64% (9)	55% (6)
E	7% (12)	28% (4)	27% (3)