Understanding Practice in Clinical Audit and Registries tool: UPCARE-tool

A protocol to describe the key features of clinical audits and registries

FAQ

Who should complete the tool?

This tool is designed to be completed by individuals and organisations planning and implementing clinical audits and registries. It has been specifically designed for national clinical audits and registries commissioned by the Healthcare Quality Improvement Programme (HQIP; Part of the National Health Service in England) as part of the National Clinical Audit and Patient Outcome Programme (NCAPOP), but can be adapted and used by audits and registries in other settings.

What is the tool for?

The tool is a protocol for audits and registries. It has been designed to provide a "one-stop" summary of the key information about how clinical audits and registries have been designed and carried out. It is expected that this will be published openly for anyone to view, and help users of audit/registry data and audit/registry participants understand the methods, evaluate the quality and robustness of the data, and find information and data that is most relevant to them. For national clinical audits and registries commissioned by HQIP, the intention is that publishing this information openly will reduce the requirement for reporting ad hoc and contract monitoring data and information to HQIP and other national agencies.

What type of information is contained within UPCARE?

It is intended that the responses to the tool are factual and written concisely. Where possible, documents can be embedded and hyperlinks provided if information is published elsewhere. This document is intended to be a complete account of the information for the audit or registry. Please be vigilant about keeping any links included in the document up to date so readers can access full information about the audit or registry.

This tool is not intended to be used to formally "score" the quality of the responses. The design of this tool has been inspired by reporting checklists used for clinical guidelines (e.g. AGREE) and in reporting research studies (e.g. STROBE, SQUIRE).

Who is the intended audience for the tool?

The information contained within the UPCARE tool will enable audit and registry stakeholders to access in one place and in a standard format key information about the audit/registry and evaluate the integrity and robustness of the audit.

Examples of audit/registry stakeholders include:

- Patients / Carers / Public / Patient representative organisations
- Clinicians / Allied health professionals / Healthcare providers / Multi-disciplinary teams / Primary, secondary and tertiary care providers
- National agencies
- Commissioners
- Healthcare regulators

FAQ (cont'd)

How should the responses be written?

Please try and write responses clearly as this will help to make the tool accessible and useful. Some tips and suggestions for writing clearly include:

- avoiding technical jargon where possible
- using short paragraphs and bullet points
- using the "active" voice rather than passive
- keeping sentences short

Where information is published openly elsewhere please provide links and references rather than duplicating information that is already available

When and how often should I complete the tool?

The tool is intended to provide accurate and up to date information about the audit/registry, and so can be updated whenever and however frequently it is relevant to do so. For national clinical audits and registries commissioned by HQIP it is intended that the tool is updated annually, although audits can update the tool more frequently if they wish to.

Each version of the tool should include a date of publication and version number.

Where should the completed UPCARE report be published?

The completed tool should be published online e.g. on the website for the audit or registry.

How was UPCARE designed?

HQIP commission, manage and develop the NCAPOP (National Clinical Audit and Patient Outcomes Programme) under contract from NHS England and devolved nations. The work was led by HQIP who set up a Methodological Advisory Group (MAG) consisting of methodological, statistical and quality improvement experts. Meeting were held on a six monthly basis and the structure and content of the eight quality domains and their key items were agreed by the MAG. The tool was piloted by 5 programmes within the NCAPOP and re-edited in light of comments received. Other comments received by MAG members was also considered as part of the re-editing process. The final version of the UPCARE tool was signed off by the HQIP MAG and will be reviewed annually.

IPR and copyright

Contents

Domain 1: Organisational information

1. The name of the programme
Sentinel Stroke National Audit Programme (SSNAP)

2. The name of the organisation carrying out the programme
King's College London (KCL)

3. Main website for the programme
www.strokeaudit.org

4. Date of publication and version number of the tool on your website
31/10/2019, Version 1

Domain 2: Aims and objectives

1. Overall aim

SSNAP measures both the processes of care (clinical audit) provided to stroke patients, as well as the structure of stroke services (organisational audit) against evidence based standards, including the 2016 National Clinical Guideline for Stroke. The overall aim of SSNAP is to provide timely information to clinicians, commissioners, patients, and the public on how well stroke care is being delivered so it can be used as a tool to improve the quality of care that is provided to patients. SSNAP has been voted the most effective national clinical audit in the UK for seven consecutive years by healthcare professionals involved in audit.

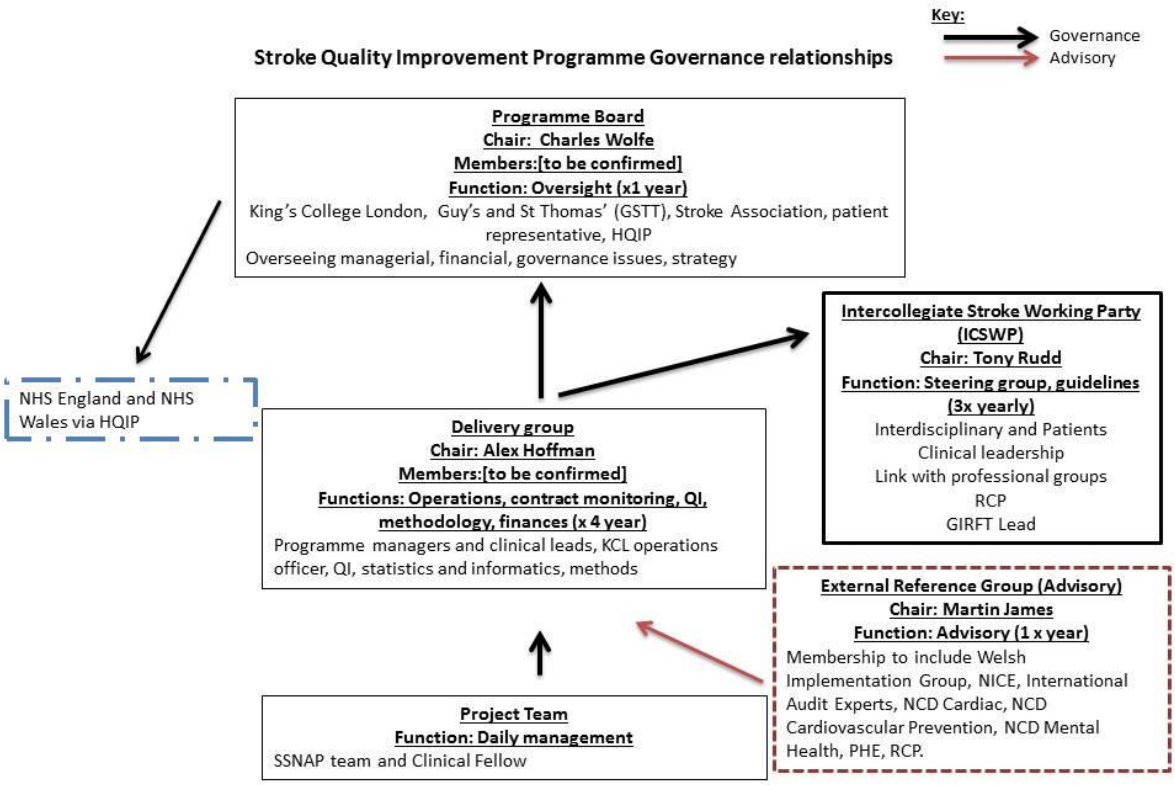
2. Quality improvement objectives

The quality improvement objectives of the programme are to:

- Improve stroke care by measuring against evidence based standards in acute, post-acute and longer term settings
- Develop useful, timely reporting outputs which benchmark performance against best practice targets so providers can identify good and poor practice
- Measure impact of new treatments and interventions
- Collaborate with national QI initiatives aimed at improving patient care
- Be the single source of stroke data avoiding repetition of efforts and ensuring consistency of approach
- Support local QI initiatives (https://www.strokeaudit.org/qualityimprovement)
- Share best practices
- Provide tools and resources to measure performance
- See below link to all SSNAP Domains and Key Indicators, the source of these being the 2016 RCP National Clinical Guideline for Stroke
  https://www.strokeaudit.org/SupportFiles/Documents/Clinical-Audit-Resources/SSNAP-Domains-and-Key-Indicators-(1).aspx

Domain 3: Governance and programme delivery

1. Organogram



2. Organisations involved in delivering the programme

King's College London, https://www.kcl.ac.uk, Host Organisation
Netsolving, - subcontracted to host the online data capture tool which facilitates data collection and analysis - http://www.netsolving.com/, Web Developer
Intercollegiate Stroke Working Party (ICSWP) – The SSNAP steering group which consists of experts in a variety of fields representing key stakeholder organisations (e.g. clinicians, paramedics, researchers, therapists and patient representatives) who oversee the project and provide valuable guidance and advice.A full list of members of the steering group and their representative organisations can be found here: https://www.strokeaudit.org/getattachment/SSNAP-Governance/ICSWP-Membership.pdf.aspx?lang=en-GB

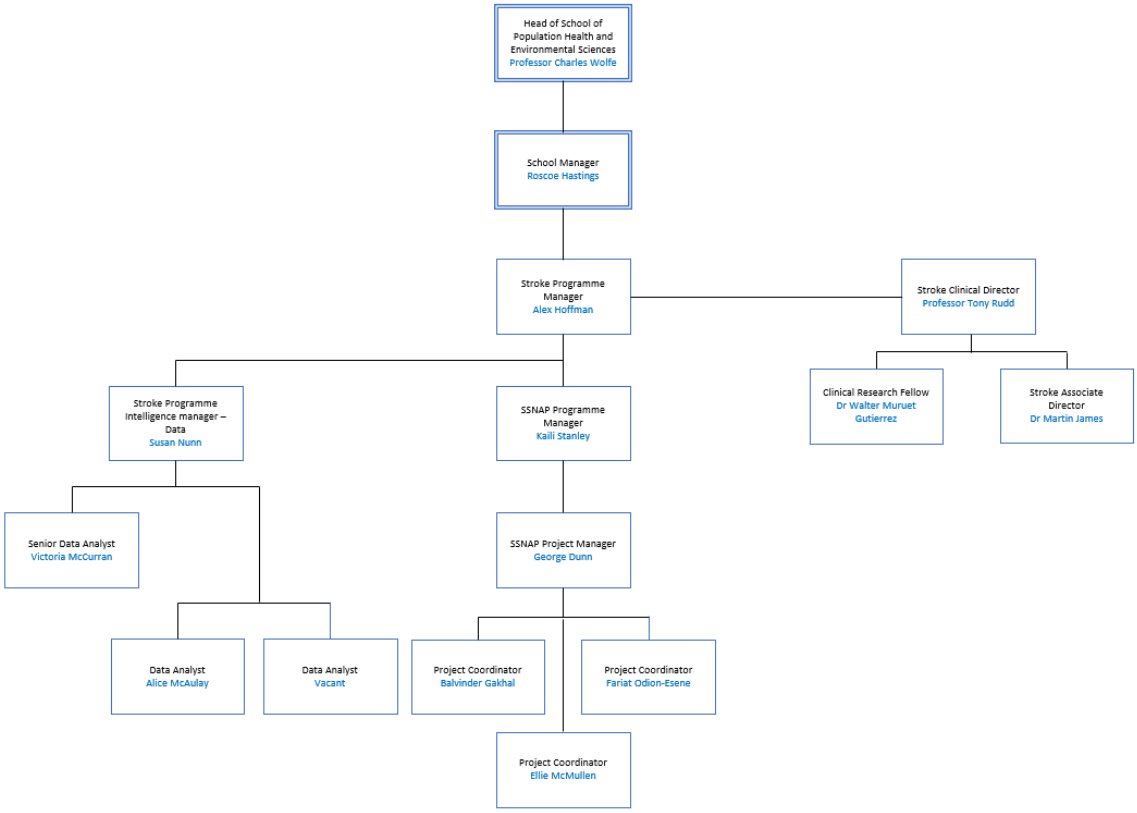
3. Governance arrangements

The following governance groups (including representatives from all key stakeholders) are responsible for oversight of the project:

Programme Board: Responsible for broadly overseeing strategy as well as managerial, financial, and governance issues within the programme. The chair of the board is Prof Charles Wolfe (King's College London), who maintains oversight of the whole programme. The board meets annually and membership includes: Mrs Alex Hoffman (King's College London); Professor Tony Rudd (Guys and St Thomas'); Mrs Marney Williams (patient representative); Mrs Alexis Kolodziej (Stroke Association) and representation from commissioners (HQIP).

Delivery Group: Responsible for daily operations, finance and contract monitoring. Oversight of quality improvement and methodology, statistics and informatics. Clinical leadership is embedded within this group to provide day-to-day clinical direction of the audit and routinely advise on the design of new outputs and continue to be instrumental in SSNAP's ability to rapidly respond to new evidence. The delivery group meets 4 times per year and membership includes: Prof Tony Rudd and Prof Martin James (Clinical leads); Alex Hoffman and Kaili Stanley (SSNAP Programme Managers); Christopher Jones (Senior Operations Officer, King's College London); Dr Vasa Curcin (statistics and informatics); Dr Walter Muruet Gutierrez (KCL Stroke Clinical Fellow).

Project Team: Responsible for daily management of the programme. See below for project team organogram. Project management staff are employed to ensure data definitions and support areas are kept up-to-date for inter-rater reliability and to chase teams with poor participation/data quality. The helpdesk ensures improved real-time data entry, and use of real-time indicators and interim reports for continuous quality improvement, and assists with interpreting reports and obtaining feedback. The team of analysts are embedded within the project team, and are involved throughout the audit.



Intercollegiate Stroke Working Party: Has oversight of the programme and contributes to maintaining clinical leadership. Responsible for monitoring the progress of the audits, including monitoring trends in results, and annual dataset reviews. The ICSWP has multiprofessional membership from all key stakeholders and clinical groups in the NHS. Membership includes: https://www.strokeaudit.org/getattachment/SSNAP-Governance/ICSWP-Membership.pdf.aspx?lang=en-GB

External Reference Group: Functions as an external advisory group to inform dataset changes annually and when new evidence warrants a change. This group meets annually and is chaired by Prof Martin James. Membership includes: Prof Bo Norvigg (International audit expert); Ms Jennifer Watts (NICE); Prof Martin Dennis and Ms Jennifer Clark (PHE); Prof Helen Rodgers (RCP); National Clinical Directors for Cardiac, Cardiovascular Prevention and Mental Health; Representation from the Welsh Implementation Group.

Data sign off process:
Only 'locked' data are included in SSNAP analysis. The process of locking ensures high data quality and signifies that the data have been signed off by the lead clinician and are ready for central analysis. SSNAP records can be locked at three levels depending on their level of completion: 'Locked to 72 hours' for patients who have received their acute care provision; 'locked to discharge' for patients who have been discharged from one or more care provider; 'locked to six months' for patients for patients for whom 6 month assessment status has been recorded. Once submitted to SSNAP, reports are generated using these locked data and before being made available to teams are rigorously checked and then signed off by the head analyst, programme manager and clinical director.

Data deadlines are provided via our website and regular email reminders to participants. Teams are allowed a month of data entry following the reporting period prior to the data locking deadline. Once analysis is complete, reporting outputs are rigorously checked by the team before mbeing phased to teams. Reports are initially only available to individual teams, so that each team can only see their own data – therefore providing teams with the ability to query and check the data before being made available to the wider NHS and subsequently the public.

4. Declarations and Conflicts of interest

Regularly updated lists of membership of the steering group (Intercollegiate Stroke Working Party (ICSWP)) and members' interests are fully publicly declared on the Stroke Programme website (https://www.strokeaudit.org/SSNAP-Governance.aspx), using the NICE categorisation. This policy and procedure are based on and reflect the most current NICE Policy on Conflicts of Interest(https://www.nice.org.uk/Media/Default/About/Who-we-are/Policies-and-procedures/declaration-of-interests-policy.pdf). When discussion occurs in relation to a declared competing interest of a member, that member is required to verbally reiterate his/her interest and depending on the type and level of interest (as judged by the chair of the ICSWP), that member is excluded from contributing to the discussion.

Domain 4: Information security, governance and ethics

1. The legal basis of the data collection

SSNAP currently has approval under Section 251 to set aside the common law duty of confidentiality and collect confidential data about patients without explicit consent on the first six months of patient care (reference number: ECC 6-02(FT3)/2012) for all stroke patients admitted to hospital.
More information on section 251 is available here: http://www.hra.nhs.uk/about-the-hra/ourcommittees/section-251/what-is-section-251/ . The rationale for this is that many stroke patients are extremely unwell in the acute phase of their treatment and it is therefore not feasible to rely on patient consent during this time period. Data is collected by clinical teams via a secure web-based tool provided by Netsolving Ltd. Security and confidentiality is maintained through the use of passwords and a person specific registration process. SSNAP's funders the Healthcare Quality Improvement Partnership (HQIP) are the data controllers for the patient data submitted to the audit from England and Wales i.e. they are the organisation in control of processing the data. SSNAP reports aggregate level data at provider (hospital or community service) level and population level every quarter and on an annual basis.
Patient consent is explicitly sought by the clinical team treating the patient at six months post-stroke though it can also be recorded during the patient's inpatient stay. If a patient refuses consent for inclusion in SSNAP, all their personal identifiable information (e.g. name and NHS number) will be deleted from the dataset and no further linkages to other data sources will therefore be possible. However their non-identifiable data will continue to be held on the database as it is important for the purpose of SSNAP to analyse all data without selection bias. Opting out from SSNAP will not affect the care a patient receives. The SSNAP team do not have access to patient identifiable information at any point in the patient pathway.

2. Information governance and information security

The SSNAP team are located within the School of Population Health and Environmental Sciences at King's College London (KCL). The School of Population Health and Environmental Sciences conforms to the Data Protection Act and other legislation that relates to the collection and use of patient data, and has strict security measures in place to safeguard patient information. SSNAP stores pseudonymised patient data on a secure computer to which only authorised audit team members have access. The IT system has various levels of security built into it, including:
• ID password security: the data is stored on a password protected system, which prevents unauthorised users gaining access. Users are required to have a complex password that is set to expire after a given period. This ensures passwords are updated regularly.
• The stored data files are encrypted.
• All system database accesses are recorded in a system log file that can be audited in the event of suspected security threats or data misuse.

Information on SSNAP governance can be found here - https://www.strokeaudit.org/SSNAP-Governance.aspx

ONS: King's College London (KCL) is the data processor responsible for producing the CCG Outcomes Indicator Set (CCGOIS) measure of mortality at 30 days for stroke patients. These results are provided to NHS Digital to publish as part of the wider CCGOIS. The results are also provided at team level to provide necessary context on the performance of clinical teams treating stroke patients. As well as reporting on 30 day mortality, there is a need to show survival at other intervals such as at 6 months and 1 year. The outputs of the analysis by KCL include mortality statistics at different time points and at different levels of granularity and dates of death will be used in statistical modelling. Any data reported on is carefully considered in terms of whether it could be potentially identifiable and advice is given on how the outputs should be interpreted.

HES: The HES dataset is used to determine the case ascertainment (case ascertainment is a measure of the number of cases reported in the audit, compared to the number of cases identified in HES) of participants of the Sentinel Stroke National Audit Programme (SSNAP), that is, the proportion of coded stroke patients which are recorded in the audit; and identify any readmissions and further strokes, in order to compare quality of care with outcomes for patients. As the outputs of analysis of SSNAP are reported and publically available, the proportion of patients entered into the audit for each hospital team, compared with the numbers in HES, is vital in determining how results are used (for instance, if there is low case ascertainment, the mortality outcomes would not be reported so that there is no potential misrepresentation).

Net Solving Ltd shows a self-assessed IG Toolkit score (100% (satisfactory)) on V14.1, 2017/18; King's College London SSNAP has a published 75% (satisfactory) reviewed grade on V14.1, 2017/18. This indicates that the programme can be trusted to handle personal information securely.

SSNAP - Reference number EE133874
https://emea01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.igt.hscic.gov.uk%2FAssessmentReportCriteria.aspx%3Ftk%3D433605619264524%26lnv%3D3%26cb%3D9356d898-b740-450a-b090-d917431a938b%26sViewOrgId%3D54496%26sDesc%3DEE133874%2B-%2BSSNAP&data=01%7C01%7Ckaili.stanley%40kcl.ac.uk%7Cb13d1c9ffd36411e420e08d693646295%7C8370cf1416f34c16b83c724071654356%7C0&sdata=6NPNvHx%2Bar7gAJJ%2FlblD0WYb8U3Ex%2Fz8ehxmsquH%2Fd4%3D&reserved=0

Netsolving Ltd - Reference number 8JA87
https://emea01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.igt.hscic.gov.uk%2FAssessmentReportCriteria.aspx%3Ftk%3D433605619264524%26lnv%3D3%26cb%3D058e2868-9fa0-4446-95ea-c5d31a2940f8%26sViewOrgId%3D49387%26sDesc%3D8JA87&data=01%7C01%7Ckaili.stanley%40kcl.ac.uk%7Cb13d1c9ffd36411e420e08d693646295%7C8370cf1416f34c16b83c724071654356%7C0&sdata=m6afuWNliBmF%2BmKnVZ1pnoFCloZgGRWKmr%2FH7MCD7gA%3D&reserved=0

Domain 5: Stakeholder engagement

1. Approaches to involving stakeholders

The Intercollegiate Stroke Working Party (ICSWP) is vital in involving feedback from a wide variety of stakeholders. This comprises members from healthcare professions in the stroke care pathway; patient and carer representative organisations; patients; and representatives from the Royal College of Physicians (RCP). Meeting every 4 months, it monitors progress of the audit, including monitoring trends in results, and annual dataset reviews.

Patient involvement continues to develop with close working with the Stroke Association, Stroke Research Patients and Family Group, Speakeasy and presence at a wide range of patient conferences. The work with patient groups is represented in lay outputs and accessible formats using data visualisation and is kept under review by the patient groups working closely with SSNAP.SSNAP aims to enable stroke patients and the general public to ask searching questions. Since its inception SSNAP has had significant patient, carer and family engagement in addition to close collaboration with the Stroke Association. As integral members of the steering group, the enthusiastic patient representative members of the ICSWP are regularly consulted and contribute to all activities related to the audit.

As members of the ICSWP, stroke survivors and representatives of the Stroke Association will play a key role in developing, agreeing, finalising, monitoring, and reviewing improvement goals and measures. Specifically, patient and public representatives will be critically involved in:
• Discussions around quality improvement initiatives and audit decisions
• Consultation on changes to the audit dataset
• Development of outputs for patients and public (including interactive maps and EAVs)
• Disseminating relevant audit outputs
• Peer review process and delivery
• Advising on outcomes and questions of interest for analyses

Patient representation will be embedded in SSNAP governance and delivery through:
• patient representation on the SSNAP Programme Board
• representation on the ICSWP, which will continue to include three stroke survivor members and two representatives from the Stroke Association
• drawing on KCL's PPI experts, including the Stroke Research Patients and Family Group.

SSNAP's existing Easy Access Versions (EAVs) of audit results were developed in response to feedback from and in collaboration with stroke survivors and carers. They were and will continue to be developed with survivors themselves, particularly Speakeasy – a charity based in Bury which supports people with aphasia – and the Stroke Research Patient and Family Group, based at King's College London. SSNAP regularly meets with these groups to review the value and utility of EAVs and seek advice on the development of any new outputs.

SSNAP also benefits from two clinical leads with extensive and successful experience in stroke care as senior consultants, audit and clinical improvement: a Clinical Director (Professor Anthony Rudd CBE) and an associate Clinical Director (Dr Martin James). They provide day-to-day clinical direction of the audit, assist the delivery team in addressing issues raised by teams, review and interpret results and develop clinical commentary for outputs. They also routinely advise on the design of new outputs and continue to be instrumental in SSNAP's ability to rapidly respond to new evidence e.g the emerging use of thrombectomy.

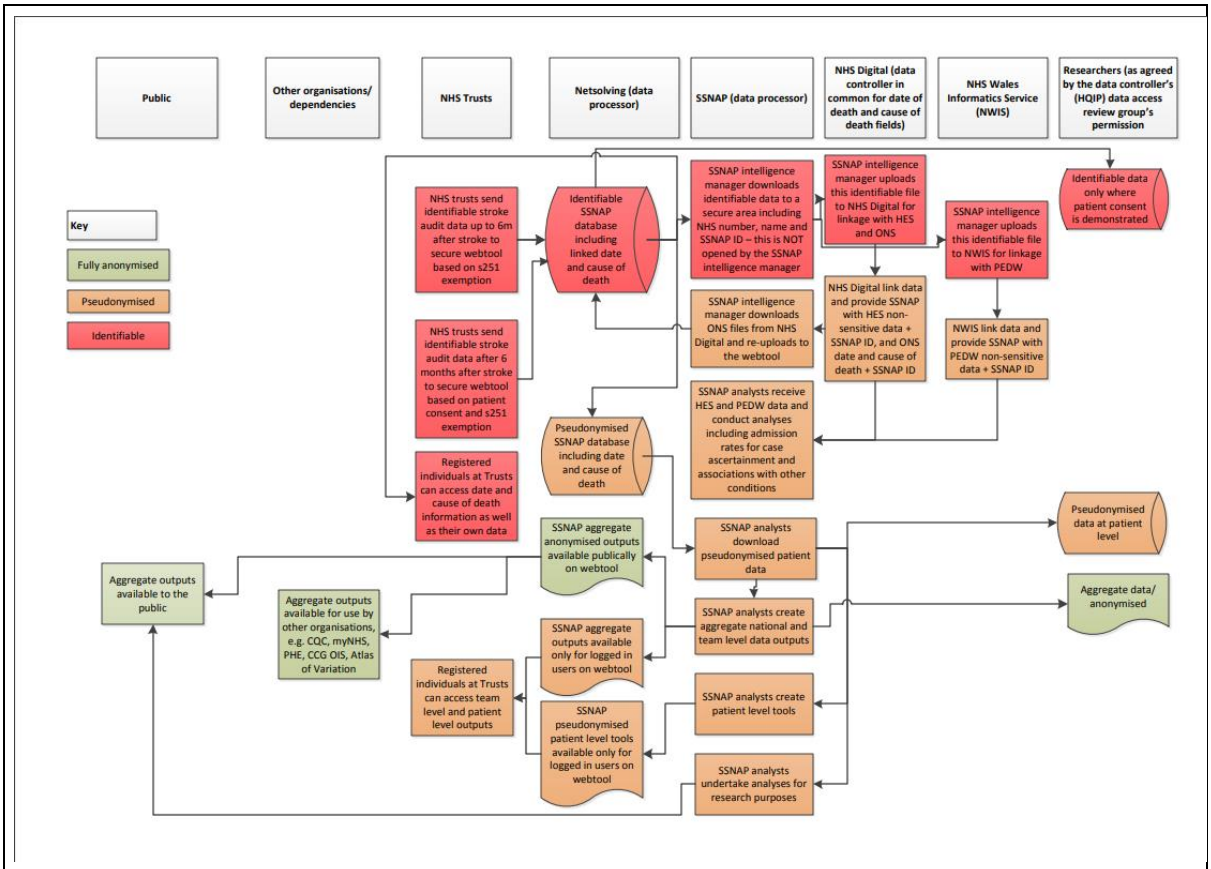
SSNAP also works closely with the Best Practice Tariff (BPT), which is a part of the National Tariff Payment System (a set of prices and rules to help providers of NHS care and commissioners provide best value to their patients). SSNAP offers a BPT tool to help teams calculate their outcomes relating to the BPT incentives. SSNAP also works closely with specialised commissioning,

CQC and the NHS England Long Term plan for stroke. SSNAP routinely attends regional SCN meetings with the lead clinicians for each region, which is a vital meeting to speak with knowledgeable clinicians in each region to both receive updates on activity around the country, but also to disseminate and gain feedback on key SSNAP developments.

SSNAP has also been working with the GIRFT programme to assist in their regional meetings, provide new slideshows and work on the Acute Organisational Audit 2019.

Domain 6: Methods

1. Data flow diagrams



https://www.strokeaudit.org/SupportFiles/Documents/Governance/SSNAP-Data-Flow-Diagram_2018.aspx

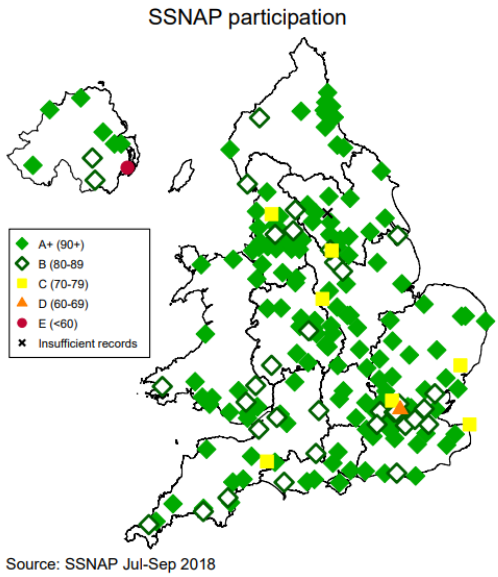
2. The population sampled for data collection

Patients: All patients admitted to a hospital in England, Wales and Northern Ireland with a primary diagnosis of stroke coded as I-61, I-63, I-64 should be submitted to SSNAP. The minimum age for patient submission to SSNAP is 16. The dataset follows the patient from admission up to 6 months and has the potential to record care processes provided by any stroke service in England, Wales and Northern Ireland which treats at least 10 patients per year.

3. Geographical coverage of data collection

The clinical audit collects a minimum dataset for stroke patients admitted with a primary diagnosis of stroke in England, Wales and Northern Ireland in every acute hospital which is considered a primary admitting hospitals where stroke patients are cohorted according to the local pathway , and follows the pathway through recovery, rehabilitation, and outcomes at the point of 6 month assessment.

Geography also covers regional reports, CCG reports via maps, thematic and point maps within patient reports enable commissioners, managers and the public to compare regionally. Similarly the portfolio organises the results by geographical area. The slide shows provide geographical variation.



The above map shows participation in SSNAP for the July-September 2018 reporting period. An 'A' score for Case Ascertainment means 90%+ patients have been entered compared to the expected number of cases as derived by Hospital Episode Statistics (HES) coding information. Only one team did not participate in this reporting period, the team informed us of this in advance and are intending to recommence participation.

4. Dataset for data collection

The full SSNAP dataset is available at the below link:
https://www.strokeaudit.org/SupportFiles/Documents/Clinical-Datasets-and-Help-Notes/SSNAP-Core-Dataset-4-0-0-(1).aspx

Additionally, full helpnotes for questions within the dataset are available here -
https://www.strokeaudit.org/SupportFiles/Documents/Clinical-Datasets-and-Help-Notes/SSNAP-Helpnotes-for-core-dataset-4-0-0.aspx

Further detail, including FAQs and detailed technical information (such as how each indiciator is calculated) are available via our Help Centre - ssnap.zendesk.com – specifically the Simplified Technical Guidance section - https://ssnap.zendesk.com/hc/en-us/sections/115001166569-Simplified-Technical-Guidance

The dataset for pre-hospital data (data collection commencing 1 April 2019) is available to download here – https://ssnap.zendesk.com/hc/en-us/articles/360018692553-Ambulance-project-core-variables

Data from the above datasets are used in a variety of ways to support our QI objectives, further details on the quality measures and evidence relating to SSNAP Clinical Audit Key Indicators are outlined in Section 8 of this Domain.

In addition to the key indicators and domains reported on in the SSNAP Clinical Audit for participating teams, SSNAP data is used for Care Quality Commission's Insight Dashboards and by their inspectors utilising both the acute organisational audit results, the clinical executive summary reports, and periodic reports to ensure that inspectors have an understanding of the wide range of information about stroke services that is available. SSNAP continues to work closely with the CQC to support the use of SSNAP data by the CQC and will regularly update templates for the CQC where necessary.

SSNAP also provides the data on stroke services for the MyNHS dashboard, clinician outcomes publication (COP) and data.gov.uk. Additionally, Monitor and NHS Improvement recommend using SSNAP to collect data for the stroke Best Practice Tariff.

In addition, SSNAP:
• works closely with Public Health England's National Cardiovascular Intelligence Network (NCVIN) to ensure cardiovascular data is used to support commissioning and quality improvement including in their CVD Profiles
• contribute to the NHS Atlas of Variation in Healthcare series and NHS Diagnostics Atlas of Variati on and to review these outputs before publication to ensure accuracy
• be the source of data for CCG OIS measures; one in Domain 1 (reducing premature mortality fro m the major causes of death); and five in Domain 3 (helping people to recover from episodes of ill health or following injury)

• support the Welsh Government and NHS Wales to monitor stroke care and inform decisions rega rding plans for reconfiguration of stroke services
• support the National Clinical Director for Stroke and Getting it Right First Time (GIRFT) through re gular access to data on the performance of stroke services to help guide where change is needed
• assist in evaluating the success of NHS Improving Quality's intermittent pneumatic compression (IPC) sleeves programme —set up to implement a new evidence based treatment across the country as rapidly as possible with the aim of avoiding deep vein thrombosis and improving outcomes for stroke patients.
• Work closely with the Stroke Association and any other patient advocacy groups
• Collect and report data to monitor the use of intra- arterial therapy for Specialised Commissioning
• Support NHS England to monitor stroke care including through reporting against standards such Urgent and Emergency Care indicators, and 7 day working standards.
• Provide data to support NHS RightCare in their commissioning for value packs, and support CCG c ommissioning through delivery partners

5. Methods of data collection and sources of data

Clinical data were collected by clinical teams and entered into a secure online webtool designed specifically for the registry - https://www.strokeaudit.org/

Only 'locked' data are included in SSNAP analysis. The process of locking ensures high data quality and signifies that the data have been signed off by the lead clinician and are ready for central analysis.
The sophisticated webtool is essential to the provision of high quality complete data and also affor ds a comprehensive support area and is the major method of reporting results in a timely way. The phased "locking" ensures data completeness and rapid reporting for 72 hour measures. It also provides the ability to phase outputs so that there is great data transparency when appropriate and following review by teams.

ONS: King's College London (KCL) is the data processor responsible for producing the CCG Outcomes Indicator Set (CCGOIS) measure of mortality at 30 days for stroke patients. These results are provided to NHS Digital to publish as part of the wider CCGOIS. The results are also provided at team level to provide necessary context on the performance of clinical teams treating stroke patients. As well as reporting on 30 day mortality, there is a need to show survival at other intervals such as at 6 months and 1 year. The outputs of the analysis by KCL will include mortality statistics at different time points and at different levels of granularity and dates of death will be used in statistical modelling. Any data reported on is carefully considered in terms of whether it could be potentially identifiable and advice is given on how the outputs should be interpreted.

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proportion of coded stroke patients which are recorded in the audit; and identify any readmissions and further strokes, in order to compare quality of care with outcomes for patients. As the outputs of analysis of SSNAP are reported and publically available, the proportion of patients entered into the audit for each hospital team, compared with the numbers in HES, is vital in determining how results are used (for instance, if there is low case ascertainment, the mortality outcomes would not be reported so that there is no potential misrepresentation).

6. Time period of data collection

The SSNAP Clinical audit started prospective data collection in 12/12/2012.

The Acute Organisational Audit 2019 is scheduled to commence data collection from 03/06/2019 to 28/06/2019.

7. Time lag between data collection and feedback

Dissemination of SSNAP reports follows a phased process. This means that participating teams receive their results approximately 3 weeks after each data locking deadline, providing them with the opportunity to review performance and formulate action plans as necessary. Most of these data are then shared within the wider NHS in the following 2 weeks before being made available publically thereafter.

Participants are allowed one month of data checking following a reporting period. For example, the January – March reporting period will have April as the checking month, with the data deadline the first Monday in May. An annual report is also provided, covering data over the financial year (April – March), these data share a deadline with the January – March report, and are fed back in the same phased approach as routine reporting (with an additional month initially for analysis).

Real-time online indicators are also available to participants, allowing them to see colour-coded information as records are entered on whether selected key indicators are achieved within the first 72 hours. Teams are also able to export their data at any point, for any time frame, so that local analysis can be performed. To supplement this analysis SSNAP provide a DIY Data Analysis tool which provides detailed feedback, calculating selected key indicators when exported data is pasted in.

For the Acute Organisational Audit, participants are scheduled to enter data from 03/06/2019 to 28/06/2019 with a 'Data checking week' scheduled for 01/07/2019 to 05/07/2019, providing a chance for teams to review their data entered. Reports are then provided initially for teams in September 2019, before being phased to the wider NHS two weeks later, and then eventually being made publically available in November/December 2019 (subject to approval from funders).

8. Quality measures included in feedback

Organisational metrics

The acute organisational audit provides a biennial 'snap-shot' of the quality of stroke service organisation in acute settings. The last three rounds of this audit (2012, 2014 and 2016) have achieved 100% participation; with the full results for the 2016 audit available here - https://www.strokeaudit.org/results/Organisational/National-Organisational.aspx

The Full Results Portfolio available at the above link contains a full list of organisational metrics collected (this can be found in the All site results tab). Additionally, the Key Indicators Summary tab contains the 10 organisational metrics listed below. Each trust was provided with the number of Key Indicators that they achieved:

1. Establishment of band 6 and band 7 nurses per 10 SU beds
2. Presence of a clinical psychologist (qualified)
3. Stroke consultant led ward rounds
4. Nurses on duty at 10am weekends
5. At least two types of therapy available 7 days a week
6. Patients can access intra-arterial (thrombectomy) treatment
7. Intermittent pneumatic compression device (IPC) used as first line prevention of venous thromboembolism

8. Access to a specialist (stroke/neurological specific) Early Supported Discharge (ESD) team

9. Timescale to see, investigate and initiate treatment for both high risk and low risk patients

10. Formal survey undertaken seeking patient/carer views on stroke services

Process metrics

The SSNAP clinical audit primarily reports on process metrics, such as initial process of care timings and whether various assessments are achieved. Every 3 months and annually SSNAP reports on a large variety of process metrics, all of which are publicly available here (https://www.strokeaudit.org/results/Clinical-audit/National-Results.aspx), additional focus is put upon the 44 Key Indicators which are used for scoring trusts, a list of which is available here - https://www.strokeaudit.org/SupportFiles/Documents/Clinical-Audit-Resources/SSNAP-Domains-and-Key-Indicators-(1).aspx.

Outcome metrics

Outcome measures reported by the programme are:

- 30 day mortality data reporting - Provided on an annual basis (a full information sheet on mortality data reporting is available here - https://ssnap.zendesk.com/hc/en-us/articles/115005129885-Mortality-Information-Sheet)
- Institutionalisation rates (reported quarterly)
- Modified Rankin Scale (MRS) at 3 time points (reported on quarterly)
- In-hospital mortality (reported annually)
- 6 month outcomes after stroke (reported quarterly)
- NIHSS after Intra-arterial treatment (IAT) and Thrombolysis (tPA) (reported quarterly)
- Pneumonia and infection rates (reported quarterly)

9. Evidence base for quality measures

The SSNAP clinical core dataset was developed and is overseen by the ICSWP in collaboration with other major stakeholders in the stroke community including NHS England and Wales. Measures are reviewed annually by the project team, clinical leads and ICSWP taking account of updated standards and guidelines to ensure appropriate measurement that weighs burden on participants against the benefit for services and patients.

Process measures related to timing of important evidenced based processes are reported in sufficient detail to be able to provide discriminant analysis, changes over time and to compare key times of day and day of the week, month of the year.

The results in the clinical audit compare delivery of care with standards derived from systematically retrieved and critically appraised research evidence and agreed by experts in all disciplines involved in the management of stroke. The most recent NICE Acute Stroke Guideline (CG68) was published in 2008. Evidence on stroke care has changed markedly since then and has been incorporated into the NICE accredited Stroke Guideline (most recent edition 2016 https://www.strokeaudit.org/Guideline/Guideline-Home.aspx) and the standards in the audit have followed from this. SSNAP also continue to measure against the NICE stroke quality standard which was most recently updated in 2016 (https://www.nice.org.uk/guidance/QS2/chapter/introduction).

The current current datasets can be seen here: https://ssnap.zendesk.com/hc/enus/articles/115003811269-SSNAP-Datasets for the clinical audit and https://ssnap.zendesk.com/hc/en-us/articles/115004534925-SSNAPOrganisational-Audit-2016-Proforma-and-Helpnotes for the acute organisational audit.

In summary, these cover:

Organisation
- staffing
- quality of stroke unit
- stroke unit coverage, access to stroke unit; acute care organisations
- TIA/neurovascular service
- multidisciplinary working

Process
- acute care processes
- door to needle time
- time to scan
- time to stroke unit
- medical, nursing and therapy assessments and screening
- therapy intensity
- use of IPC for prevention of DVT

Outcomes of care
- complications (e.g. .pneumonia)
- 30 day mortality
- modified Rankin score at discharge and at 6 months

It is important to note that each measure was selected and is reviewed on the basis that it enables clinical teams and managers to make incremental improvements in evidence based processes. “The quality measures were defined to measure:

- NICE quality standard QS22
- NICE clinical guideline CG33

SSNAP provides the data for all other statutory data collections in England including the NICE Quality Standard and is the chosen method for collection of stroke measures in the NHS Outcomes Framework and the CCG Outcomes Indicator Set. SSNAP metrics are aligned with those in the Cardiovascular Disease Outcomes Strategy. SSNAP data are being used as risk indicators for Care Quality Commission's Intelligent Monitoring and for the Stroke Care in England NHS Marker.

The results from the SSNAP clinical audit compare delivery of care with standards derived from systematically retrieved and critically appraised research evidence and agreed by experts in all disciplines involved in the management of stroke. The strength of evidence is outlined in the guidelines. All relevant evidence and standards are available in the following:

• National clinical guideline for stroke 5th edition (Royal College of Physicians, 2016) www.strokeaudit.org/guideline

• National clinical guideline for diagnosis and initial management of acute stroke and transient ischaemic attack (NICE, 2008) https://www.nice.org.uk/guidance/CG68

• Stroke rehabilitation: Long-term rehabilitation after stroke (NICE 2013): www.nice.org.uk/CG162 • NICE Quality Standard for Stroke 2016 https://www.nice.org.uk/guidance/qs2

An outline of the key evidence for each of the 10 Domains of care in the SSNAP Clinical Audit are provided below. These 10 domains are the areas on which SSNAP teams are scored.

Scanning Domain

RCP National Clinical Guideline for Stroke, 5th Edition

2.3.1 E Acute stroke services should have continuous access to brain imaging including CT angiography and should be capable of undertaking immediate brain imaging when clinically indicated.

3.4.1 B Patients with suspected acute stroke should receive brain imaging urgently and at most within 1 hour of arrival at hospital.

Stroke Unit Domain

RCP National Clinical Guideline for Stroke, 5th Edition

2.2.1 B People with an acute neurological presentation suspected to be a stroke should be admitted directly to a hyperacute stroke unit which cares predominantly for stroke patients.

C Acute hospitals receiving medical admissions that include people with suspected stroke should have arrangements to admit them directly to a hyperacute stroke unit on site or at a neighbouring hospital, to monitor and regulate basic physiological functions such as neurological status, blood glucose, oxygenation, and blood pressure.

D Acute hospitals that admit people with stroke should have immediate access to a specialist stroke rehabilitation unit on site or at a neighbouring hospital.

2.3.1 B People with suspected acute stroke (including when occurring in people already in hospital) should be admitted directly to a hyperacute stroke unit and be assessed for emergency stroke treatments by a specialist physician without delay.

2.4.1 A People with stroke should be treated on a specialist stroke unit throughout their hospital stay unless their stroke is not the predominant clinical problem.

K A facility that provides treatment for in-patients with stroke should include:

• a geographically-defined unit;

• a co-ordinated multi-disciplinary team that meets at least once a week for the exchange of information about in-patients with stroke;
• information, advice and support for people with stroke and their family/carers;
• management protocols for common problems, based upon the best available evidence;
• close links and protocols for the transfer of care with other in-patient stroke services, early supported discharge teams and community services;
• training for healthcare professionals in the specialty of stroke.

NICE Quality Standards

Statement 1: Adults presenting at an accident and emergency (A&E) department with suspected stroke are admitted to a specialist acute stroke unit within 4 hours of arrival. [2010, updated 2016]

Thrombolysis Domain

RCP National Clinical Guideline for Stroke, 5th Edition

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

3.5.1E Alteplase should only be administered within a well-organised stroke service with: -
- processes throughout the emergency pathway to minimise delays to treatment, to ensure that thrombolysis is administered as soon as possible after stroke onset;
− staff trained in the delivery of thrombolysis and monitoring for post-thrombolysis complications;
− nurse staffing levels equivalent to those required in level 1 or level 2 nursing care with training in acute stroke and thrombolysis;
− immediate access to imaging and re-imaging, and staff appropriately trained to interpret the images;
− protocols in place for the management of post-thrombolysis complications.

Specialist Assessments Domain

RCP National Clinical Guideline for Stroke, 5th Edition

2.3.1B People with suspected acute stroke (including when occurring in people already in hospital) should be admitted directly to a hyperacute stroke unit and be assessed for emergency stroke treatments by a specialist physician without delay.

3.10.1E Patients with acute stroke should have their swallowing screened, using a validated screening tool, by a trained healthcare professional within four hours of arrival at hospital and before being given any oral food, fluid or medication.

Occupational Therapy Domain

RCP National Clinical Guideline for Stroke, 5th Edition

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

NICE Quality Standards

Statement 2: Adults having stroke rehabilitation in hospital or in the community are offered at least 45 minutes of each relevant therapy for a minimum of 5 days a week. [2010, updated 2016]

Physiotherapy Domain

RCP National Clinical Guideline for Stroke, 5th Edition

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

NICE Quality Standards

Statement 2: Adults having stroke rehabilitation in hospital or in the community are offered at least 45 minutes of each relevant therapy for a minimum of 5 days a week. [2010, updated 2016]

Speech and Language Therapy Domain

RCP National Clinical Guideline for Stroke, 5th Edition

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

NICE Quality Standards

Statement 2: Adults having stroke rehabilitation in hospital or in the community are offered at least 45 minutes of each relevant therapy for a minimum of 5 days a week. [2010, updated 2016]

Multidisciplinary team working Domain

RCP National Clinical Guideline for Stroke, 5th Edition

4.4.1.1A People with communication problems after stroke should be assessed by a speech and language therapist to diagnose the problem and to explain the nature and implications to the person, their family/carers and the multidisciplinary team. Reassessment in the first four months should only be undertaken if the results will affect decision making or are required for mental capacity assessment.

Standards by Discharge Domain

RCP National Clinical Guideline for Stroke, 5th Edition

2.12.1F Services for people with stroke should include specialist clinical neuropsychology/clinical psychology provision for severe or persistent symptoms of emotional disturbance, mood or cognition.

4.7.1F Patients with stroke who are unable to maintain adequate nutrition and fluids orally should be:

− referred to a dietitian for specialist nutritional assessment, advice and monitoring;

− be considered for nasogastric tube feeding within 24 hours of admission;

− assessed for a nasal bridle if the nasogastric tube needs frequent replacement, using locally agreed protocols;

− Assessed for gastrostomy if they are unable to tolerate a nasogastric tube with nasal bridle

Discharge Processes Domain

RCP National Clinical Guideline for Stroke, 5th Edition

2.7.1A Hospital in-patients with stroke who have mild to moderate disability should be offered early supported discharge, with treatment at home beginning within 24 hours of discharge

NICE Quality Standards

Statement 4: Adults who have had a stroke are offered early supported discharge if the core multidisciplinary stroke team assess that it is suitable for them. [2016]

10. Case ascertainment

Over 90% of expected stroke hospital admissions are recorded on SSNAP by acute stroke services. These estimations are based on Hospital Episode Statistics (HES) and Patient Data Episodes in Wales (PEDW) for the previous year for hospitals in England and Wales respectively. For 'routinely admitting teams' to be included in SSNAP results minimum proportion of all their expected cases are required to be entered on SSNAP. For 'non-routinely admitting teams', HES/PEDW projections have not been utilised; rather a proxy has been generated comparing the number of patients arriving at a team with the number of patients leaving the team. This is a measure of record completion rather than a measure of case ascertainment in the true sense. It is recognised that neither method can be totally accurate which is why results are presented in bands. In order for non-inpatient teams to receive SSNAP results a minimum of 20 records are required to be entered and locked across the previous six month period. Case ascertainment for 6 month assessments is based on patients due for 6 months assessment in the last 6 months, and seen by teams at any point during their inpatient stay. Case ascertainment is included as a component in the overall SSNAP score. Results and further information on case ascertainment can be found in sheet B 'Case Ascertainment' of the full results portfolio https://www.strokeaudit.org/results/Clinical-audit/National-Results.aspx

11. Data analysis

SSNAP reports frequencies, medians, inter-quartile ranges and other summary statistics by team and CCG/LHB side-by-side grouped by region to enable comparison between teams and the national results. Results are tailored for different types of teams.

Team reports show both the national average benchmark, and the national expectation, which is the agreed "best practice" standard of performance, to encourage improvement beyond average performance. The complex but robust scoring systems, including the composite overall SSNAP score that rates a team as A-E, continue to be utilised to enable everyone from the public to clinicians to compare services in their region or across England and Wales. This also allows multiple dependencies to be met, including the use of SSNAP data on myNHS and for the CQC and CCG OIS.

The clinical executive summaries provide team comparisons both over time and against fixed standards so that trends for an individual team can be demonstrated and teams who have failed to improve easily identified. See examples of executive summaries here: https://www.strokeaudit.org/Documents/GroupType/SCN/SCN005/AugNov2016/SCN005-Periodic-AugNov2016-ExecutiveSummary.aspx Regional comparisons are encouraged through creating regional slidedecks and performance tables that display results of teams within a region side-by-side to highlight where performance is better/poorer/variable within a region. The slidedecks in particular clearly show the variation in performance within a region, and demonstrate the opportunity for shared learning between providers.

Population-level reanalysis of the data is utilised for both CCG/LHB and STP comparisons where the patient is assigned to a CCG/LHB/STP based on their postcode of residence, rather than based on the provider who treats them. This is particularly important for reporting CCG OIS measures to allow commissioners to understand the care received by their population and bespoke CCG and LHB dashboards will be created to compare performance with other CCGs and LHBs using caterpillar plots.

Bespoke analyses comparing in hours and out-of-hours care are also be conducted , and SSNAP reviews the range of outputs and analyses available after each reporting period, and if capacity is identified through other aspects becoming more efficient, SSNAP will consider extending the range of reporting and analyses to meet specific identified needs of the clinical community.

Team-level run charts on a range of key metrics are made available to teams in a slideshow so that the multidisciplinary team can review their performance and discuss ways to improve.

Comparisons with trial based evidence and outcomes are also be conducted for interventions such as intra-arterial therapy to monitor their delivery according to research evidence.

Patient-level root-cause analysis tools are produced for key interventions such as thrombectomy and thrombolysis to allow teams to compare their individual patient performance with evidence-based best practice and identify key delays or failings.

SSNAP continueds to collect data, analyse and report on both performance on care processes, and patient outcomes. Different statistical techniques are employed for different types of measures and outputs. This mix of approaches is proposed as it has proven extremely effectively over the last six years of SSNAP, as illustrated by the significant improvements in multiple key indicators. However, there remains unacceptable variation between teams and patients, and scope for

further improvement. In addition, the evidence has also moved on, for example, a recent change to the National Clinical Guideline states that all patients should be scanned within 1 hour of arrival at hospital. This highlights the continued need to report performance on care process measures, including acute processes.

For reporting of performance on care processes, specific exclusion criteria is recorded in the audit, and for all other patients, the percentage compliance is compared to set national expectations. Compliance is visualised in a range of graphics including run charts and caterpillar plots.

For patient outcomes, risk adjustment is utilised. Case-mix adjustment is used for 30-day mortality analyses undertaken once a year, and SSNAP has already incorporated the most up to date 2017 HQIP outlier process guidance on outlier detection and continues to use this for reporting mortality outliers. Mortality results are displayed using funnel plots. The casemix adjustment for 30-day mortality is recalibrated each year, but will continue to use the same identified variables in the model from the peer-reviewed and externally validated model outlined here: https://www.ncbi.nlm.nih.gov/pubmed/25293667

For other risk adjusted models, the adjustment is derived in conjunction with the KCL statistical team to ensure appropriate modelling and inclusion of variables.

Other types of outliers in SSNAP (e.g. those teams who have consistently failed to improve over the past 4 years or who are declining) are approached via the peer review and National Clinical Director review process that SSNAP has developed.

The key methodology of SSNAP analysis is outlined via the link below:

https://www.strokeaudit.org/About-SSNAP/SSNAP-Clinical-Audit/Data-Analysis-Methodology.aspx

Additional information can be found in the “Technical information” tab in all SSNAP Results Portfolios.
The paper available at the following link describes in further detail how SSNAP analyses mortality data, specifically in relation to the case-mix adjustment.
https://www.ncbi.nlm.nih.gov/pubmed/25293667

12. Data linkage

SSNAP only share patient-level data following a strict governance procedure to ensure compliance with the Data Protection Act. SSNAP have permission to link patient-level data with other national databases on a case-by-case basis, only for the agreed purpose outlined in the section 251 agreement. As part of this process SSNAP must assure the confidentiality advisory group that SSNAP will use the patient information to improve patient care and serve the wider public interest. SSNAP holds current Data Sharing Agreements with NHS Digital and NHS Wales Informatics Service that grant permission for SSNAP to link data collected in England and Wales with Hospital Episode Statistics (HES), Patient Episode Database for Wales (PEDW), and Office of National Statistics (ONS) data. NHS Digital are the data controllers of HES and ONS data i.e. they are the organisation in control of processing the data. Linkage with HES and PEDW data enables SSNAP to compare the number of records submitted to SSNAP with the number recorded retrospectively in HES and PEDW to ensure high data quality. This linkage also enables analyses on the associations between stroke and other medical conditions. Linking with ONS data allows SSNAP to report all-cause mortality rates in the first 30 days after patients are admitted to hospital with stroke. Aggregate level mortality data is reported at hospital level annually and, once reviewed by all hospitals, are made available in the public domain

Process for data linkage:
KCL will send cohort information to NHS Digital for linkage, they send NHS Number, Full postcode, Name, and a unique SSNAP ID. As part of the section 251 support, there is a method by which the information is sent to NHS Digital for linkage without the KCL viewing any patient identifiable information.

NHS Digital return;
- Non sensitive pseudonymised HES data with SSNAP ID for patients in cohort
- Non sensitive pseudonymised HES data for patients with a diagnosis of stroke
- Identifiable ONS date and cause of death

KCL combine HES and ONS data with SSNAP data and combine into separate databases; one with SSNAP and ONS data and the other with SSNAP and HES data.

Identifiers are held separately to other data and the pseudonym SSNAP ID is used to identify individual patients. With the exception of date of death, analysts access no identifiers.

Pseudonymised HES Data is then analysed to calculate case ascertainment information for the audit. HES data is also used to validate some of the information collected in the audit. No HES data is stored or processed byNetsolving, all processing is undertaken at the KCL.

Identifiable ONS data is analysed to produce 30 day mortality at CCG level and stroke team level (team usually equates to a hospital). Cause of death is used to disaggregate stroke specific deaths and deaths from other causes.
For statistical purposes such as monitoring trends identifiable ONS death data is also passed back (via the securewebtool hosted by Netsolving) to registered individuals at participating trusts whereby they can access date of death for patients they submit to the audit.
All arrangements for 3rd party access will be controlled through sublicensing agreements and will be for the benefit of health and care; all arrangements will be approved by the HSCIC before data being sent.

All individuals with access to the data are substantive employees of King's College London.

13. Validation and data quality

The webtool has built in validations, prompts and a system of "locking" which ensures that the data inputted is logically consistent (e.g. the date/time of discharge from a stroke unit must be after arrival at the stroke unit). In addition, in-depth casemix data is reported back to teams regularly highlighting any anomalous fields so that they can be reviewed to determine if it is a genuine difference in casemix or a data entry error. These comprehensive validations ensure as much as is possible that complete, robust data are collected.

The success of SSNAP depends on complete and timely data being submitted so that there is rapid turnaround of reporting to facilitate change.

SSNAP provides an "audit compliance" score for each participating team in order to ensure that the data are complete, of high data quality and produced as close to the time the patients were admitted or discharged as possible. Individual teams are provided with a weighted audit compliance score to provide a context in which to interpret their process of care results and identify areas of improvement.

The audit compliance score includes measures of high usage of "unknown" data items, in particular the elements of the NIHSS. In response to feedback from post-acute teams, some measures of speed of data entry and data transfer have been added to ensure that these teams are able to complete their sections in a timely way so that the rapid turnaround of results can be maintained. Full details of this score can be found here - https://ssnap.zendesk.com/hc/en-us/articles/115003840345-Audit-Compliance-How-is-it-calculated-

Domain 7: Outputs

1. The intended users or audience for the outputs

The audit designs and produces individual feedback for:

- CCGs and Health Boards
- Clinical teams (acute)
- Community teams
- 6 month assessment providers
- The Care Quality Commission
- Patients and Carers
- Regional Strategic Clinical Networks
- General public
- Trusts/hospital boards

2. Editorial independence

As an independently commissioned programme, the contents of the outputs are quality assured by the Delivery Group and the Project Team through the governance processes described in previous sections.

3. The modalities of feedback and outputs

The audit provides feedback for the following types of participant:

For individual acute teams delivering care: a summary spreadsheet, full results portfolio and slide deck showing changes over time. A thrombolysis tool and thrombectomy tool are also be made available each reporting period. Physicians and other professionals are encouraged to use the audit in their annual appraisals and performance reviews.

For individual Community/6 month teams: a full results portfolio and slide deck showing changes over time.

For Managers and Executive Teams: SSNAP clinical reporting provides full access to all outputs and annually to the bespoke Executive summary. This is complemented by the Health Economics tools provided by SSNAP.

For regions: each region receives a full results portfolio, summary and slide deck. Performance tables enabling quick comparison of services across a region, and a summary spreadsheet are also be developed and disseminated. Specific Community team slide decks are made available.

For CCGs and LHBs who commission care:. Full results portfolios, dashboards and changes over time documents, as well as a CCG/LHB specific version of a public report are produced.

For those who receive care: A national Easy Access Version of results is developed each reporting cycle. These are developed with stroke survivors to make key findings and results easily accessible. The Annual Report is also a key output for patients and their carers as well as the general public and has been produced in multiple media forms to maximise engagement with patients and carers. This has included: Ebooks, online interactive reports, and audiobook versions.

4. Recommendations

SSNAP provides recommendations for hospitals, clinicians and commissioners within the Annual Report. The link to the report is https://www.strokeaudit.org/Annual-Report/2017/Home.aspx.

5. Comparators and benchmarking

The audit provides comparative performance data for hospitals. Each hospital has performance measured against:

- Other hospitals in the region
- Similar types of service (e.g. Acute services which routinely admit patients, or services which treat patients in the community)
- All other hospitals nationally
- National averages
- Previous reporting periods (Changes over time) both nationally and for individual teams
- SSNAP standards – A graded score (A-E) is provided for overall performance, as well as for all 10 domains of care.
- Against published papers (for example, https://www.strokeaudit.org/SupportFiles/Documents/Research/Thrombectomy-real-world-data-compared-to-RCT.aspx)

6. Motivating and planning quality improvement

The audit supports participants in QI by:

- Providing a dedicated QI area of the SSNAP webtool - https://www.strokeaudit.org/qualityimprovement
- Providing a list of QI resources for a variety of audiences. These resources include SSNAP reports which are useful for QI purposes, as well as SSNAP tools and signposts to other QI resources - https://www.strokeaudit.org/Quality-Improvement/What-resources-can-I-use.aspx
- Case studies – On our webtool we provide case studies from SSNAP users and teams describing how SSNAP has been used for quality improvement. It includes case studies from past and present annual reports and case study competitions, allowing teams to learn from each other - https://www.strokeaudit.org/Quality-Improvement/Case-Studies.aspx
- QI Top Tips – A bank of concise, pragmatic tips and advice from clinicians, QI champions and SSNAP team members on how to successfully implement a QI project. Some of these tips are generalised advice, and some are SSNAP specific. - https://www.strokeaudit.org/Quality-Improvement/Top-Tips.aspx