

Supplementary File 3 Characteristics of services that did and did not respond to service evaluation survey (based on reports focusing on varied time periods; range 2004 to 2018)

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Characteristics of regional ambulance services and their participation status

Service	Population covered ^a	Square miles covered ^a	FTE qualified ambulance staff ^b	Calls to which an emergency response was dispatched ^{c, d}	Proportion seen, but not conveyed to ED ^{d, e}
1. London Ambulance Service NHS Trust	8.8 million	970	2,597	1,047,357	34.4
2. North West Ambulance Service NHS Trust	7.3 million	8,900	2,852	878,352	30.9
3. East of England Ambulance Service NHS Trust	6.1 million	12,000	1,688	697,901	41.6
4. West Midlands Ambulance Service NHS Foundation Trust	5.8 million	8,000	2,201	838,069	37.3
5. Yorkshire Ambulance Service NHS Trust	5.1 million	8,800	1,540	521,331	31.1
6. East Midlands Ambulance Service NHS Trust	5 million	10,000	1,484	542,325	33.6
7. South East Coast Ambulance Service NHS Foundation Trust	4.8 million	5,800	1,592	656,338	45.3
8. North East Ambulance Service NHS Foundation Trust	2.6 million	5,300	642	297,826	32.5
9. South Western Ambulance Service NHS Foundation Trust	5.5 million	14,800	1,875	599,189	52.4
10. Isle of Wight NHS Trust	140,000	147	60	19,683	51.8
Acceptance rate (10/11)= 90.9% Summary for services participating (n=10)	M= 5.3 (IQR=4.3,6.4)	M= 8,400 (IQR=4218,105)	M= 1,640 (IQR=1273,23)	M= 627,763 (IQR=465454,	M= 36 (IQR=31.8,

Service	Population covered ^a	Square miles covered ^a	FTE qualified ambulance staff ^d	Calls to which an emergency response was dispatched ^{c, d}	Proportion seen, but not conveyed to ED ^{d, e}
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Summary of services not participating (1)	4 million	5,800	1,041	445,798	42.0

Notes: ^a With the exception of the Isle of Wight, this information was from Lord Carter's (2018) report 'Operational productivity and performance in English NHS Ambulance Trusts: Unwarranted variations' (https://www.england.nhs.uk/wp-content/uploads/2019/09/Operational_productivity_and_performance_NHS_Ambulance_Trusts_final.pdf). Data relating to the Isle of Wight was from the Isle of Wight's (2015) NHS Clinical Commissioning Group. Annual Report and Accounts 2014–15 (<http://www.isleofwightccg.nhs.uk/Downloads/Annual%20Report/FINAL%20IOW%20CCG%20annual%20report%202014-15.v6.pdf>) and the Care Quality Commission's (2014) report 'Isle of Wight NHS Trust. Quality Report 2014' (http://www.cqc.org.uk/sites/default/files/new_reports/AAA1882.pdf); ^b Information from NHS Digital's (2015) report 'NHS Workforce Statistics in England, Non-medical–staff - 2004-2014, As at 30 September' (<http://digital.nhs.uk/catalogue/PUB16933/nhs-staf-2014-non-med-detl-tab>). Note that qualified ambulance staff here includes paramedics, technicians, advanced practitioners and ambulance service managers but does not include ambulance trainees; ^c From NHS England (2015) report 'Ambulance Quality Indicators. 2015' (<https://www.england.nhs.uk/statistics/statistical-work-areas/ambulance-quality-indicators/ambulance-quality-indicators-data-2014-15/>); ^dIncludes face-to-face responses as a result of '111' calls. ^e Includes treatment at the scene or onward referral to an alternative care pathway and those with a patient journey to a destination other than ED; M, median; FTE, full-time equivalent; IQR, interquartile range.

Characteristics of regional neurosciences centres and neurology services and their participation status

Name of service	Region	Type	Trust's workforce includes ^a		
			<i>'Adults' neurologists</i>	<i>With epilepsy as a specialism</i>	<i>'Adults' epilepsy nurse specialists</i>
1. Barts Health NHS Trust	London	Regional Neuroscience Centre	-	3	1
2. Imperial College Healthcare NHS Trust	London	Regional Neuroscience Centre	44	4	'
3. King's College Hospital NHS Foundation	London	Regional Neuroscience Centre	-	5	2
4. Royal Free London NHS Foundation Trust	London	Regional Neuroscience Centre	-	7	2
5. St. George's University Hospitals NHS Foundation Trust	London	Regional Neuroscience Centre	19	5	1
6. Cambridge University Hospitals NHS Foundation Trust	Midlands and East	Regional Neuroscience Centre	8	2	1
7. East Suffolk and North Essex NHS Foundation Trust	Midlands and East	Neurology centre	5	1	3
8. Norfolk and Norwich University Hospitals NHS Foundation Trust	Midlands and East	Neurology centre	10	-	-
9. Nottingham University Hospitals NHS Trust	Midlands and East	Regional Neuroscience	16	-	-

Name of service	Region	Type	Trust's workforce includes ^a		
			<i>'Adults' neurologists</i>	<i>With epilepsy as a specialism</i>	<i>'Adults' epilepsy nurse specialists</i>
		Centre			
10.Sandwell and West Birmingham NHS Trust	Midlands and East	Neurology centre	5	1	-
11.The Shrewsbury and Telford Hospital NHS Trust	Midlands and East	Neurology centre	2	1	1
12.University Hospitals Birmingham NHS Foundation Trust	Midlands and East	Regional Neuroscience Centre	17	5	2
13.University Hospitals of North Midlands NHS Trust	Midlands and East	Regional Neuroscience Centre	12	2	4
14.University Hospitals Coventry and Warwickshire NHS Trust	Midlands and East	Regional Neuroscience Centre	8	2	1
15.South Tyneside and Sunderland NHS Foundation Trust	North	Neurology centre	-	-	-
16.Hull University Teaching Hospitals NHS Trust	North	Regional Neuroscience Centre	7	-	-
17.Lancashire Teaching Hospitals NHS Foundation Trust	North	Regional Neuroscience Centre	11	1	2
18.The Leeds Teaching Hospitals NHS Trust	North	Regional Neuroscience Centre	19	3	2
19.Salford Royal NHS Foundation Trust	North	Regional	36	4	3

Name of service	Region	Type	Trust's workforce includes ^a		
			<i>'Adults' neurologists</i>	<i>With epilepsy as a specialism</i>	<i>'Adults' epilepsy nurse specialists</i>
		Neuroscience Centre			
20.Sheffield Teaching Hospitals NHS Foundation Trust	North	Regional Neuroscience Centre	28	5	10
21.South Tees Hospitals NHS Foundation Trust	North	Regional Neuroscience Centre	9	2	1
22.The Newcastle upon Tyne Hospitals NHS Foundation Trust	North	Regional Neuroscience Centre	12	2	2
23.The Walton Centre NHS Foundation Trust	North	Regional Neuroscience Centre	36	10	3
24.York Teaching Hospital NHS Foundation Trust	North	Neurology centre	9	-	-
25.Brighton and Sussex University Hospitals NHS Trust	South East	Regional Neuroscience Centre	2	3	0
26.Oxford University Hospitals NHS Foundation Trust	South East	Regional Neuroscience Centre	43	3	2
27.University Hospital Southampton NHS Foundation Trust	South East	Regional Neuroscience Centre	24	5	3
28.North Bristol NHS Trust	South West	Regional	24	3	2

Name of service	Region	Type	Trust's workforce includes ^a		
			'Adults' neurologists	With epilepsy as a specialism	'Adults' epilepsy nurse specialists
		Neuroscience Centre			
29.Royal Cornwall Hospitals NHS Trust	South West	Neurology centre	-	3	2
30.Royal United Hospitals Bath NHS Foundation Trust	South West	Neurology centre	3	1	1
31.Frimley Health NHS Foundation Trust	South-East	Neurology centre	5	3	2
32.University Hospitals Plymouth NHS Trust	South-West	Regional Neuroscience Centre	10	1	2
33.Poole Hospital NHS Foundation Trust	South-West	Neurology centre	6	1	2
34.Royal Devon and Exeter NHS Foundation Trust *	South-West	Neurology centre	7	-	-
35. Taunton and Somerset NHS Foundation Trust	South-West	Neurology centre	4	1	1
Acceptance rate (35/41) 87.8%) Summary for services participating (n=35)		Regional Neuroscience Centre=23; Neurology centres=12	M= 10 (IQR=6, 19)	M= 3 (IQR=1, 4.25)	M= 2 (IQR= 1, 2)
Summary for services not participating (n=6)		Regional Neuroscience Centre=2;	M= 13.5 (IQR=6.25, 22.5)	.	.

Name of service	Region	Type	Trust's workforce includes ^a		
			<i>'Adults' neurologists</i>	<i>With epilepsy as a specialism</i>	<i>'Adults' epilepsy nurse specialists</i>
		Neurology centres=4			

Notes: ^aData from a 2017 Freedom of Information request to hospital Trust's carried out and published by Epilepsy Action (<https://www.epilepsy.org.uk/professional/epilepsy-data-visualisation/services-by-hospital-trust>). If a Trust did not respond to the request or it was not possible to reconcile a Trust's name with the results, then workforce data was sought from NHS Choices (<https://www.nhs.uk/service-search>). In some instances it could not be obtained, indicated by a "-". A consultant with epilepsy as a specialism was defined as someone with demonstrable training and continuing education in epilepsy, peer review of practice and regular audit of diagnosis. Epilepsy must have been a significant part of their clinical workload (equivalent to at least one session a week). "."=Not calculable due to data not being available; M, median; IQR, interquartile range.

Characteristics of emergency departments that did and did not participate in survey ^a

Provider	Region	Number of 'Type 1' EDs within Trust ^b	Attendances 2017/18		Consultants FTE	Doctors FTE ^d	Nurses FTE
			Number	Quartile ^c			
1. Burton Hospitals NHS Foundation Trust	London	2	128,520	3	-	12	'9
2. Guy's and St. Thomas' NHS Foundation Trust	London	1	181,325	4	25	74	177
3. Imperial College Healthcare NHS Trust	London	2	240,565	4	26	71	165
4. Kingston Hospital NHS Foundation Trust	London	1	118,080	2	11	22	77
5. Colchester Hospital University NHS Foundation Trust	Midlands and East	2	92,200	2	13	28	119
6. East and North Hertfordshire NHS Trust	Midlands and East	1	140,145	3	8	32	133
7. James Paget University Hospitals NHS Foundation Trust	Midlands and East	1	77,675	1	7	13	55
8. The Royal Wolverhampton NHS Trust	Midlands and East	1	181,775	4	19	35	95
9. United Lincolnshire Hospitals NHS Trust	Midlands and East	2	148,540	3	14	36	181
10. Worcestershire Acute Hospitals NHS Trust	Midlands and East	2	188,545	4	9	27	129
11. Calderdale and Huddersfield NHS Foundation Trust	North	2	148,445	3	10	23	106
12. City Hospitals Sunderland NHS Foundation Trust	North	1	159,420	3	10	26	117
13. Countess of Chester Hospital NHS Foundation Trust	North	1	82,785	1	7	23	69
14. County Durham and Darlington NHS Foundation Trust	North	2	210,460	4	11	37	108
15. Mid Cheshire Hospitals NHS Foundation Trust	North	1	89,300	2	8	13	97

Provider	Region	Number of 'Type 1' EDs	Attendances 2017/18		Consultants FTE	Doctors FTE ^d	Nurses FTE
16.Mid Yorkshire Hospitals NHS Trust	North	2	245,840	4	18	43	131
17.Northumbria Healthcare NHS Foundation Trust	North	1	194,495	4	24	57	84
18.Salford Royal NHS Foundation Trust	North	1	100,470	2	36	21	212
19.Tameside and Glossop Integrated Care NHS Foundation Trust	North	1	87,715	1	10	15	70
20.Warrington and Halton Hospitals NHS Foundation Trust	North	1	113,645	2	7	22	95
21.East Sussex Healthcare NHS Trust	South	2	119,400	3	8	36	94
22.Maidstone and Tunbridge Wells NHS Trust	South	2	174,060	4	13	41	135
23.Royal Surrey County Hospital NHS Foundation Trust	South	1	70,970	1	11	14	85
24.Surrey and Sussex Healthcare NHS Trust	South	1	98,840	2	9	39	82
25.University Hospitals Bristol NHS Foundation Trust	South	1	135,305	3	21	32	135
26.Western Sussex Hospitals NHS Foundation Trust	South	2	139,490	3	16	16	110
Acceptance rate (26/35) 74.3% Summary for services participating (n=26)			M= 137,398 (IQR=97180, 181438)		M= 11 (IQR=8.5, 18.5)*	M= 27.5 (IQR=19.75, 37.5)	M= 107 (IQR=83.5, 133.5)
Summary for services not-participating, including those not invited (n=111)			M= 115, 665 (IQR=85,585, 156,420)		M= 10 (IQR=8, 17)	M= 28 (IQR=18.5, 38)	M= 86 (IQR=61, 118.5)

Notes: ^aData based on NHS Digital (2018) Hospital Accident and Emergency Activity, 2017-18 (<https://digital.nhs.uk/data-and-information/publications/statistical/hospital-a-ident--emergency-activity/2017-18>); Data was available for 25/26 of the participating sites. Staff data was current as of March 2018; Please also note that some of the provider names have since changed; ^b'Type 1' EDs are consultant led 24 hour services with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients (https://www.datadictionary.nhs.uk/data_dictionary/attributes/a/acc/accident_and_emergency_department_type_de.asp); ^c Lower quartile equates to fewer attendances; ^d Excludes consultants; M, median; IQR, interquartile range.

References

1. Mathieson A, Marson AG, Jackson M, Ridsdale L, Goodacre S, Dickson JM, *et al.* Clinically unnecessary and avoidable emergency health service use for epilepsy: A survey of what English services are doing to reduce it. *Seizure* 2020;**76**:156–60.