CLAHRC BITE

NHS

National Institute for Health Research

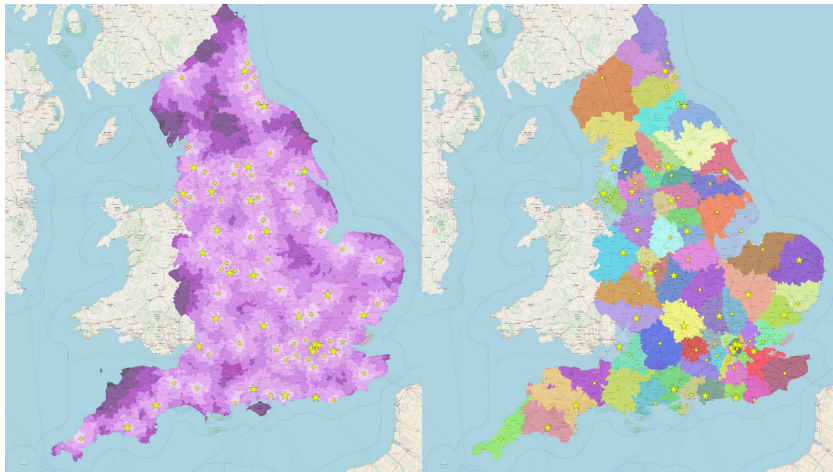Brokering Innovation Through Evidence – a BITE-sized summary of NIHR PenCLAHRC research

Optimising the location of stroke services in England, Wales and Northern Ireland

30 CSC & 50 HASU, Thrombolysis
Drip 'n Ship Model

Average travel time (mins)	22
Maximum travel time (mins)	99
Minimum admissions (IVT)	601
Maximum admissions (IVT)	1,879

Travel time (mins)	Yearly admissions	Cumlulative percentage
0 to 15	27,264	34%
15 to 30	37,024	80%
30 to 45	12,474	95%
45 to 60	2,789	98%
60 to 90	1,164	100%
90 +	95	100%

Map 1. One recommended option: 30 thrombectomy centres and 50 additional thrombolysis-only centres. Maps show travel times and catchment areas for first admissions. Stars show locations of thrombectomy centres, dots show locations of thrombolysis-only centres.

Stroke is a very serious medical emergency. Expert care is needed, and that expert care needs to be accessed rapidly. To develop expert care, we need large care centres to enable doctors to manage patient flow effectively 24/7. But creating fewer, larger, centres might slow access to these services down for some people.

What we did?

PenCHORD, PenCLAHRC's Operational Research team, identified the optimal number and locations for stroke services, for thrombolysis and thrombectomy. Hyper-acute stroke services may deliver most of the care needed including clot-busting drugs (thrombolysis), and they need 600 stroke admissions per year to sustain good 24/7 service. Comprehensive stroke centres may also deliver a new treatment for stroke, thrombectomy, but that requires very specialist teams and can only be provided by some stroke centres.

*"In my opinion, the PenCHORD modelling team are the best that we have in this country." **Prof. Sir Roger Boyle CBE, former national director for heart disease and stroke at the Department of Health***

What happened next?

PenCHORD used geographical modelling to provide alternative solutions to NHS services in Wales, Northern Ireland and England. These have fed into an ongoing review that will result in re-organisation of stroke services to provide the best possible patient access to expert stroke services.

What else are we working on?

PenCHORD continue to provide input into decision making, and are increasing the detail in the model, providing estimates of clinical outcomes (disability-free patients) alongside travel times and admission numbers. They are also building in the possibility of using a pre-hospital test for suitability for thrombectomy, enabling some patients to potentially bypass their closest stroke unit and directly attend a thrombectomy centre.

For further information visit:

www.clahrc-peninsula. nihr.ac.uk
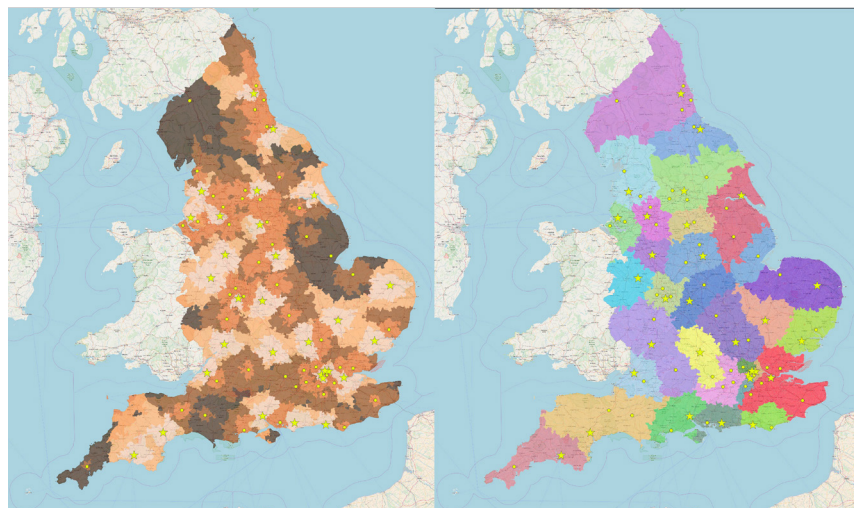
30 CSC & 50 HASU, Thrombectomy
Drip 'n Ship Model

Average time from pickup to ET centre (mins)	79
95th percentile time from pickup to ET centre (mins)	154
Minimum admissions (ET)	98
Minimum admissions (ET)	690

Pickup to arrival at ET centre (mins)
- 0 to 30
- 30 to 60
- 60 to 90
- 90 to 120
- 120 to 150
- 150 +

Yearly admissions
- 2,556
- 671
- 215
- 3,025
- 1,161
- 453

Cumulative percentage
- 32%
- 40%
- 43%
- 80%
- 94%
- 100%

Map 2. One recommended option: 30 thrombectomy centres and 50 additional thrombolysis-only centres. Maps show travel times and catchment areas for thrombectomy. Stars show locations of thrombectomy centres, dots show locations of thrombolysis-only centres.

References:

Allen, M., Pearn, K., Villeneuve, E., Monks, T. Stein, K. & James, M. (2017) Feasibility of a hyper-acute stroke unit model of care across England: a modelling analysis. BMJ Open. http://dx.doi.org/10.1136/bmjopen-2017-018143

Allen, M., Pearn, K., James, M., Ford, G.A., White, P. Rudd, A.G., McMeekin, P. & Stein, K. (in press). Maximising access to thrombectomy services for stroke in England: a modelling study. Eur. Stroke. J.

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