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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 providing 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

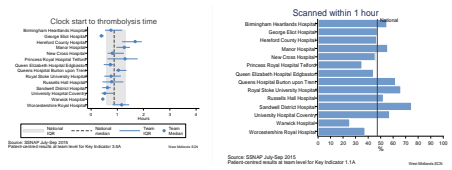
Case study quote

"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



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.



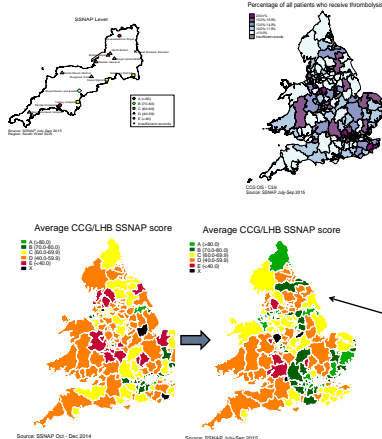
Regional slideshows show results for all hospitals of the same type in a region and are available in the **public domain** for everyone to see.

Case study quote

"We have created a SSNAP notice board in the staff room showing all the reports so ALL staff involved are aware of the results and show them where we can make improvements, some of the data is also published throughout the trust on a team brief email and are also discussed at our stroke steering group"

Stroke Audit & Data Officer

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.



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).



Pie chart
Caterpillar plot
Line graph

Thematic map looking "greener" as time passes

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.



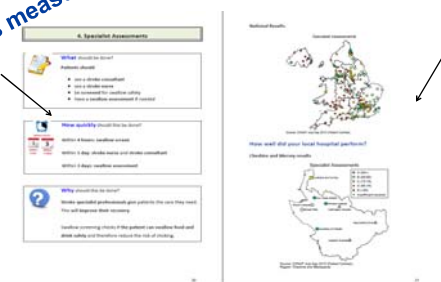
Hospital improving from a B to an A in one quarter

Benchmarking using maps

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

Why this is measured



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 things 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.