Case Study: Choosing the best model of stroke services for patients

Based on: Morris S, Hunter RM, Ramsay AIG, Boaden R, et al, 2014. Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. *BMJ*, 349. http://www.bmj.com/content/349/bmj.g4757

A summarised, easy read version of this case study is available in the full text of this year's SSNAP Annual Report www.strokeaudit.org/annualreport

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In 2010, Greater Manchester and London centralised their acute stroke services into a small number of specialist "Hyper Acute Stroke Units" (HASUs). In Greater Manchester, only patients arriving at hospital within four hours of stroke were eligible for treatment in a HASU; in London, all stroke patients were eligible.[1, 2] In addition, the centralisations were implemented differently: in London, there was greater prioritisation of service standards, networks took a more hands-on approach to facilitating change, and the whole system launched on the same day (whereas in Greater Manchester the system launched in multiple stages).[3] While both centralisations were associated with significantly greater reductions in patient length of stay than the rest of England, only London was associated with significantly greater reductions in stroke patient mortality.[4]

Using national stroke audit data, Ramsay et al [5] analysed the impact of these centralisations on provision of evidence-based clinical interventions, including rapid access to brain imaging, admission to stroke unit, and specialist assessments. It was found that, following centralisation, London patients were overall significantly more likely to receive interventions than in Greater Manchester and elsewhere in England. HASUs in both areas were more likely to provide interventions than elsewhere, but while in London 93% of patients were treated in HASU, 39% of Greater Manchester patients were. This suggests that centralised systems that admit all stroke patients to HASU, as in London, are significantly more likely to provide evidence-based care. This may in turn explain previous findings that such systems are associated with better patient outcomes.

References

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2. Turner S, Ramsay AI, Perry C, Boaden RJ, Mckevitt C, Morris S*, et al.*: **Lessons for major system change: centralisation of stroke services in two metropolitan areas of England**. *J Health Serv Res Policy* 2016 doi:10.1177/1355819615626189
3. Fulop N, Ramsay A, Perry C, Boaden R, McKevitt C, Rudd A*, et al.*: **Explaining outcomes in major system change: a qualitative study of implementing centralised acute stroke services in two large metropolitan regions in England**. *Implement Sci* 2016;**11** DOI: 10.1186/s13012-016-0445-z.

4. Morris S, Hunter RM, Ramsay AIG, Boaden R, McKevitt C, Perry C*, et al.*: **Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis**. *BMJ* 2014;**349**:g4757.
5. Ramsay AIG, Morris S, Hoffman A, Hunter RM, Boaden R, McKevitt C*, et al.*: **Effects of centralizing acute stroke services on stroke care provision in two large metropolitan areas in England**. *Stroke* 2015;**46**:2244-51 doi: 10.1161/STROKEAHA.115.009723.

Further information

- All cited papers are open access and free to download and share.
- Further information, including accessible summaries of our work, can be found on our study webpage: https://www.ucl.ac.uk/dahr/research-pages/stroke_study
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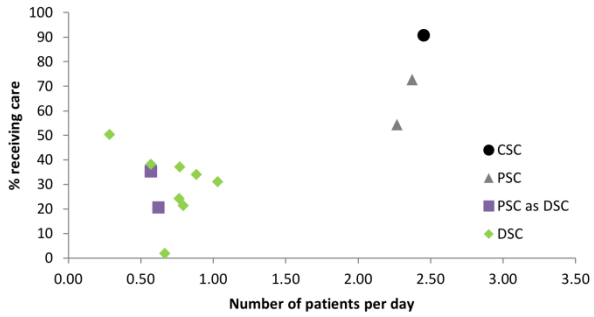
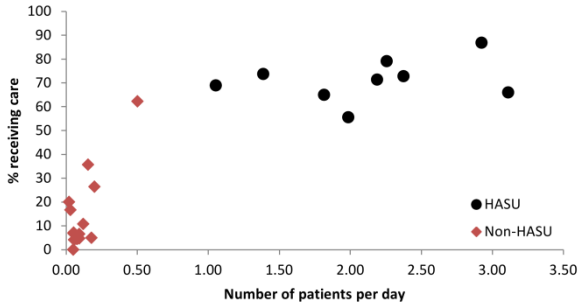
Figure 1. Patient admitted to stroke unit within 4 hours, post-centralisation

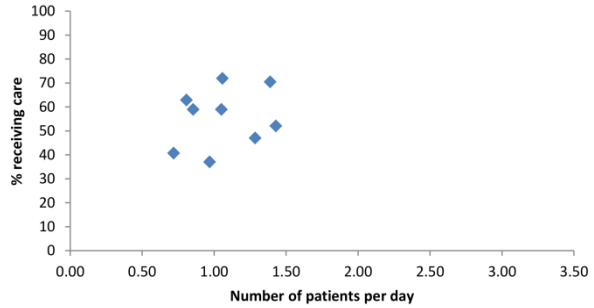
A) Greater Manchester



B) London



C) Urban comparator



Note. Each point represents a hospital: X axis represents mean number of patients submitted to audit per day; Y axis represents percentage of patients receiving clinical intervention.