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Background

Over the past decade the average hospital length of stay (LOS) for survivors of stroke have reduced¹. Despite advances in stroke care, over 20% of survivors of stroke are discharged from hospital with severe disability¹. These individuals have complex needs which are challenging for community stroke rehabilitation services to meet². Using national clinical audit data, this study explored how patient characteristics influence LOS and discharge destination, to better understand this cohort and inform the provision of rehabilitation services in the community for these individuals.

Methods

Retrospective analysis of national clinical audit data, collected by the Sentinel Stroke National Audit Programme (SSNAP). All stroke patients discharged from six hospitals in England between 1st April 2021 and 31st March 2022 were included. Sites were purposefully selected to represent diverse service models. Severe disability was defined by modified Rankin Score (mRS) of 4 or 5. Multilevel models explored the association of characteristics including premorbid disability, admission NIHSS, socioeconomic deprivation with LOS and discharge destination. Analysis completed within R Studio™.

Results

3651 patient entries were exported, after removing duplicates the final dataset included n=3201. Patient characteristics are summarised below (table 1). Twenty three percent of stroke survivors were discharged with severe disability (n=730).

Patient Characteristic		All stroke survivors (n=3201)	Severely disabled^ stroke survivors (n=730)
Age	Under 50 (%)	213 (6.7)	31 (4.2)
	50-59 (%)	404 (12.6)	49 (6.7)
	60-69 (%)	559 (17.5)	90 (12.3)
	70-79 (%)	858 (26.8)	165 (22.6)
	80-89 (%)	895 (28.0)	245 (33.6)
	90 and over (%)	272 (8.5)	150 (20.5)
Gender	Male (%)	1725 (53.9)	315 (43.2)
Dependency pre stroke	Independent* (%)	2670 (83.4)	454 (62.2)
NIHSS score	Minor (<5)(%)	1885 (58.8)	181 (24.8)
	Moderate (5-14)(%)	1021 (31.9)	359 (49.2)
	Moderate to severe (15-20)(%)	150 (4.7)	97 (13.3)
	Severe (>20)(%)	145 (4.5)	93 (12.7)
Type of stroke	Infarct (%)	2918 (91.2)	614 (84.1)
Hospital length of stay	Median (IQR)	4 (2-12)	21 (7-44)
Discharge destination	Care Home ^π (%)	106 (3.3)	76 (10.4)
	Home ^π (%)	789 (24.6)	65 (9.0)
	Transferred community (%)	2232 (69.7)	548 (75.1)
	Other (%)	74 (2.3)	41 (5.6)

*Independent pre stroke defined as mRS 0-2
^Severely disabled on hospital discharge defined as mRS 4 or 5
^π Without therapy

Table 1: Summary of patient characteristics

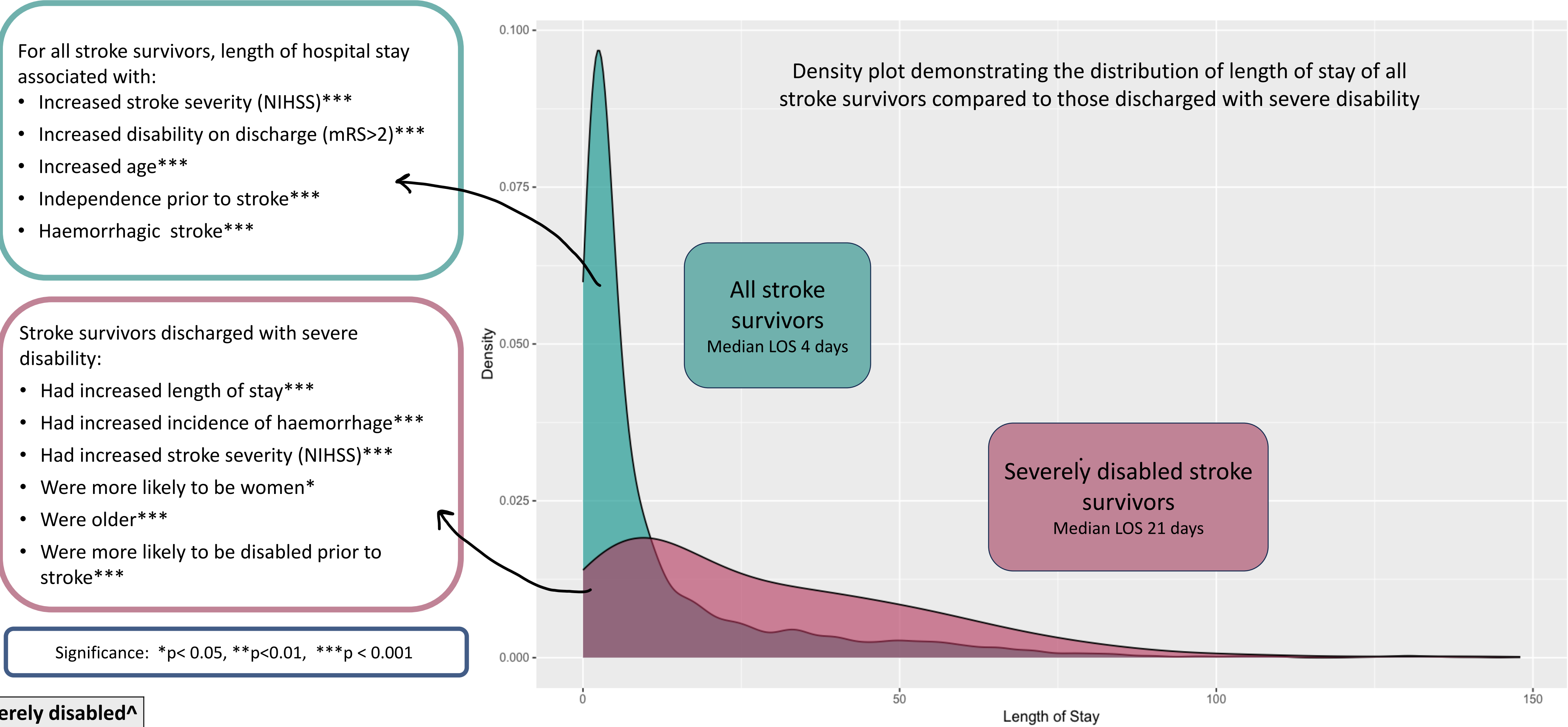


Figure 1, Different density distributions of all stroke survivors and those with severe disability

Discharge destination

A higher percentage of patients from the severely disabled stroke survivor cohort were discharged to a care home (10.4%) compared to all stroke survivors (3.3%). There was also a slightly higher percentage of severely stroke survivors who were transferred to community rehabilitation (75.1%) compared to all stroke survivors (69.7%). What isn't clear from the data is how many stroke survivors receiving community rehabilitation were in a care home, as only patients who were discharged home or care home, without community intervention were recorded (table 1). Fig. 2 proposes a change to the structuring of the question, that captures both discharge destination and onward referral. This would enable the future use of this information in both research and quality improvement.

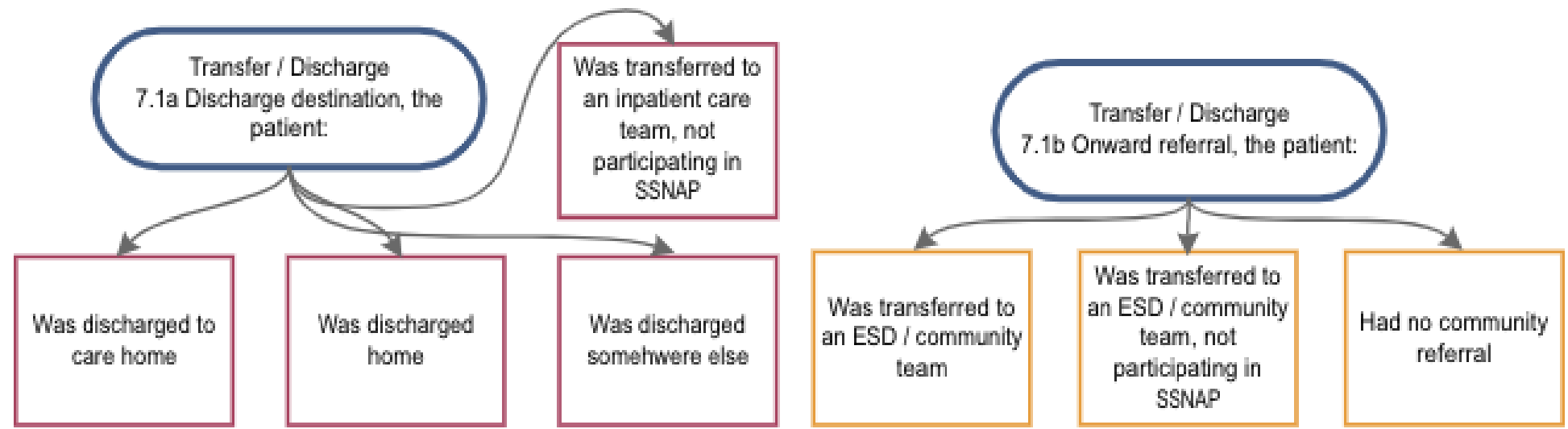


Figure 2: Proposed reconfiguration of SSNAP question 7.1

References:

1. KCL. Sentinel Stroke National Audit Programme (SSNAP). Post acute organisational audit report. National report England. Wales and Northern Ireland, 2021.
2. Fisher, R.J., Russell, L., Riley-Bennett, F., Cameron, T., Walker, M. and Sackley, C., 2023. Barriers and facilitators in providing home-based rehabilitation for stroke survivors with severe disability in the UK: an online focus group study with multidisciplinary rehabilitation teams. *BMJ open*, 13(8), p.e071217.

Conclusion

Twenty-three percent of the studied population were discharged from hospital with severe disability. This proportion is steadily increasing in the UK. These individuals were shown to suffer more severe strokes (higher admission NIHSS), have longer hospital LOS, were older and more likely to be disabled prior to their stroke (premorbid mRS 3-5). Stroke type was also a strong indicator, survivors of stroke experiencing intracranial haemorrhages were shown to have both increased LOS and higher incidence of being discharged with severe disability.

Onward referral for community rehabilitation were similar between the two cohorts, with slightly higher percentage within the stroke survivors with severe disability. Community stroke services need sufficient resources to meet this growing demand.

Ten percent of survivors of stroke with severe disability were discharged to a care home without therapy, however these results are potentially incomplete as the discharge destination of those who received community rehabilitation remains unknown. Greater clarity is required in the questions asked by the national stroke audit so that evidence-based standards relating to provision of stroke rehabilitation to people in care homes, can be assessed.

These findings complement our previous research highlighting the core components of home-based rehabilitation for this population, emphasising the resource implications of providing the necessary stroke care to meet their complex needs.