Driving quality improvement in stroke care across the entire patient pathway through innovative and powerful data visualisation

Emma Vestesson1, Lizz Paley1, Mark Kavanagh1, Sean Greatbanks1, Benjamin Bray2, Alex Hoffman1, Geoffrey Cloud3, Martin James4, Pippa Tyrrell5, Anthony Rudd1, On behalf of the Intercollegiate Stroke Working Party and the SSNAP collaboration


Contact: ssnap@rcplondon.ac.uk Further details at: www.strokeaudit.org

BACKGROUND

Presenting big data in an accessible way is vital to quality improvement. Sentinel Stroke National Audit Programme (SSNAP) is the stroke register of England and Wales covering all acute stroke hospitals. Since January 2013 almost 200,000 stroke records have been entered, covering 95% of all stroke admissions. Innovative presentation of SSNAP data through a variety of visualisation tools has been used to drive improvements in the quality of stroke care and services.

METHOD

SSNAP has grouped 10 domain processes of stroke care into 44 key indicators covering the whole spectrum of inpatient care. A range of data visualisation tools showing clinical teams’ performance against the key indicators have been developed and are reported contemporaneously to stakeholders every quarter.

Care has been taken to make outputs easy to understand and use. The suite of outputs are targeted at different stakeholders including teams delivering care, managers, funders of services as well as stroke survivors and the general public. The level of detail varies from national graphs giving a high level of overview to excel portfolios reporting on every item of data collected for each team and individual team slideshow with graphs showing monthly changes over time for the key indicators. Results are given back to users every quarter ensuring that the information is still relevant.

OUTPUTS

Case study quote

“Just had a quick look through the new powerpoint presentation for centre-specific results – excellent! Very accessible, quick and easy to understand. Very well done, just the ticket.”

Consultant Stroke Physician

Regional slideshows show results for all hospitals of the same type in a region and are available in the public domain for everyone to see.

Hospital level slideshows contain graphs for all key indicators and show performance month-by-month. Graphs on therapy link applicability and minutes of therapy received.

Interactive maps enable the public to access information about the quality of stroke care in a single click. The maps are updated every quarter and allow comparison between hospitals over four quarters (line graph) as well showing the overall distribution of scores (pie chart and caterpillar plot).

National and regional maps give an overview of the quality of care in different parts of the country and facilitate benchmarking between neighbouring hospitals. Both colour coded points maps and thematic maps are created and used in regional slideshows and other reports that are available to the public. National thematic maps can also be used to show changes over time.

Performance tables show high level overview of performance in a striking and visually effective way – clearly indicating which areas of care need most improvement (columns) and where hospitals are underperforming in particular areas of care or across all domains (rows). The arrows indicate changes in the score from the previous quarter. Hospitals are grouped by type and region making it easy to compare neighbouring hospitals.

SSNAP work closely with groups of stroke survivors to produce a version of SSNAP report accessible to people with communication and cognitive impairments The reports use:
• short sentences and simple language throughout the report
• large text and spacing
• bolding key words,
• symbols and icons,
• geographical colour coded maps instead of data tables;
• simplified charts and graphs,
• regionalising reports by geographical area

CONCLUSION

SSNAP provides stakeholders with a range of customised outputs using innovative visualisations in a timely manner. Big data can be presented in ways that provide a means of identifying areas that require improvement as well as thing that have improved. These resources are effective to increase knowledge and instigate improvements in stroke care and could be used as a model in other countries and settings.