



Stroke Annual Report 2016/17

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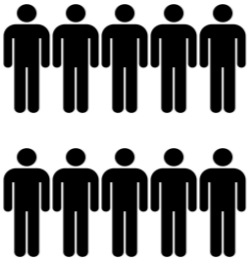
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Contents

	Page
Annual report infographic	
Introduction	1
Findings	1
Demographics	1
Chief complaint	1
Response times	2
On-scene times	2
Patient assessment	3
Destination	4
Journey times	5
Call to HASU times	5
Quality improvement initiatives	6
Conclusion	6
Areas for improvements	6
Acknowledgements	7
Glossary for abbreviations and terms	8
Appendix 1 – Incident information by area	9
Appendix 2 – Care of patients by station	10



Stroke Care 2016/17




12,222
FAST positive stroke patients were attended between 1st April 2016 and 31st March 2017



96.7% of stroke patients received a **full stroke care bundle**



99.8% of stroke patients had the time of **onset recorded**



7 mins

Response



Average '999' call to on scene time was 7 minutes

32 mins

On-scene


Average overall on scene time was 32 minutes

15 mins


Journey

Average journey to a HASU was 15 minutes




62% of FAST positive patients were within the thrombolysis window (i.e. their symptoms started within 4.5 hours)

62% of these patients arrived at a HASU within 60 minutes of the 999 call

Conveyance

99.6% of stroke patients conveyed to the most appropriate destination

Actions

- ✓ Record all three components of the FAST– this includes documenting if unable to assess due to the patients presentation using the tick boxes with the reason why in the free text
- ✓ Spend minimal time on scene – remember 'time lost is brain lost'!

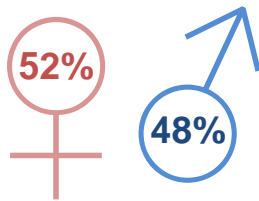
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Introduction

From 1st April 2016 to 31st March 2017, the London Ambulance Service NHS Trust (LAS) attended 12,222* patients, aged 16 years or over, who presented with symptoms of stroke as identified by the Face, Arm and Speech Test (FAST).

For a breakdown of figures by area of London, please refer to Appendices 1 and 2.

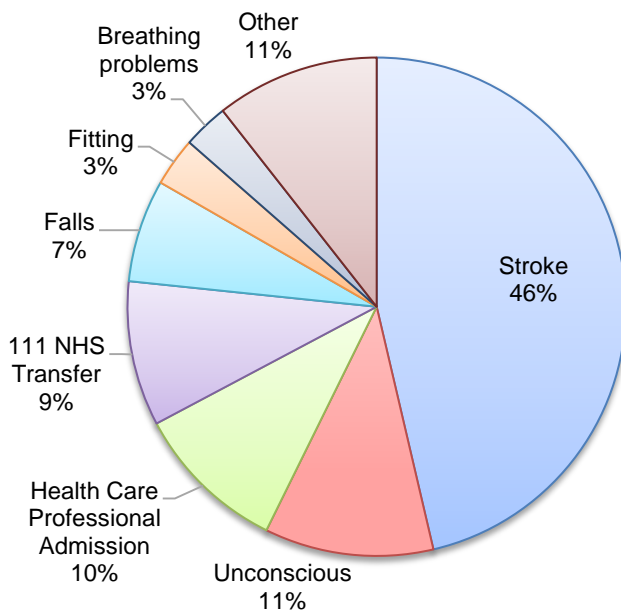
Demographics



Age*	mean (range) in years
All patients	71 (16-104)
Male	69 (16-103)
Female	72 (16-104)

- More than half of stroke patients were female.
- The average age was 71, although male patients were on average 3 years younger than females.
- Just under two-thirds of patients were of a white race origin (60%). In 13% of cases patients refused or were unable to state their race.

Chief complaint



- Patients will present with a variety of symptoms, requiring assessment on scene by a clinician to identify suspected stroke. Prior to this, Emergency Medical Dispatchers will assess the information provided by the 999 caller and use a stroke recognition tool to help in the early detection of possible strokes.
- Stroke was identified as the chief complaint at the point of the 999 call in just under half of cases.

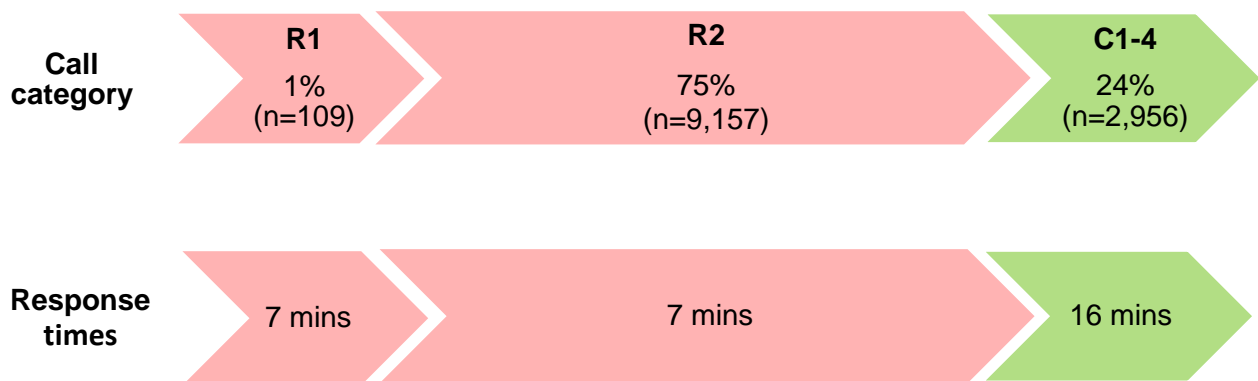
* Patients under the age of 16 with symptoms consistent with a potential stroke are excluded from the report as the stroke pathway in London is designed for adults.

Response times

Based on the information provided by the caller, 999 calls are triaged into response categories. Given that stroke patients present in different ways, they can be prioritised into different categories and the response times will vary accordingly. 75% (n=9,157) of patients were assigned a Red 2 response and a small group (1%, n=109) were triaged as the top level Red 1 response. 24% of calls were allocated a lower priority Category C response.

Response times are measured in different ways for each category. Red 1 responses start from the point the '999' call was connected by the operator. For Red 2 and Category C calls, a period of time prior to the clock starting is afforded in an attempt to establish the chief complaint. During 2016/17, the LAS was involved in an NHS England initiative to allow up to 240 seconds before the clock was started to help determine the chief complaint.

For the 109 patients in the Red 1 group, the median response time was 7 minutes, with 58% of patients receiving a response within the 8 minute national target. For Red 2 patients (n=9,157) the median response time was 7 minutes, with 57% of patients receiving a response within 8 minutes[†]. Patients in Category C received a median response time of 16 minutes.



On scene times

On-scene time [‡]	Median
From arrival of first attending vehicle to leaving scene	32 minutes
From arrival of first conveying ambulance to leaving scene	26 minutes

- The overall **on-scene** time was **32 minutes**, which remains longer than the recommended 30 minutes.
- When measured from the arrival of the first ambulance vehicle the on-scene time was 26 minutes, which is a one minute increase from 2015/16.

[†] Health Care Professional admissions are not included in response time figures. Four cases had no call category information available.

[‡] Non-conveyed patients (n=35) are excluded from on scene time figures.

Patient assessment

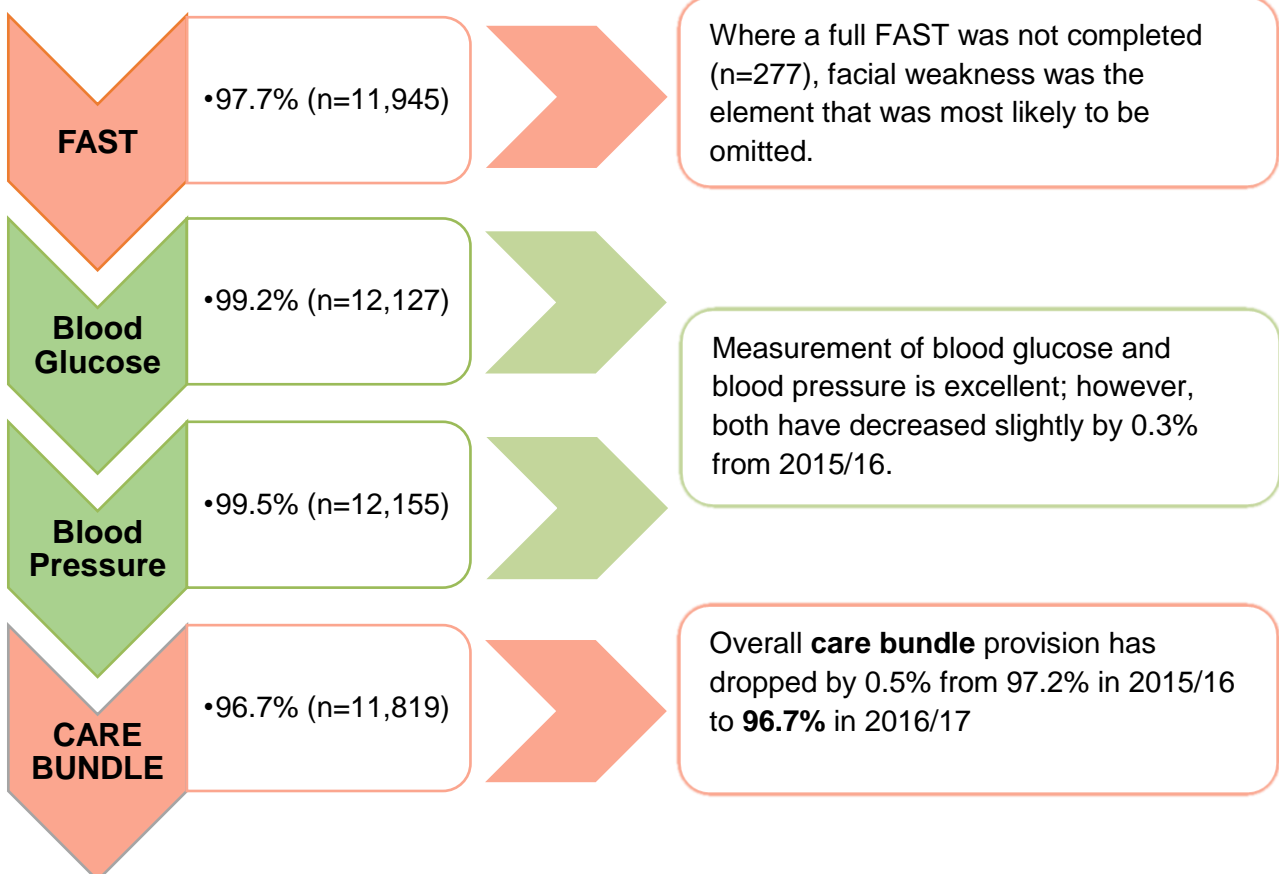
Once on scene, LAS clinicians will establish a history of the event including the time the patient's stroke symptoms started as this will help determine the patient's eligibility for thrombolysis treatment. Staff will complete a comprehensive assessment of the patient, which will include the components of the pre-hospital care bundle: a complete FAST, blood glucose and blood pressure measurement.

Symptom history

Time of symptom onset	% (n)
within 4.5 hours	61.9% (7,566)
older than 4.5 hours	15.4% (1,877)
Unknown	22.5% (2,751)
Not documented	0.2% (28)

- Documentation of the **symptom onset time** improved from 99.0% in 2015/16 to **99.8%** in 2016/17
- Nearly two-third of patients had a symptom onset within 4.5 hours and were potentially eligible for thrombolysis.

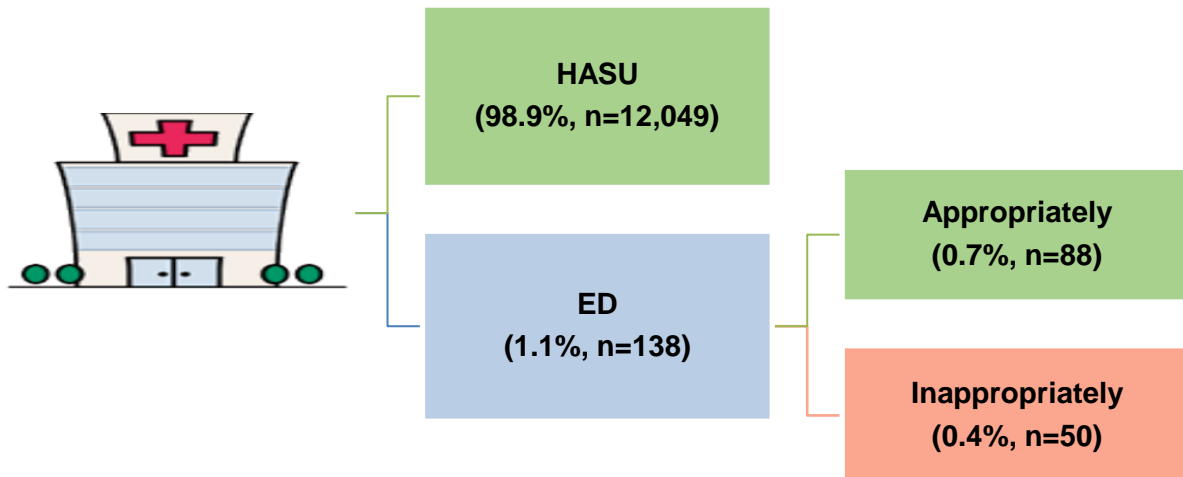
Care bundle



Destination

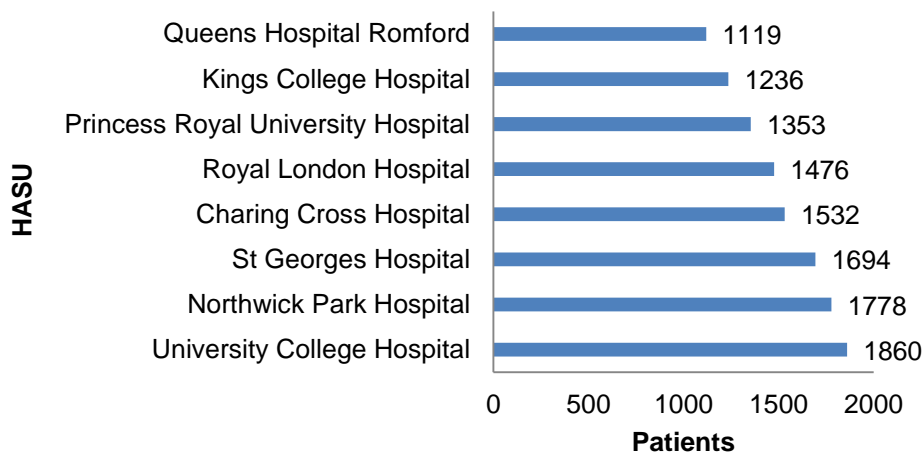
Stroke patients in London are conveyed to a Hyper Acute Stroke Unit (HASU) for specialist care. In some instances the patient may be conveyed to an Emergency Department (ED) if the patient's condition is considered unstable by LAS clinicians or if a Health Care Professional has arranged admission at a hospital without HASU facilities.

Conveyance assessment[§]



- The majority of stroke patients (**99.6%**) were conveyed to the most appropriate destination for their condition.
- 50 patients (0.4%) were conveyed to an ED when they should have been transported to a HASU. These cases have been flagged to Quality Governance and Assurance Managers for investigation and feedback to staff.

HASU utilisation^{**}



- The majority of patients were conveyed to the HASU at University College Hospital.

[§] Non-conveyed patients (n=35) are excluded from figures

^{**} One patient was appropriately taken to a HASU outside of London and is not included in the HASU utilisation figure.

Journey times

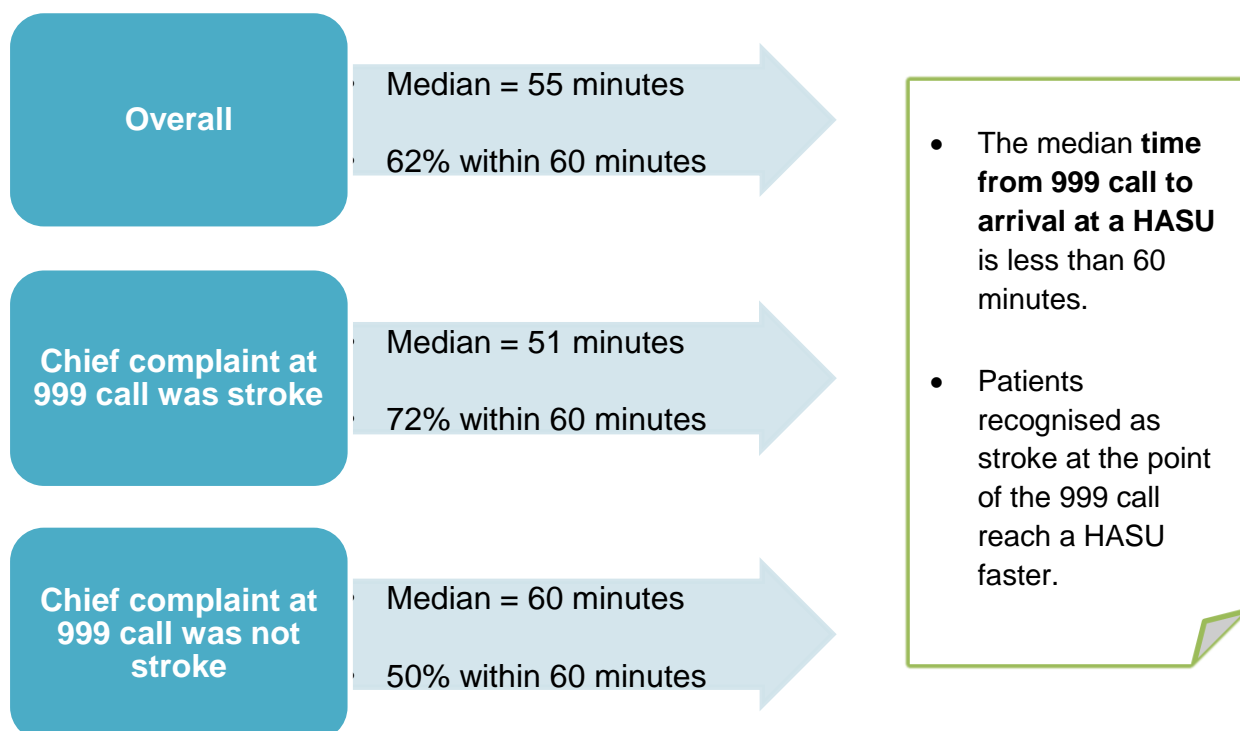
Patients whose symptom onset falls within the thrombolysis treatment window of 4.5 hours are conveyed rapidly to a HASU following a pre-alert call to the hospital to ensure that the specialist stroke team are present on arrival at the hospital. Patients whose symptoms are older than 4.5 hours are transported to a HASU under normal driving conditions.

Journey times	Median
All stroke patients	15 minutes
Patients with onset of symptoms ≤ 4.5 hours conveyed to a HASU	13 minutes
All patients conveyed to a HASU	15 minutes
All patients conveyed to a ED	13 minutes

- The median **journey** to hospital for all stroke patients was **15 minutes**. This was well within the 30 minutes target set by the London Stroke Network

Call to HASU times

Patients who are potentially eligible for thrombolysis as their symptoms started within 4.5 hours of leaving scene ideally should arrive at a HASU within 60 minutes from the 999 call^{††}.



^{††} Health Care Professional admissions are not included in call to HASU time figures.

Quality improvement initiatives

During 2016/17, the LAS undertook a range of initiatives aimed at improving stroke care:

- We launched our 5-year Clinical Strategy 2016-2021 and committed to a number of actions, including the early identification of stroke in both adults and children, reducing on-scene times and increasing the number of patients arriving at a HASU within 60 minutes of the 999 call
- The LAS has continued to provide educational updates to staff via internal bulletins and publications in the Clinical Update and the learning from experience Insight magazine.
- An 'Improving Patient Care' poster^{††} emphasising the key assessments, interventions and triage was released to all staff to help support decision making in an effort to reduce time on-scene.
- Monthly care packs and under-triage reports have been disseminated across the Trust to improve clinical care at a local level.
- The LAS has participated in the national clinical randomised control trial - Rapid Intervention with Glyceryl Trinitrate (GTN) in Hypertensive stroke Trial-2 ('RIGHT-2'). The trial investigates the use of GTN in reducing blood pressure in stroke patients.
- The LAS has contributed to the revision of national adult and paediatric stroke guidelines published by the Royal College of Physicians.
- We continued to work with the stroke networks in London to monitor activity and enhance the stroke pathway, including supporting developments for interventional neuroradiology and mechanical thrombectomy.

Conclusion

The findings of this report show that the LAS has continued to provide excellent care to stroke patients in London. The LAS provided a prompt response, comprehensive assessment, and patients were largely transported to a specialist centre in compliance with the London stroke pathway.

Areas for improvements

There are two key areas where further improvements are required:

- Improve stroke care bundle provision by conveying to the crews the importance of documenting every single element of FAST. If any element cannot be assessed, this should be clearly documented on the PRF.
- Continue to monitor and reduce on-scene times by improving the understanding of how important it is to swiftly transport FAST positive patients with acute onset of stroke symptoms because 'time lost is brain lost'.

^{††} <https://thepulseweb.lond-amb.nhs.uk/operational/job-cycle-time/job-cycle-time-project-updates/>

Acknowledgments

CARU wishes to thank colleagues in the Medical Directorate for their ongoing support, particularly, Neil Thomson and Fenella Wrigley.

Glossary for abbreviations and terms

Blood glucose (BM) – Blood glucose molarity is a measure of a patient's blood glucose level.

Blood pressure (BP) – Blood pressure is measured in systolic and diastolic units.

Care Bundle – The optimum combination of observations that ambulance crews should perform so that the patient receives the best possible care.

Category C – Calls which are not deemed immediately life-threatening (based on the information given by the caller regarding the patient's condition) are classed as Category C. Some patients subsequently diagnosed with a stroke receive this response, primarily where the patient has not reported any FAST symptoms or where other medical conditions were reported instead (e.g. collapse/ not alert).

Clinical Commissioning Group – NHS organisations that govern the delivery of services within areas of England.

Face, Arm and Speech Test (FAST) – A diagnostic test developed in the UK in 1998 used by ambulance clinicians to help assess and detect the symptoms of a stroke. The FAST assesses for Facial drooping, Arm weakness and Speech difficulties as signs of a stroke. The 'T' can also refer to Time to emphasise the importance of rapid assessment and treatment. If a patient presents with one or more of these features they are known as FAST positive (in this report these patients are referred to as stroke patients).

First attending vehicle – A solo resource (i.e. cars, motorbikes, cycles) is dispatched to immediately life-threatening calls to ensure that the patient begins to receive care as quickly as possible prior to the arrival of an ambulance that can convey the patient to hospital.

Hyper Acute Stroke Unit (HASU) – Specialist centres which patients suffering a stroke are taken directly to for rapid assessment and treatment.

Red category – Red calls (or category A) are those classed as immediately life-threatening, and should receive a response within 8 minutes of the initial 999 emergency call. The vast majority of patients diagnosed with a stroke receive a Red response.

Stroke network – The clinical network responsible for overseeing the stroke services delivered to patients.

Time of Onset – The potential time that the stroke occurred based on information available from patients and others. Where a time cannot be established the last time the patient was seen well is used as an alternative to help assist ambulance staff with decisions regarding rapid conveyance to HASU.

Thrombolysis – A form of treatment in which a drug that breaks down blood clots is used in an attempt to un-block the artery leading to the area of brain affected by the stroke. Also known as "clot busting" it carries a number of risks and is only used in a small number of patients where the benefit outweighs the risk.

Appendix 1: Incident information by area (as determined by the CCG of the incident)

CCG [^]	Number of stroke patients	Median Response time (minutes)	Median Journey times (minutes)	Percentage of stroke patients, who were potentially eligible* for thrombolysis, and arrived at a HASU within 60 minutes from 999 call**
Barking and Dagenham	289	8	11	65%
Barnet	487	10	22	44%
Bexley	401	8	25	34%
Brent	514	9	13	65%
Bromley	555	13	12	72%
Camden	343	8	10	70%
Central London	321	7	11	66%
City and Hackney	319	9	12	63%
Croydon	609	9	18	55%
Ealing	533	8	16	59%
Enfield	421	10	30	24%
Greenwich	343	9	23	51%
Hammersmith and Fulham	247	8	7	86%
Haringey	293	9	21	39%
Harrow	372	8	10	72%
Havering	487	8	10	81%
Hillingdon	536	8	20	57%
Hounslow	438	8	20	57%
Islington	304	9	12	66%
Kingston	243	7	17	60%
Lambeth	405	7	9	76%
Lewisham	369	9	16	60%
Merton	318	7	10	81%
Newham	334	8	15	59%
Redbridge	410	8	16	57%
Richmond	279	8	21	52%
Southwark	360	7	9	77%
Sutton	328	7	16	78%
Tower Hamlets	325	7	8	77%
Waltham Forest	346	9	23	45%
Wandsworth	350	8	11	70%
West London	335	8	11	70%

[^] For 8 cases the CCG was unknown or outside London

* Patients whose symptoms were less than four and a half hours old when leaving the scene of the incident, or where the time of onset of symptoms was not documented by the crew.

**Health Care Professional admissions are not included.

Appendix 2: Care of patients by Group Station

Station Groups	Number of patients	Median response time (minutes)	Percentage of cases where on scene time was less than 30 minutes		Care bundle	Median journey time (minutes)	Percentage of stroke patients who were potentially eligible* for thrombolysis and arrived at a HASU within 60 minutes from 999 call**
			Overall from first attending resource	From arrival of conveying vehicle			
Homerton	654	8	42%	66%	97%	12	64%
Newham	809	8	43%	68%	96%	16	61%
Romford	915	8	48%	70%	97%	11	71%
North East	2,378	8	45%	68%	97%	13	66%
Camden	605	9	40%	62%	97%	12	63%
Edmonton	556	9	42%	66%	97%	27	32%
Friern Barnet	486	9	38%	62%	96%	23	42%
North Central	1,647	9	40%	63%	97%	21	47%
Brent	932	8	51%	71%	97%	12	70%
Fulham	587	8	41%	62%	97%	11	71%
Hanwell	720	8	44%	69%	98%	19	59%
Hillingdon	372	8	50%	72%	95%	20	61%
Westminster	238	8	39%	63%	98%	11	63%
North West	2,849	8	46%	68%	97%	14	66%
Bromley	861	8	44%	66%	97%	14	64%
Deptford	1048	8	45%	61%	97%	10	73%
Greenwich	664	8	39%	62%	98%	24	44%
South East	2,573	8	43%	63%	97%	14	63%
Croydon	460	9	52%	75%	97%	17	62%
New Malden	402	7	44%	63%	97%	19	56%
St Helier	501	7	50%	70%	97%	15	72%
Wimbledon	609	7	51%	72%	97%	13	72%
South West	1,972	8	50%	70%	97%	16	67%
PAS & VAS	550	11	37%	59%	96%	15	49%
Other LAS	253	7	47%	66%	86%	15	56%
LAS-Wide	12,222	8	45%	66%	97%	15	62%

* Patients whose symptoms were less than four and a half hours old when leaving the scene of the incident, or where the time of onset of symptoms was not documented.

** Health Care Professional admissions are not included.