

National OST data research letter

Full title

On-scene times during ambulance assessment of suspected stroke patients across England from December 2021 to November 2022

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MeSH headings

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Ambulance crews main focus during stroke care is symptom recognition and rapid transport to specialist units to maximise access to, and effectiveness of time-critical treatments. However, in England ambulance on-scene times (OST) (when the ambulance arrives at the patients' location to when it leaves for hospital) have increased in recent years [1] and appear extended compared to international services [2, 3]. Increased OST contribute to deteriorating symptom onset to arrival at hospital times which represents worse care for patients [4]. In 2022 the Getting It Right First Time (GIRFT) stroke report [5] recommended an OST of less than 30 minutes for English ambulance services. Data on OST with suspected stroke patients across a 12-month period were collected from all English ambulance services to compare against the GIRFT recommendation and to identify any overall trend in OST.

Using a freedom of information request, mean OST per month for all suspected stroke patients were requested from all 10 regional ambulance services in England [6] for the time period December 2021 to November 2022. Cases included in the data provided were defined locally by each individual service. Monthly data are presented for each service as well as combined monthly averages and 12-month average by service. A generalised linear model was fitted to the mean OST for suspected stroke patients in England across the 12 months reported to determine trends.

All ten (100%) regional ambulance services supplied OST data (displayed in figure 1 and table 1 in supplementary material).

(INSERT FIGURE 1)

The mean OST (minutes:seconds) across the whole dataset was 37:40 (SD 4:25), with individual services values ranging from 29:15 to 43:21 for the 12 months. The lowest monthly mean OST in any service was 27:15 (service F, May 22) and the highest was 44:20 (service D, Dec 21). Only 10/120 (8%) service months were below the 30-minute GIRFT target. Fitting a linear model to the country-wide averages, we see a non-significant reduction in OST of 5 seconds per month ($p = 0.09$, $R^2 = 0.26$).

Ambulance OST for suspected stroke patients in England consistently exceeds national recommendations of <30 minutes [5], and are longer than international comparators [2, 3] despite ambulance crew stroke care being broadly similar. Ambulance OST may include time for ambulance clinicians to contact stroke specialists to discuss the patient and the appropriate destination or to pass a pre-alert but the exact nature of these pathways varies between hospitals. Prehospital stroke care should reflect national clinical guidelines and the variation within the data and the difference between the best and worst performing services requires further examination. Whilst the ten services reported cover different geographies with some differences in populations, ambulance crew stroke care options are limited and stroke pathways are similar, so the difference between the best and worst performing services are difficult to explain. Whilst emergency recanalisation treatments for stroke are so closely linked to time a difference of up to 14-minutes OST between services may be clinically important. Limitations to this data include potential differences in case ascertainment as we did not specify the definition of "suspected stroke cases" but we assume this was interpreted as suspicion of stroke by the attending clinicians. The aggregate nature of the data and the inclusion of patients who received emergency and non-emergency responses, and patients within and outside of recanalisation treatment windows are also limitations. Due to the time critical nature of emergency stroke care, it remains a priority for ambulance services to reduce OST. Further work in this area could use ambulance data linked to the English national stroke audit to explore the impact of ambulance OST on patient care and outcomes. Individual trusts should explore ambulance crew behaviour and practice in their areas, such as McClelland et al [7], and share learning and any initiatives which effectively reduce times. Prior research [7] has suggested that ambulance clinicians are completing tasks, such as IV cannulation and 12-lead ECGs, that are unlikely to affect the transport decision or patient destination, but which do contribute to prolonged OST.

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A poster based on this work was presented at the UK Stroke Forum in Birmingham in December 2023.

Competing interests

All authors were involved in a project led by GM and funded by The Stroke Association to explore and reduce ambulance on-scene times in North East Ambulance Service NHS Foundation Trust during the time period described.

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Ethics approval

Not required.

Contributors

GM devised and led the project and wrote the initial draft of the paper. HS supported data analysis. LS, TF and CP were involved in developing the project and data analysis. All authors contributed to the final draft of the paper and all have seen the final submitted version.

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Figure legends

Figure 1. Monthly mean on-scene times with suspected stroke patients for English ambulance services