Royal College of Physicians

The Vascular Society of Great Britain & Ireland

UK carotid endarterectomy audit

Round 4 public report

Includes operations performed between 1 October 2010 and 30 September 2011

August 2012

Prepared on behalf of the Carotid Interventions Audit (CIA) Steering Group by the Royal College of Physicians Clinical Standards Department

Publication Guidance
Public Report of UK Carotid Endarterectomy Audit Round 4

Document type:	Report
Authors:	CIA Steering Group
Published:	August 2012
Primary audience:	General public, patients who have had or may require a carotid endarterectomy and their carers. Vascular surgeons who perform carotid endarterectomies. Trust audit personnel. Trust Medical Directors, Chief Executives, Governance Leads and Finance Directors. Strategic Health Authority Clusters. NHS Commissioners.
Secondary audience:	Health and social care professionals and researchers.
Supersedes:	UK Carotid Endarterectomy Round 3 Public Report.
Related publications:	Generic report of the UK Carotid Endarterectomy Clinical Audit Round 4 available from cia@rcplondon.ac.uk. Public report of the UK Carotid Endarterectomy Audit Round 3. National clinical guideline for diagnosis and initial management of acute stroke and transient ischaemic attack (NICE, 2008). National Clinical Guideline for Stroke 3rd edition (Royal College of Physicians, 2008). National Stroke Strategy (Department of Health, 2007). Department of Health: Progress in improving stroke care (National Audit Office, 2010).

This new report (2012), commissioned by the Healthcare Quality Improvement Partnership (HQIP), presents the latest findings from Round 4 of the National Carotid Interventions Audit. The audit focussed on the process and outcomes of patients undergoing carotid endarterectomy between 1 October 2010 and 30 September 2011. It includes the characteristics of the patient, the key delays prior to surgery, the surgery itself and any post operative outcomes. It also includes differences between trusts and regions within Round 4 as well as changes over time.

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Report compiled by

Mr Sam Waton BSc Hons
Project Co-ordinator, Clinical Standards Department, Royal College of Physicians of London

Mrs Alex Hoffman MSc
Stroke Audit Programme Manager, Clinical Standards Department, Royal College of Physicians of London

Mr Michael Roughton MSc
Medical Statistician, Clinical Standards Department, Royal College of Physicians of London

Clinical authors and advisors

Mr David Mitchell MA MB BS FRCS
Chair of the Vascular Society of Great Britain and Ireland Audit and Quality Improvement Committee

Dr Geoffrey Cloud FRCP
Stroke Programme Associate Clinical Director, Royal College of Physicians of London

Professor Anthony Rudd FRCP
Stroke Programme Clinical Director, Royal College of Physicians of London

Please see Appendix 3 for the CIA Steering Group membership

Acknowledgements

The Steering Group, Clinical Advisors and Project Team acknowledge the Healthcare Quality Improvement Partnership (HQIP) for core funding for this project and the Vascular Society of Great Britain and Ireland (VSGBI) that contributed to the funding of the clinical audit web-based data collection tool.

Foreword

This fourth public report from the Carotid Interventions Audit demonstrates continuing improvement in the service that hospital teams provide to patients. With 98% of eligible NHS trusts in England, Northern Ireland, Scotland and Wales participating in the audit, and with 90% of cases in England compared with Hospital Episode Statistics included in the report, it is the most robust review of UK carotid surgical intervention ever. The median time for intervention is still coming down and indicates a commitment to improving the quality of service within the NHS. There is much to be pleased with, but also much to do.

We have included some tables illustrating the variation in performance between hospitals in the UK. Some are very good, treating nearly all patients within the NICE target of 14 days from the onset of symptoms. Others are not so good and need to improve their performance. A few are worryingly poor and the clinical teams and the executives of these organisations need to ask themselves if they are providing any benefit to their patients. Serious consideration should be given to moving the service to adjacent better performing Trusts.

One feature of note is that patients are treated most quickly in London. The capital has undergone a significant re-organisation of stroke services, with fewer centres seeing more patients. If it can be shown that re-configuration has delivered clear benefit to patients, then other regions will need to look at how their services can be best organised for patient benefit.

Quality Improvement represents a challenge to organisations. Discussions with high performing centres indicate that a focus on a facilitated pathway of referral, seven day TIA clinic access and working in teams (as opposed to the traditional consultant firm approach) are the keys to improving access to treatment for patients.

Despite patients being operated upon more quickly and at higher risk, reassuringly, we are not seeing a sharp rise in stroke and other peri-operative complications. Carotid surgery is being performed more effectively than before in the NHS and in doing so preventing more strokes and their associated misery. What is required now is to reduce the variation in clinical performance and for teams to work hard on managing their pathways of care to treat all patients within the NICE target.

David Mitchell
Chair, Audit & Quality Improvement committee,
The Vascular Society of Great Britain & Ireland

Summary of Clinical UK Carotid Endarterectomy Audit (Round 4)

Background

This report is based on Round 4 of the National Carotid Interventions Audit, which includes all carotid endarterectomies performed between 1 October 2010 and 30 September 2011 that were submitted to the audit by 31 December 2011. Round 4 builds on progress made within Round 1 (1 December 2005 – 31 December 2007), Round 2 (1 January 2008 – 30 September 2009) and Round 3 (1 October 2010 – 30 September 2010).

Aims

1. To assess the current speed of delivery of carotid endarterectomy in the UK.
2. To assess variations in access and quality of care for patients needing carotid endarterectomy.
3. To assess 30-day mortality and complications rates following carotid endarterectomy.
4. To stimulate improvements over time in the quality of care provided to patients undergoing carotid endarterectomy.

Methods

Data are entered, by vascular surgeons, other members of the vascular team and audit personnel, prospectively into a secure webtool (National Vascular Database) that captures core demographic information as well as clinical data about symptoms, medication and treatment for each case. Critical steps in care are recorded with dates (or within date bands where precise information is not available). The data on time from symptom to referral, referral to imaging and time to referral to the surgical service are recorded. Time from symptom to carotid intervention is also captured. This enables all stakeholders to examine the components of care in the pathway, involving pre-hospital care as well as the in-hospital multi-disciplinary team. Outcomes including complication rates for stroke and cranial nerve injury are captured, as well as survival whilst as an inpatient and at 30 days post-surgery.

Data are analysed by a dedicated team, including statistical support, within the Clinical Standards Department of the Royal College of Physicians to report back to participants. This provides information to enable comparison of the performance of individual trusts and regions with national averages, and in comparison with previous rounds of the audit.

Participation

Data were returned by 93% (425/457) of eligible surgeons, reporting 90% (4849/5360) of comparable cases in England, 99% (153/154) of comparable cases in Northern Ireland and 70% (254/362) of comparable cases in Wales reported in HES in the same time period (1 October 2010 to 30 September 2011).

Data for Scotland is not available due to a new patient management system rolled across a number of Scottish health boards within 2011.

Key findings

Table 1: Case contribution to Round 4 of the CEA Clinical Audit

Denominator	Number of cases
Number of patients in Round 4	5543
Number of symptomatic patients	4818
All patients with data on 30 day survival	5461
All patients who attended a follow-up appointment	4638

For symptomatic patients (i.e. a patient displaying outward symptoms), these are the main symptoms that triggered referral.

Table 2: Main symptoms that triggered referral

Symptom	National %
Amaurosis fugax (loss of vision in one eye)	18
Transient Ischaemic Attack (TIA)	47
Stroke	34

- The median number of days from symptom onset to carotid surgery 15 was (IQR 8–40).
- The median number of days from symptom onset to referral was 5 (IQR 2–14).
- The median number of days from referral to carotid surgery was 9 (IQR 4–23).

When the delay between symptom and procedure was more than 14 days, the main causes of delay as reported by the auditor, included delay in referral (41%), delay in patient presentation (26%), operation cancellation as patient was unfit or patient choice (20%) and delay in carotid imaging (11%), amongst others.

Table 3: Reported post-operative outcomes

The rate of complications	Data available for	National %
Stroke and death at 30 days after surgery	121/5462	2
Myocardial infarct post-operatively	36/5543	0.6
Bleeding post-operatively	183/5543	3
Cranial nerve injury	210/5543	4

Recommendations for change

1. All staff involved in organising and delivering care to patients who require carotid surgery need to examine their data and assess their performance against standards within NICE Guideline CG68.
2. Clinicians should ensure that data from patients having carotid surgery are included in national clinical audit. Appropriate time within job plans must be made available for consultants to validate and act upon their data.
3. Systems should be in place to ensure that coding of patients with carotid surgery is accurate. This requires close collaboration between hospital coding departments and clinicians and is likely to require regular (at least monthly) coding review meetings with the vascular team.
4. Every health economy offering carotid surgery must have a clearly documented pathway of care. This should state how the patient accesses services and how they flow through to surgery if required.
5. Clinicians involved in providing care to patients with TIA and minor stroke should ensure that there are agreed referral protocols to minimise delays in the pathway.
6. It is recommended that referrals to vascular surgery or interventional radiology should go to a central point within the department, rather than individual clinicians. There should be someone available to deal with referrals on a daily basis. These processes should work both during the working week and at the weekend.
7. Patients requiring carotid endarterectomy should be allocated to the next available operating list (ideally within 3 days of referral).
8. Carotid intervention should be prioritised as urgent/emergency in all symptomatic cases.
9. Clinical teams should seek feedback from patients to help improve the quality of care offered.
10. Stroke teams should publicise their services to primary care and the public. Attention should be given to highlighting the importance of amaurosis fugax as this diagnosis is associated with significantly greater delays in the pathway.

Chapter 1: Background and methods

1.1 Introduction

The audit of carotid endarterectomy was initiated in 2005 as a collaboration between the Vascular Society of Great Britain & Ireland and the Royal College of Physicians. The audit's purpose is to report on the quality of care for patients with carotid stenosis who undergo carotid surgery. This report is on the fourth round of the audit.

The facility to collect carotid stent data was added in 2009 and the audit was renamed the Carotid Interventions Audit. However, the number of stenting procedures entered into the audit has not been sufficient to include with these reports. There were a total of 35 carotid stents submitted to the audit within Round 4, from 11 NHS trusts in the UK, ranging from between 1 and 9 per trust. There were 230 carotid stents identified in HES for England for the same time period from a total of 29 trusts.

1.2 Background

Patients with significant narrowing of their carotid arteries are at increased risk of stroke. Those with transient symptoms have the highest risk of stroke in the period immediately following onset. There is a large body of evidence showing that the greatest benefit from carotid surgery is seen if the procedure is carried out quickly following the onset of symptoms. Both NICE and the National Stroke Strategy have set standards for the time from symptom to surgery of 14 days and 48 hours, respectively. For the symptom to surgery pathway to work well, it requires many stakeholders to coordinate care delivery.

The general public and healthcare professionals need to be aware of the symptoms of stroke and TIA; and what to do when they recognise these symptoms. General practitioners need to refer promptly and NHS trusts need to have organised stroke services with rapid access to specialist clinicians, imaging and surgery. This audit provides data on the efficiency of the pathway of care and outcomes for patients who have had an endarterectomy.

1.3 Evidence base

The evidence used for setting audit questions is derived from two main sources:

1. National Clinical Guideline 2009 Stroke*: The diagnosis and acute management of stroke and transient ischaemic attacks by the National Institute for Health and Clinical Excellence*
http://www.nice.org.uk/Guidance/CG68.

2. National Stroke Strategy 2007 http://www.dh.gov.uk and the accompanying publication *Implementing the National Stroke Strategy – an imaging guide.*

1.4 Project team

The audit is supported by a multidisciplinary Steering Group that is comprised of professional organisations and patients, as shown in Appendix 3.

Day to day management of the audits (including running the helpdesk, analysis and reporting of results) takes place within the Clinical Standards Department of the Royal College of Physicians of London (RCP). The RCP vision is to improve patient care by the setting, monitoring and implementation of clinical standards.

1.5 Aims

The aims of this clinical audit into CEA provision were to:

1. Assess the current speed of delivery of carotid endarterectomy in the UK.
2. Assess variations in access and quality of care for patients needing carotid endarterectomy.
3. Assess 30-day mortality and complications rate following carotid endarterectomy.
4. Stimulate improvements over time in the quality of care provided to patients of carotid endarterectomy.

1.6 Methods

1.6.1 Data collection

The questionnaire was devised by the Steering Group to capture appropriate aspects of CEA provision in relation to describing the process and outcomes of care for a group of patients (referred to as cases) who have CEA in the UK based on the guideline.

This questionnaire **(Appendix 2)** was completed via the National Vascular Database online web tool and includes items from the initial symptom, referral to the vascular surgeon, the operation itself, post-operative stay and the follow-up appointment post hospital discharge.

All vascular surgeons (consultant grade) who might potentially undertake CEA in the UK were contacted by the project team and 457 surgeons confirmed that they undertake the operation. This group are referred to throughout this report as 'eligible surgeons.'

Surgeons were required to complete one questionnaire for each CEA performed (case).

This round of the audit collected CEA operations performed between 1 October 2010 and 30 September 2011 inclusive.

The deadline for submitting data for this round was 31 December 2011.

5543 cases were included in the analysis.

1.6.2 Presentation of results

The median is the average used to present results because it is the middle point of the data and 50% of the values lie on either side.

Results are also presented as totals, percentages, and/or inter-quartile ranges (IQR).

Where numbers are small (e.g. post operative complications) the number and percentage is given to aid interpretation.

The number of cases included in each analysis varies across questions as some were mandatory and some did not apply.

For clarity of presentation, the term trust(s) is used generically for trusts in England and their equivalents in Northern Ireland, Scotland and Wales.

A full glossary is presented in **Appendix 1**.

Chapter 2: Results

2.1 Participation

HES is the national statistical data for England of the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. It is the data source for a wide range of healthcare analyses for the NHS, Government and many other organisations. There are equivalent agencies in Wales, Scotland and Northern Ireland.

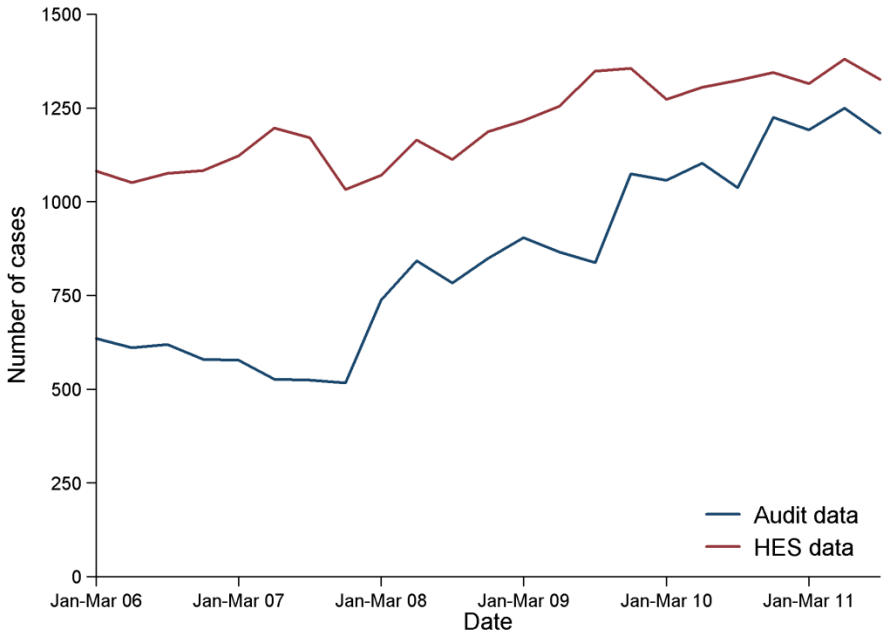
The number of carotid endarterectomy operations that were performed according to HES (codes L29.4 and L29.5) over the equivalent audit period was used to compare the extent to which all cases were submitted to the audit by each trust/health board.

There were 5366 CEA cases recorded on HES for the Round 4 time period in England. Round 4 captured 4849/5366 (90%) of comparable cases in England.
There were 362 CEA cases recorded on PEDW (Patient Episode Database for Wales) for the Round 4 time period in Wales. Round 4 captured 254/362 (70%) of comparable cases in Wales.
There were 395 CEA cases recorded on SMR01 (Scottish Morbidity Record) for the Round 4 time period in Scotland. Round 4 captured 335 of these cases. However they are subject to further clarification due to a new patient management system being rolled out across a number of health boards. This has had a noticeable impact on the numbers returned from the Scottish SMR01 system.
There were 154 CEA cases recorded on HIS (Hospital Inpatient System) for the Round 4 time period in Northern Ireland. Round 4 captured 153/154 (99%) of comparable cases in Northern Ireland.

From this point on in the report, the term *HES* is used generically to describe data that are collected by these national agencies.

The number of cases compared to HES has increased dramatically since the inception of the audit. The graph below shows this increase using data from England.

Fig 1: Number of cases submitted to the audit compared to HES since Round 1 (England only).



2.2 Patient demographics

Age is an important predictive factor for outcome. The risk of complications following surgery increases with age (Miller et al., 2009). The median age within the audit was 73 years, which is consistent with the previous randomised controlled trials.

Twice as many men (67%) as women underwent carotid surgery. The indications for treatment are very similar in males and females (Kapral et al., 2003) suggesting that the difference in numbers between these two groups is a reflection of a difference in rates of disease rather than patient selection.

2.3 Patient symptoms

Carotid endarterectomy is performed on patients to reduce the risk of stroke caused by carotid stenosis. A symptomatic patient is a patient displaying outward symptoms of carotid stenosis, whereas an asymptomatic patient does not yet show symptoms. In this round of the audit, 4818/5543 (87%) of patients were symptomatic, whereas 725 (13%) of patients were asymptomatic.

There is a robust evidence base (Rothwell et al., 2004) for providing CEA to symptomatic patients. There is less benefit in asymptomatic patients.

Table 4: Main symptoms that triggered referral

Symptom	National %
Amaurosis fugax	18
Transient Ischaemic Attack (TIA)	47
Stoke	34

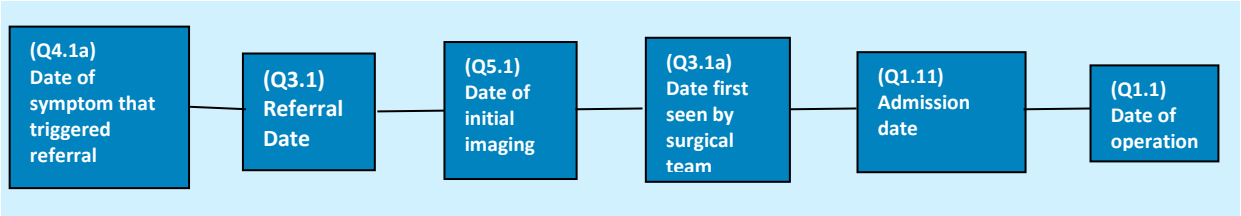
Approximately one third of patients nationally presented with stroke and the remainder with TIA or amaurosis fugax.

2.4 Summary of key delays

There is evidence that greater benefit from CEA is achieved when surgery is performed as soon as possible, ideally within two weeks of the initial symptom (Rothwell et al., 2004).

The typical patient pathway is set out in Figure 2 below:

Fig 2: Typical example of the patient path to operation, and the audit question number used to capture the information on how long each stage of the pathway took.



The ten year National Stroke Strategy sets a target of 48 hours from symptom to operation (to be effected by 2017) to minimise the risk of high-risk patients with TIA developing a stroke. The current NICE guideline recommends two weeks. This round of the audit showed substantial improvements:

- The median time from symptom to referral was 5 days (IQR 2–14), which is shorter than Round 3 when it was 6 (IQR 2–20) and Round 2 when it was 8 (IQR 3–26).
- The median time from referral to operation was 9 (IQR 4–23), which is shorter than Round 3 when it was 12 (IQR 5–31) and Round 2 when it was 19 (IQR 7–47).
- The median time from symptom to operation was 15 (IQR 8–40),* which is shorter than Round 3 when it was 21 (IQR 9–54) and Round 2 when it was 28 (IQR 12–68).

*The symptom to operation median cannot be calculated by summing the symptom to referral median with the referral to operation median.

These results show that patients now progress along the care pathway much more rapidly since Round 2. Vascular surgeons are to be congratulated upon these improvements to patient care. However, the NICE Guideline of 14 days between symptom and surgery has not yet been achieved consistently.

2.5 Changes in delays during rounds 2 to 4

To demonstrate reductions in delays, the symptomatic cases submitted for the Round 2 period (21 months) were divided into *three equal seven month periods* (January 2008 to July 2008, August 2008 to February 2009 and March 2009 to September 2009).

The symptomatic cases for the Round 3 and Round 4 periods (12 months each) were then divided into *four equal six month periods* (October 2009 to March 2010, April 2010 to September 2010, October 2010 to March 2011 and April 2011 to September 2011) and added to the same graph to show the median delays over the whole 45 month period.

Fig 3: Symptom to referral (number of days) during Rounds 2 – 4.

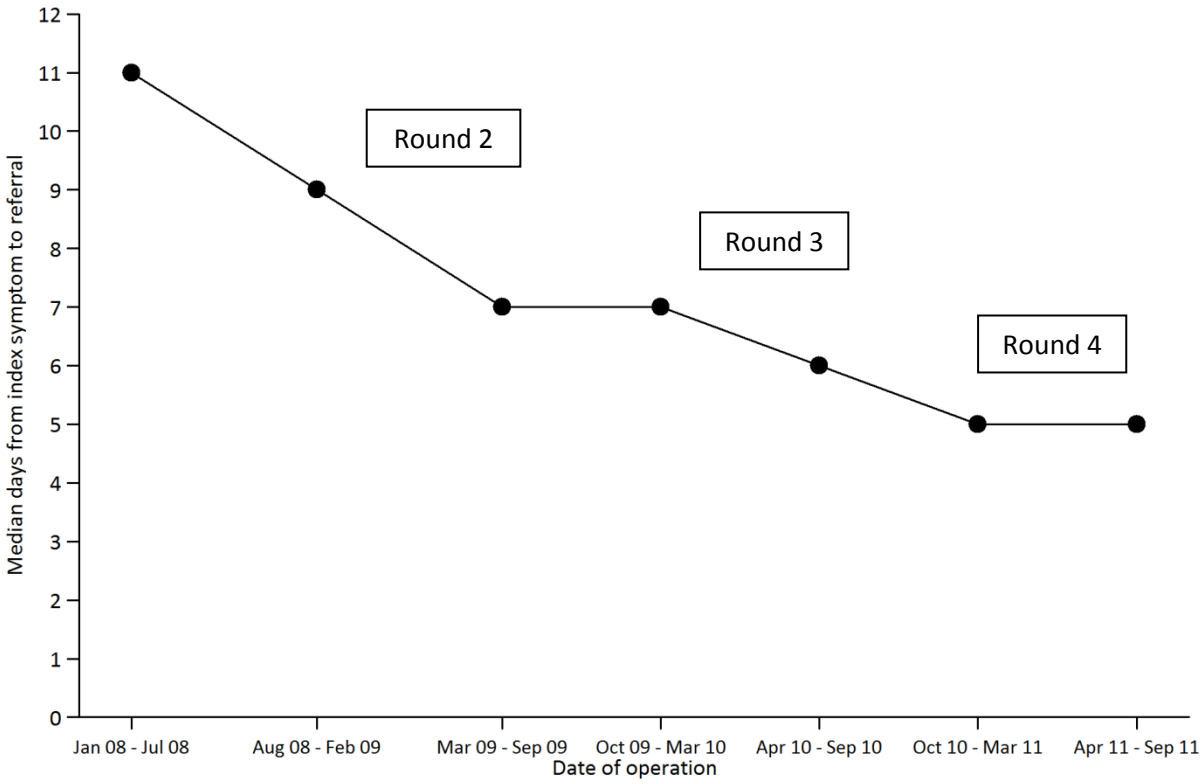


Fig 4: Referral to operation (number of days) during Rounds 2 – 4.

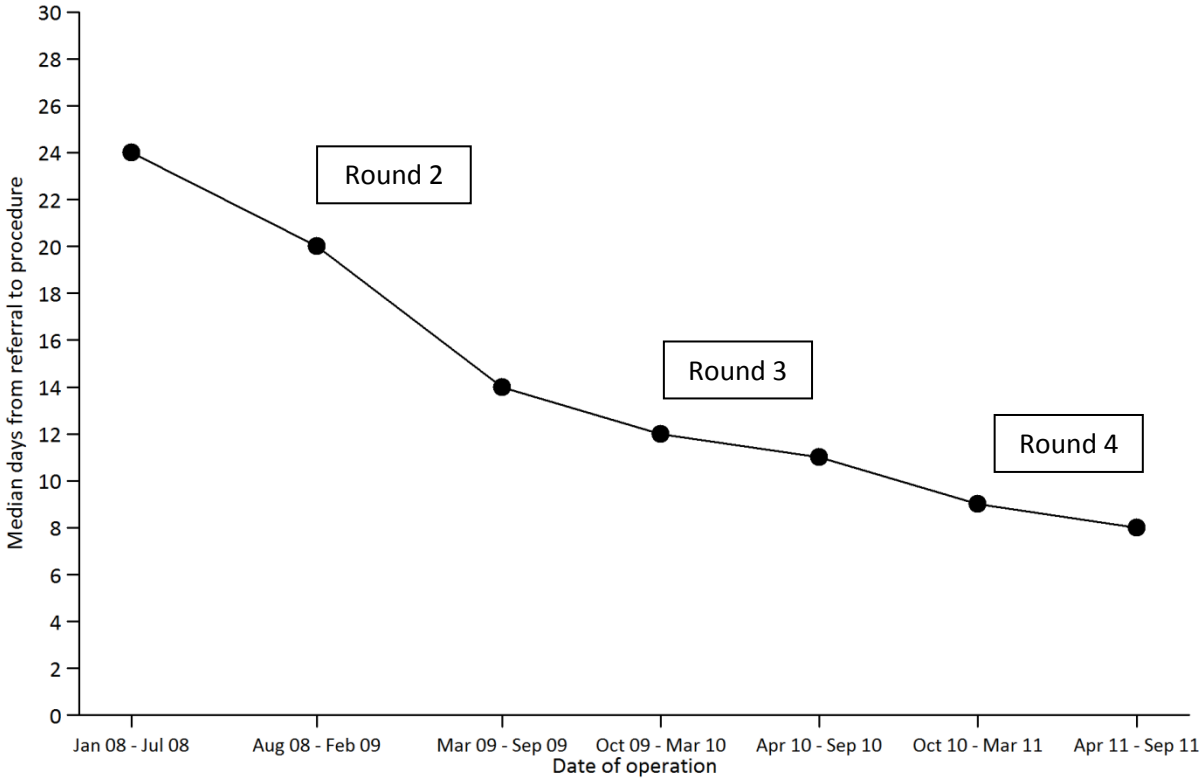
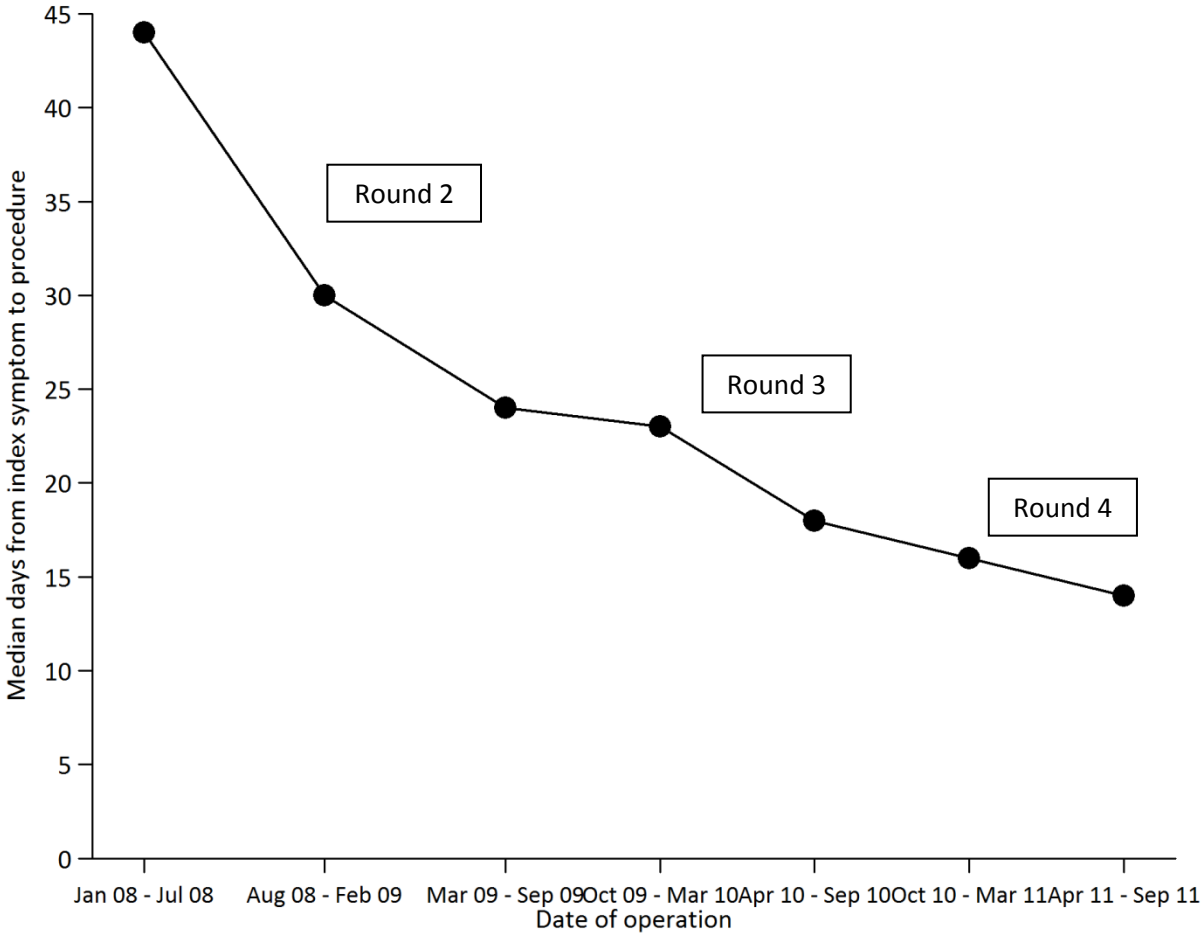


Fig 5: Symptom to operation (number of days) during Rounds 2 – 4.



These data show that the most common reasons for delay, according to the auditor, before surgery were related to presentation and referral. Raising public awareness of stroke and TIA has been a recent priority (for example the NHS F.A.S.T campaign) and should continue, in order to educate the public and healthcare professionals of the importance of early referral and treatment. If patients are to be treated within two weeks, and ideally within 48 hours, further reorganisation of vascular services will be needed to minimise the delays associated with lack of operating time and limited surgeon availability.

Concerns remain that the times to imaging are also a cause of significant delay in the pathway. Trusts need to ensure daily access to imaging for patients with symptomatic carotid disease.

Table 5: Reasons for delays of more than two weeks between index symptom and surgery

Reason cited*	Based on 2122 patients (%)
Delay in patient presenting at GP or hospital	26%
Delay in referral	41%
Delay in carotid imaging	11%
Patient cancellation/delay - unfit	10%
Patient cancellation/delay - patient choice	10%
Limited availability of surgeon	10%
Limited availability of anaesthetist	0.6%
Limited availability of radiologist	0.2%
Lack of operating time	10%
Other case took priority	2%
Other	15%

*Multiple reasons could be selected, so totals may not add up to 100%

2.6 Duration of surgery

This round of the audit showed that CEAs take a median of 120 minutes (IQR 95–145) to perform, which has remained consistent over the four rounds.

2.7 A Patient's experience of a carotid endarterectomy

Male aged 64

It all started with a funny turn when my fingers in my left hand suddenly started to tingle and I felt a bit spaced out. Things quickly got better and I didn't think anything much about it but my wife wanted me to go to the doctor. My doctor was very thorough and examined me and referred me urgently to hospital to a TIA clinic.

The specialist I saw at the hospital was concerned and sent me for several tests, the first one was an ECG, and then I had a grand tour of the hospital - it took all day! I had a CT scan. I also had a jelly scan of my heart, some blood tests and a jelly scan of my neck. In between all these tests I had an appointment to see the surgeon as well. The surgeon was very thorough with his examination. He told me I was very lucky not to have had a dense stroke as my artery was very narrowed and the lining was all rough and loose, was I think how he explained it. It was a bit of a shock when he said he wanted me to come back for an operation in the morning, the next day, so no waiting list or anything. The Nurse Practitioner took over, explaining what would happen and getting all my paperwork done for the next day, can't say I remember a lot about that bit.

The next day I went to the admissions reception and had the operation done in the morning. I had a general anaesthetic as it was a big job; the cut goes right up under my ear and down to my collar. They had to put in a plastic patch too. I didn't expect it to be such a big scar really. My voice is croaky since the operation, but it's better than it was. My wife has been answering the phone and everything up to now. She can drive too so that was good, she's a good driver. I've still got some little thing, like my face is a bit numb and when I lie on one side at night my lip falls into my mouth, so I bit it by mistake.

To be honest now that I'm through it, I am grateful that I didn't have a stroke. I had a friend who had a stroke. He couldn't talk to anyone and didn't know what was going on, it was really sad.

My doctor is really good, she knew what was going on and the hospital treatment was very good, it just took all day for the tests, and we had to jump the queue sometimes for some tests.

2.8 Patient outcomes and complications

The likelihood of complication following carotid endarterectomy is low, however it is important to understand the risks and how these may be reduced or approached.

When a complication occurs, it is likely to be one of the following:

- Bleeding.
- Myocardial Infarct: otherwise known as a heart attack, this involves the interruption of blood supply to part of the heart.
- Cranial Nerve Injury: abbreviated to CNI, this is damage to one of the nerves to the face and neck.
- Transient Ischaemic Attack: a "mini-stroke" or TIA occurs when the blood supply to the brain is briefly interrupted.

The following table reports the rate of complication and death across the UK following CEA.

Table 6: Reported Outcomes

Complication	Stage complication was experienced	Round 3 (12 months)		Round 4 (12 months)	
		National N	Percentage	National N	Percentage
Myocardial Infarct (MI)	Inpatient	40/4971	0.8%	36/5543	0.6%
Bleeding	Inpatient	177/4971	4%	183/5543	3%
Cranial Nerve Injury (CNI)	Inpatient CNI	96/4971	2%	109/5543	2%
	Overall CNI (inpatient or at follow-up)	184/4971	4%	210/5543	4%
Transient Ischaemic Attack	Inpatient	26/4971	0.5%	25/5543	0.5%
Stroke	Inpatient stroke	104/4971	2%	80/5543	1%
	Stroke at any point by follow-up	134/4749	3%	111/5462	2%
	Stroke within 30 days of operation	124/4749	3%	99/5462	2%
Death	Inpatient death	37/4954	0.8%	28/5543	0.5%
	Death within 30 days of the operation	39/4742	0.8%	46/5461	0.8%
Stroke/Death	Death and/or stroke within 30 days	139/4749	3%	121/5462	2%
MI/Stroke/Death	Inpatient	150/4954	3%	120/5543	2%

There were 20 inpatient deaths following CEA recorded for England by the national agency (HES) and 24 reported in the audit.

The most common reason for return to theatre was bleeding (128/5543, 2%) which is similar to the findings of randomised controlled trials (Meier et al., 2010).

One concern about expediting CEA in patients with recent TIA/stroke was that it might be associated with an increase in the procedural risk. The Round 4 data suggest that this has not occurred. However, the low reported procedural stroke rate raises concerns that there may still be reporting bias. It is, therefore, recommended that patients should be followed up by both surgical and stroke teams to ensure that outcome data (peri-operative stroke, TIA and cranial nerve injuries) are reported as accurately as possible.

Chapter 3: Trust participation in the audit

There is concern amongst many healthcare professionals regarding the accuracy of HES data, and this was examined further in an Organisational Audit of Vascular Surgical Services in 2009. The authors of this report asked trusts to self-report the number of CEAs they had performed in that year, and a reasonable association was found between the self-reported data and that obtained from HES. However, HES is the only national data available with which to compare.

From Round 3 onwards the Vascular Society has used a traffic light system to illustrate trusts' contribution of cases compared with HES. Red ✗ indicates that the trust has submitted 75% or fewer of their cases compared to HES. Amber ◆ indicates that the trust has submitted between 76% and 90%. Green ✓ indicates that the trust has submitted 91% or more of their cases compared with HES. The green category has been capped at 110% as this probably indicates a HES coding issue within the trust. Therefore contribution rates of over 110% fall within the amber category.
The ✓, ◆ or ✗ in the final column is included to aid those who find it difficult to differentiate between red and green.

As the HES data are based on discharge date from hospital, the numbers in the HES comparison may differ slightly from the total number of cases included in analysis for Round 4.

Table 7: Trust contribution compared to HES.

Trust Name	Total Number of Cases in Round 4	Number in R4 for HES Comparison	Number of Cases in HES	%	
East Midlands					
Derby Hospitals NHS Foundation Trust	29	31	30	103%	✓
Kettering General Hospital NHS Foundation Trust	35	35	35	100%	✓
Northampton General Hospital NHS Trust	44	43	42	102%	✓
Nottingham University Hospitals NHS Trust	84	85	92	92%	✓
Sherwood Forest Hospitals NHS Foundation Trust	37	38	40	95%	✓
United Lincolnshire Hospitals NHS Trust	28	28	45	62%	✗
University Hospitals of Leicester NHS Trust	123	121	121	100%	✓
East of England					
Basildon and Thurrock University Hospital NHS Foundation Trust	14	14	24	58%	✗
Bedford Hospital NHS Trust	50	51	48	106%	✓
Cambridge University Hospitals NHS Foundation Trust	94	94	102	92%	✓
Colchester Hospital University NHS Foundation Trust	42	41	41	100%	✓
East and North Hertfordshire NHS Trust	23	23	23	100%	✓
Ipswich Hospital NHS Trust	19	19	20	95%	✓
Mid Essex Hospital Services NHS Trust	34	34	38	89%	◆
Norfolk and Norwich University Hospitals NHS Foundation Trust	93	94	99	95%	✓
Peterborough and Stamford Hospitals NHS Foundation Trust	15	15	16	94%	✓
Princess Alexandra Hospital NHS Trust	37	36	36	100%	✓
Southend University Hospital NHS Foundation Trust	57	59	57	104%	✓
West Hertfordshire Hospitals NHS Trust	36	36	52	69%	✗
London					
Barking, Havering And Redbridge University Hospitals NHS Trust	41	40	54	74%	✗
Barnet and Chase Farm Hospitals NHS Trust	17	17	27	63%	✗
Barts and The London NHS Trust	48	50	53	94%	✓
Croydon Health Services NHS Trust	0	0	3	0%	✗
Ealing Hospitals NHS Trust*	0	0	2*	N/A	
Epsom and St Helier University Hospitals NHS Trust	0	0	7	0%	✗
Guy's and St Thomas' Hospital NHS Foundation Trust	31	32	31	103%	✓
Hillingdon Hospitals NHS Foundation Trust	2	2	10	20%	✗
Imperial College Healthcare NHS Trust	103	107	119	90%	◆
King's College Hospital NHS Foundation Trust	64	67	90	74%	✗

Trust Name	Total Number of Cases in Round 4	Number in R4 for HES Comparison	Number of Cases in HES	%	
Lewisham Healthcare NHS Trust	3	4	11	36%	✗
North West London Hospitals NHS Trust	39	39	40	98%	✓
Royal Brompton and Harefield NHS Foundation Trust*	0	0	2*	N/A	
Royal Free Hampstead NHS Trust	12	12	13	92%	✓
St George's Healthcare NHS Trust	70	70	70	100%	✓
University College London Hospitals NHS Foundation Trust	57	60	62	97%	✓
Whipps Cross University Hospital NHS Trust	2	2	3	67%	✗
North East					
City Hospitals Sunderland NHS Foundation Trust	42	43	44	98%	✓
County Durham and Darlington NHS Foundation Trust	62	61	71	86%	◆
Gateshead Health NHS Foundation Trust	19	20	19	105%	✓
Newcastle upon Tyne Hospitals NHS Foundation Trust	76	81	90	90%	◆
South Tees Hospitals NHS Foundation Trust	61	63	59	107%	✓
North West					
Aintree University Hospitals NHS Foundation Trust	39	39	61	64%	✗
Blackpool Teaching Hospitals NHS Foundation Trust	0	0	42	0%	✗
Bolton NHS Foundation Trust	40	38	37	103%	✓
Central Manchester University Hospitals NHS Foundation Trust	77	76	82	93%	✓
Countess of Chester Hospital NHS Foundation Trust	52	52	56	93%	✓
East Lancashire Hospitals NHS Trust	87	90	90	100%	✓
Lancashire Teaching Hospitals NHS Foundation Trust	46	46	48	96%	✓
Mid Cheshire Hospitals NHS Foundation Trust	18	18	21	86%	◆
North Cumbria University Hospitals NHS Trust	20	20	28	71%	✗
Pennine Acute Hospitals NHS Trust	150	152	165	92%	✓
Royal Liverpool and Broadgreen University Hospitals NHS Trust	40	40	46	87%	◆
Salford Royal NHS Foundation Trust*	0	0	2*	N/A	
Southport and Ormskirk Hospital NHS Trust	22	22	21	105%	✓
Tameside Hospital NHS Foundation Trust	21	21	39	54%	✗
The Walton Centre NHS Foundation Trust	9	9	10	90%	◆
University Hospital of South Manchester NHS Foundation Trust	114	117	126	93%	✓
University Hospitals Of Morecambe Bay NHS Foundation Trust	44	44	50	88%	◆
Warrington and Halton Hospitals NHS Foundation Trust	46	46	51	90%	◆
Wirral University Teaching Hospital NHS Foundation Trust	52	52	52	100%	✓
Wrightington, Wigan And Leigh NHS Foundation Trust	41	40	50	80%	◆
South Central					
Basingstoke and North Hampshire NHS Foundation Trust	6	6	5	120%	◆
Buckinghamshire Hospitals NHS Trust	81	83	74	112%	◆
Milton Keynes Hospital NHS Foundation Trust	3	3	4	75%	✗
Oxford University Hospitals NHS Trust	82	82	99	83%	◆
Portsmouth Hospitals NHS Trust	87	89	92	97%	✓
Royal Berkshire NHS Foundation Trust	14	14	14	100%	✓
University Hospital Southampton NHS Foundation Trust	103	102	104	98%	✓
South East Coast					
Ashford And St Peter's Hospitals NHS Foundation Trust	38	36	39	92%	✓
Brighton and Sussex University Hospitals NHS Trust	39	39	39	100%	✓
Dartford and Gravesham NHS Trust	8	8	11	73%	✗
East Kent Hospitals University NHS Foundation Trust	71	72	89	81%	◆
East Sussex Healthcare NHS Trust	9	9	23	39%	✗
Frimley Park Hospital NHS Foundation Trust	57	57	66	86%	◆
Maidstone and Tunbridge Wells NHS Trust	11	11	7	157%	◆
Medway NHS Foundation Trust	25	25	25	100%	✓
Surrey and Sussex Healthcare NHS Trust	27	28	25	112%	◆
Western Sussex Hospitals NHS Trust	27	28	34	82%	◆

Trust Name	Total Number of Cases in Round 4	Number in R4 for HES Comparison	Number of Cases in HES	%	
South West					
Dorset County Hospital NHS Foundation Trust	25	24	26	92%	✓
Gloucestershire Hospitals NHS Foundation Trust	62	63	60	105%	✓
Great Western Hospitals NHS Foundation Trust	23	22	22	100%	✓
North Bristol NHS Trust	27	29	29	100%	✓
Northern Devon Healthcare NHS Trust	23	23	23	100%	✓
Plymouth Hospitals NHS Trust	47	49	49	100%	✓
Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	78	77	83	93%	✓
Royal Cornwall Hospitals NHS Trust	43	42	41	102%	✓
Royal Devon and Exeter NHS Foundation Trust	44	43	46	93%	✓
Royal United Hospital Bath NHS Trust	36	36	41	88%	◆
Salisbury NHS Foundation Trust	25	25	29	86%	◆
South Devon Healthcare NHS Foundation Trust	31	32	31	103%	✓
Taunton and Somerset NHS Foundation Trust	54	55	54	102%	✓
University Hospitals of Bristol NHS Foundation Trust	43	43	43	100%	✓
West Midlands					
Dudley Group of Hospitals NHS Trust	84	86	85	101%	✓
Heart of England NHS Foundation Trust	81	82	85	96%	✓
Mid Staffordshire NHS Foundation Trust	10	11	12	92%	✓
Royal Wolverhampton Hospitals NHS Trust	38	39	38	103%	✓
Sandwell and West Birmingham Hospitals NHS Trust	30	32	30	107%	✓
Shrewsbury & Telford Hospital NHS Trust	40	40	46	87%	◆
University Hospital of North Staffordshire NHS Trust	48	53	62	85%	◆
University Hospitals Birmingham NHS Foundation Trust	45	44	57	77%	◆
University Hospitals Coventry and Warwickshire NHS Trust	69	69	77	90%	◆
Walsall Hospitals NHS Trust	28	27	38	71%	✗
Worcestershire Acute Hospitals NHS Trust	49	49	72	68%	✗
Yorkshire and The Humber					
Bradford Teaching Hospitals NHS Foundation Trust	48	51	57	89%	◆
Calderdale and Huddersfield NHS Foundation Trust	47	51	48	106%	✓
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	53	53	53	100%	✓
Hull and East Yorkshire Hospitals NHS Trust	64	64	63	102%	✓
Leeds Teaching Hospitals NHS Trust	38	39	63	62%	✗
Mid Yorkshire Hospitals NHS Trust	29	29	32	91%	✓
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	10	10	10	100%	✓
Scarborough and North East Yorkshire Healthcare NHS Trust	21	21	28	75%	◆
Sheffield Teaching Hospitals NHS Foundation Trust	64	64	73	88%	◆
York Teaching Hospital NHS Foundation Trust	94	91	92	99%	✓
ENGLAND TOTAL	**4800**	**4849**	**5360**	**90%**	
Northern Ireland					
Belfast Health and Social Care Trust	122	124	**121**	**102%**	✓
Southern Health and Social Care Trust	10	10	**17**	**59%**	✗
Western Health and Social Care Trust	19	19	**16**	**119%**	◆
NORTHERN IRELAND TOTAL	**151**	**153**	**154**	**99%**	✓
Scotland					
NHS Ayrshire & Arran	21	21	24	88%	**
NHS Dumfries & Galloway	30	30	22	136%	**
NHS Fife	10	10	11	91%	✓
NHS Forth Valley	32	31	34	91%	✓
NHS Grampian	17	17	11	155%	**
NHS Greater Glasgow& Clyde	48	46	102	45%	**
NHS Highland	55	54	54	100%	✓
NHS Lanarkshire	17	17	37	46%	**
NHS Lothian	92	92	90	102%	✓
NHS Tayside	17	17	10	170%	**

Trust Name	Total Number of Cases in Round 4	Number in R4 for HES Comparison	Number of Cases in HES	%	
SCOTLAND TOTAL	**339**	**335**	**395**		**
Wales					
Abertawe Bro Morgannwg University Local Health Board	91	90	133	68%	
Aneurin Bevan Local Health Board	53	54	64	84%	
Betsi Cadwaladr University Local Health Board	52	55	58	95%	
Cardiff and Vale University Local Health Board	6	6	52	12%	
Cwm Taf Local Health Board	51	49	55	89%	
WALES TOTAL	**253**	**254**	**362**	**70%**	
UK TOTAL	**5543**	**5592**	**6271**		

* These cases were subsequently found to be incorrectly coded on HES and were not carotid endarterectomies, and so are not included in the HES totals.

** Please see the note regarding the accuracy of the SMR01 data on page 11.

Chapter 4: Regional participation and results

4.1 Comparison of Volume of Cases Contributed to the Audit versus Volume of Cases Recorded on HES

The table below uses the same traffic light system as explained on page 18.
Whilst the new SHA Clusters came into effect in 2011, this was not during the time of data collection for Round 4.

Table 8: Case contribution to this audit compared with HES reported caseload by SHA

Region	**ROUND 1** (Operations 1 Dec 2005 to 31 Dec 2007)	**ROUND 2** (Operation dates: 1 Jan 2008 to 30 Sept 2009)	**Round 3** (Operation dates: 1 Oct 2009 to 30 Sept 2010)	**Round 4** (Operation dates: 1 Oct 2010 to 30 Sept 2011)	
	Total Round 1 cases as recorded by HES (based on contributing trusts only)	**Round 2 cases as recorded by HES** (based on contributing trusts only)	**Round 3 cases as recorded by HES** (based on contributing trusts only)	**Round 4 cases as recorded by HES**	**Round 4** cases contributed to this audit (% of HES cases)
East Midlands[1]	404	477	382	405	381 (94%)
East of England[1]	641	477	586	556	516 (93%)
London[2]	918	1017	584	593	502 (85%)
North East[3]	545	483	265	283	268 (95%)
North West[3]	1079	1421	1008	1075	922 (86%)
South Central[4]	163	649	370	392	379 (97%)
South East Coast[4]	373	579	321	358	313 (87%)
South West[4]	1047	972	584	577	563 (98%)
W Midlands[1]	985	1032	619	602	532 (88%)
Yorkshire and The Humber[3]	901	923	538	519	473 (91%)
ENGLAND TOTAL	**7056**	**8345**	**5257**	**5360**	**4849 (90%)**
Northern Ireland	324	252	182	154	153 (99%)
Scotland	793	822	494	395	335 *
Wales	530	601	328	362	254 (70%)
UK TOTAL	**8703**	**10,020**	**6261**	**6271**	**5591**

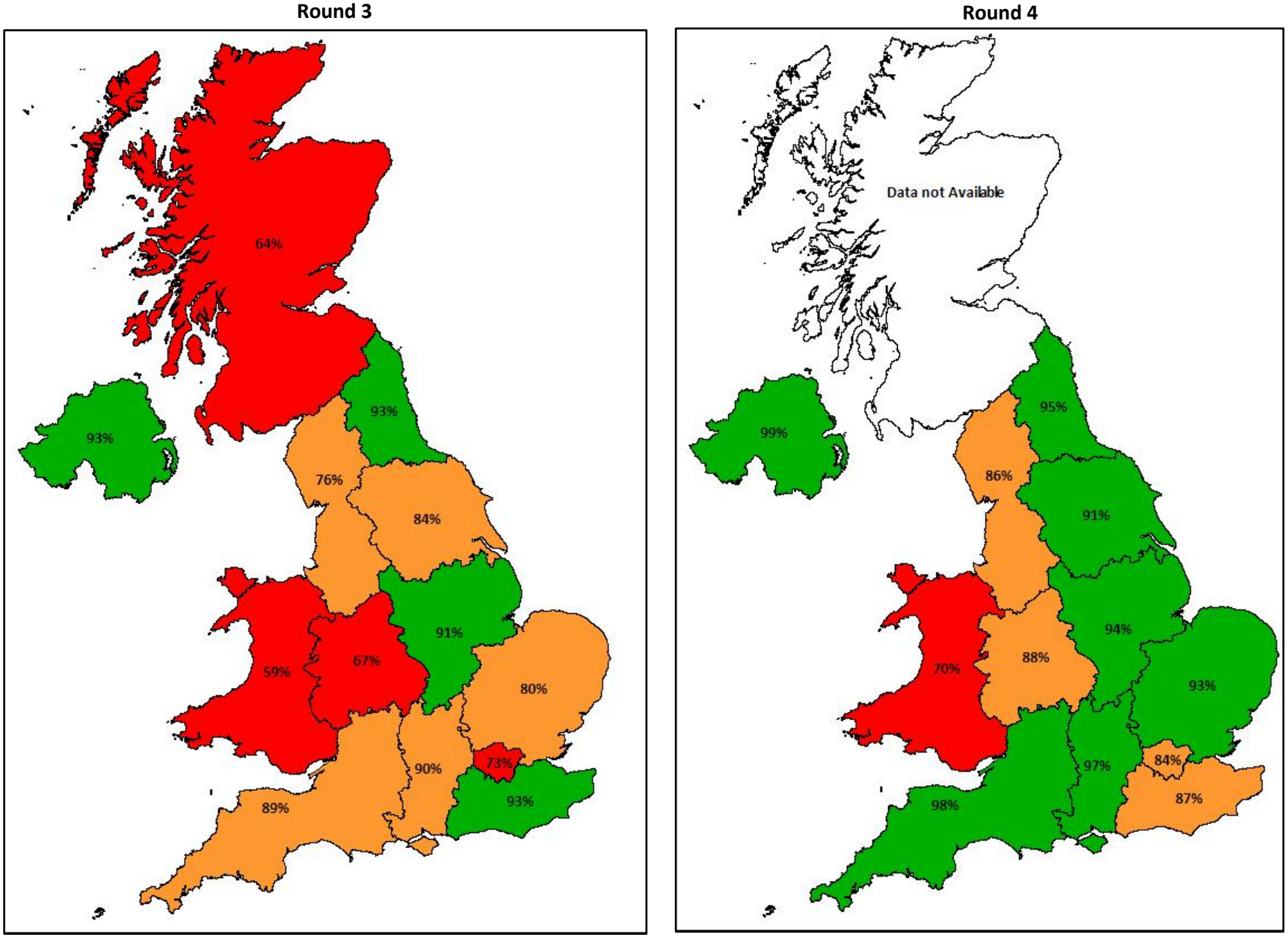
* Please see note regarding the accuracy of the SMR01 data on page 11.

[1] NHS Midlands and East SHA Cluster
[2] NHS London SHA Cluster
[3] NHS North of England SHA Cluster
[4] NHS South of England SHA Cluster

4.2 Participation map

The map on the next page represents the above table graphically, and uses the same colour coding for contribution rates, and shows the change in rates between Round 3 and Round 4 of the audit.
Due to the issues regarding the accuracy of the SMR01 data, there is no percentage given for Scotland in the Round 4 map.

Fig 6: Maps illustrating changes in percentage of cases submitted to the audit in rounds 3 and 4 compared to HES in different regions



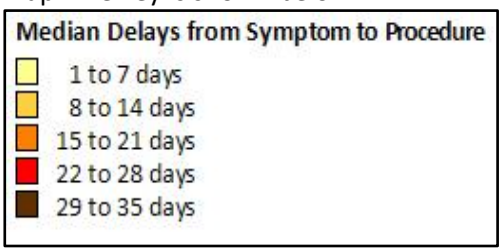
4.3 Comparison of delays in the pathway by region

The maps on the following pages illustrate improvements in waiting times for CEA between Round 3 and Round 4. These maps are colour coded and show the variation across the ten English Strategic Health Authorities, Northern Ireland, Scotland and Wales.

The first set of maps show the median delay by region of the three main time points in the pathway from symptom to procedure:

- The median number of days from symptom to referral.
- The median number of days from referral to procedure.
- The median number of days from symptom to procedure.

The maps are colour coded in colours ranging from a light yellow (optimum time) to a dark brown (least optimal time). These colours represent the category the region is in. The same colours are used in each map. The key is shown below:



In each set of maps the Round 3 map is shown on the left and Round 4 on the right, to see improvements over time.

The number inside each region is the number of patients this median is based upon. For example, in the image below it is possible to see that:

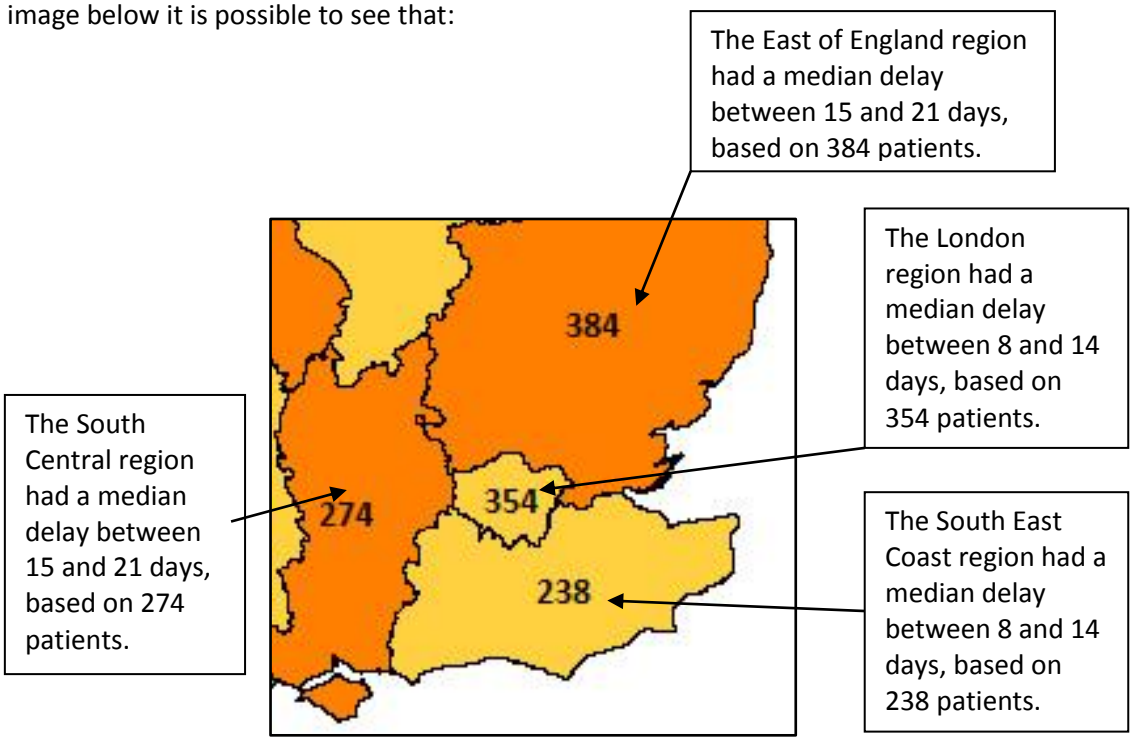
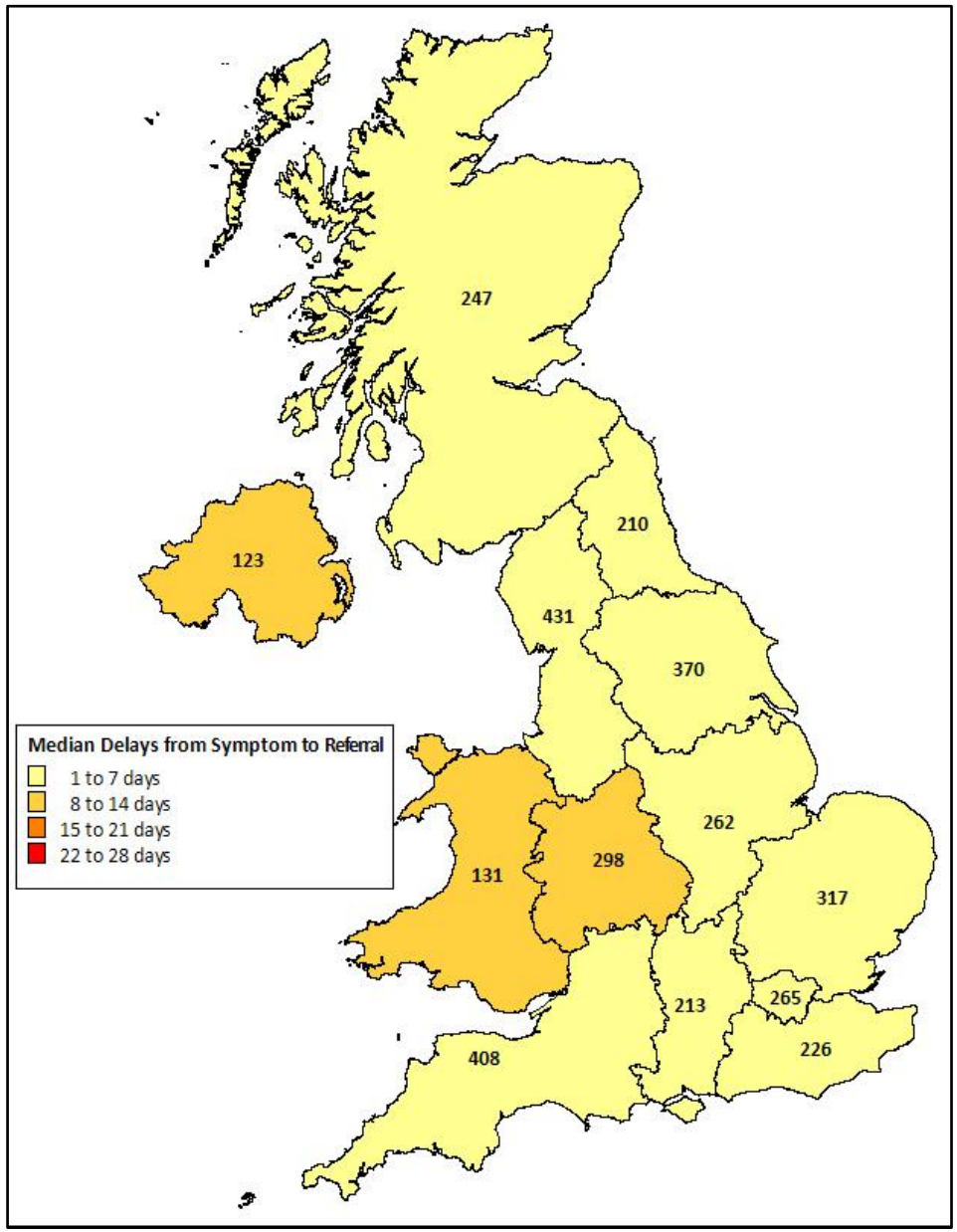


Fig 7: Median delays from symptom to referral

Round 3



Round 4

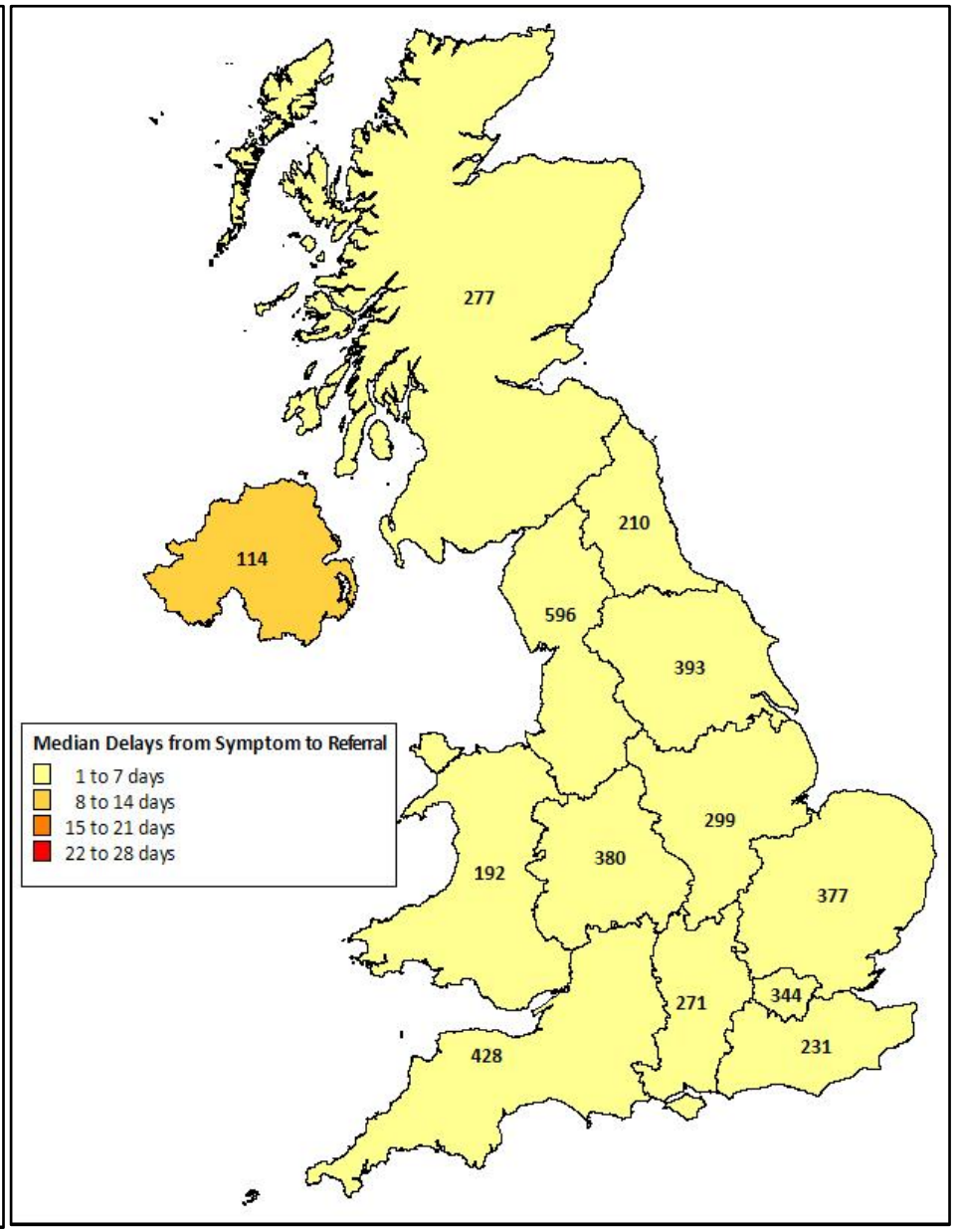
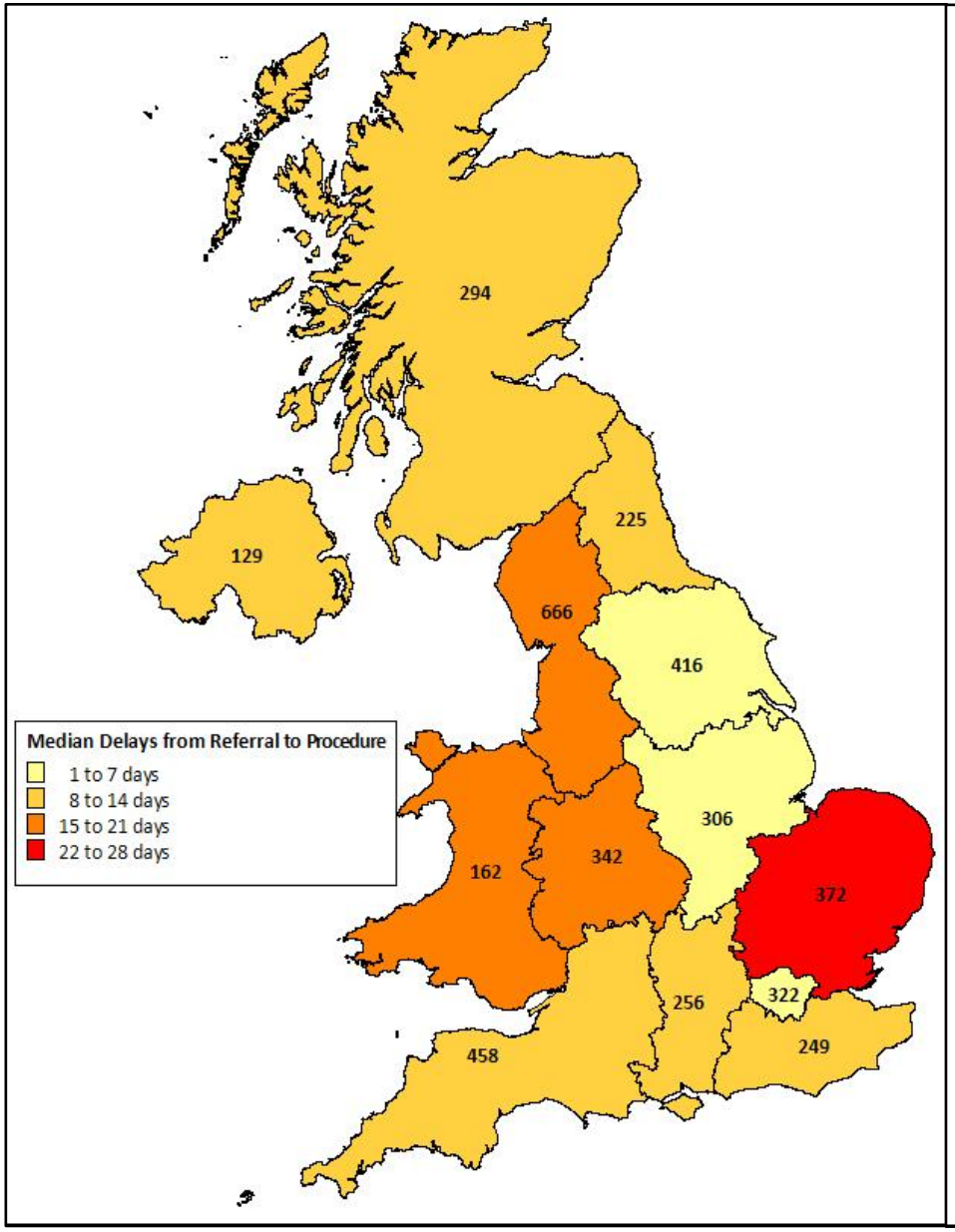
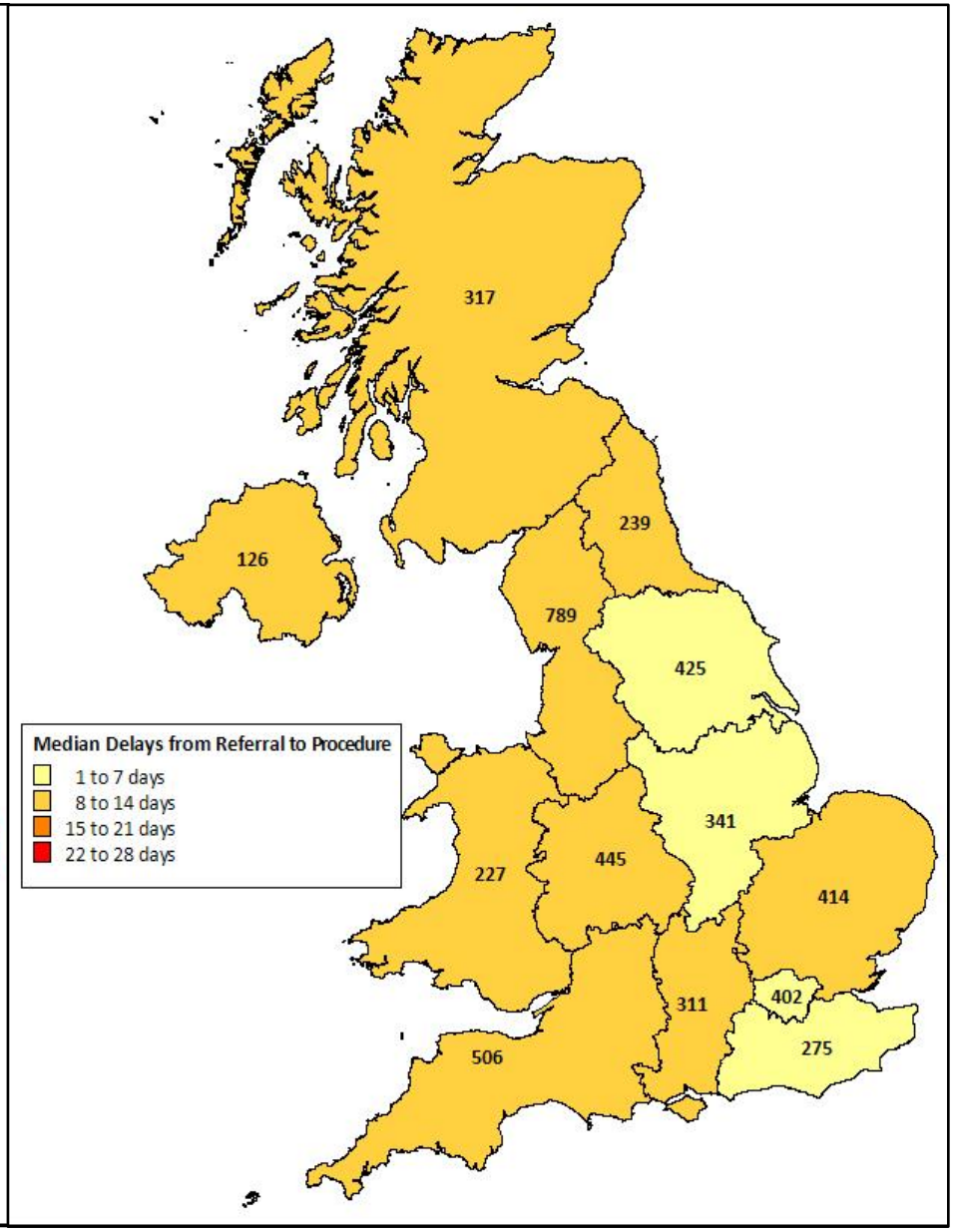


Fig 8: Median delays from referral to procedure

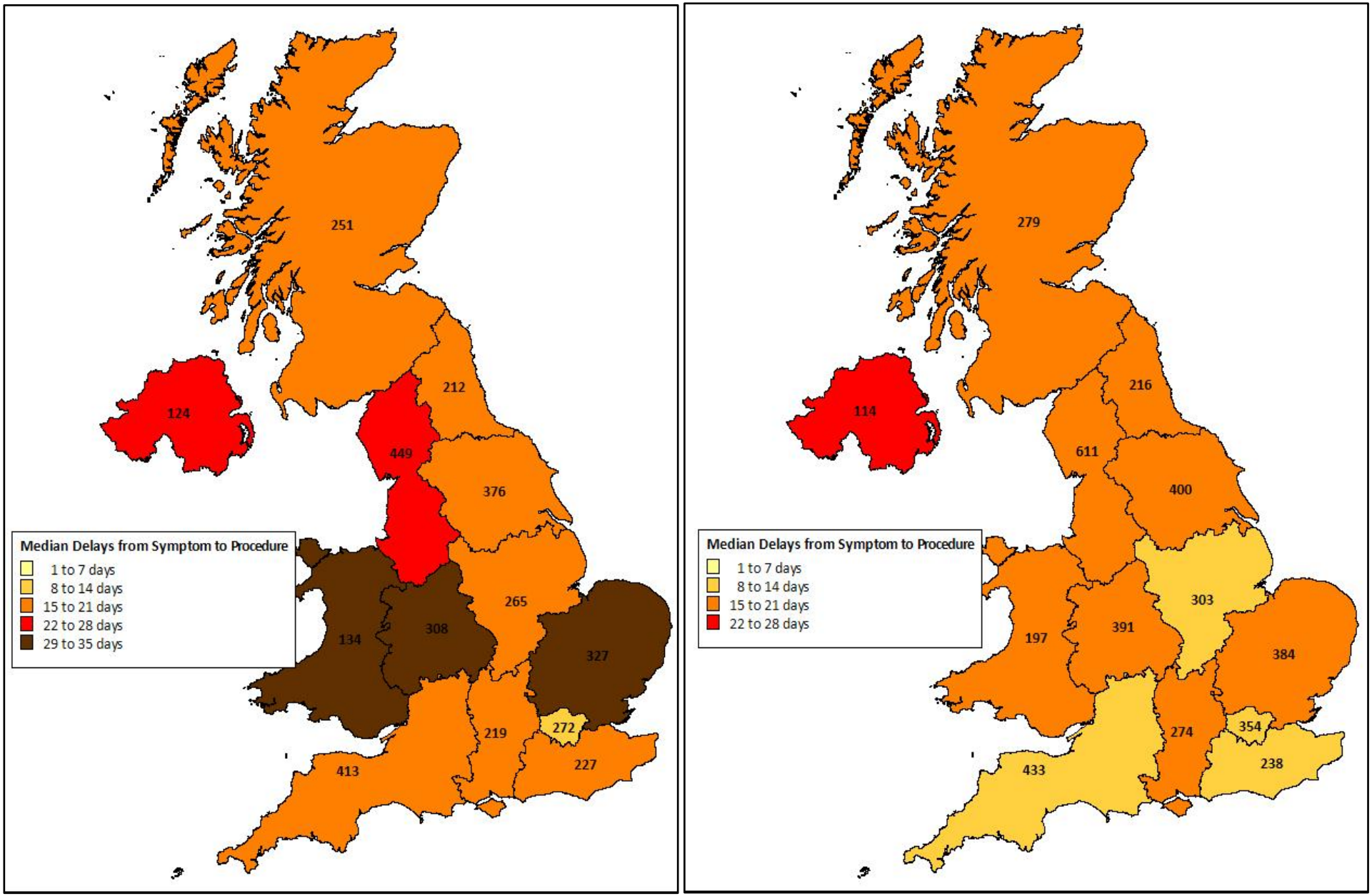
Round 3



Round 4



Round 3 **Fig 9: Median delays from symptom to procedure** **Round 4**

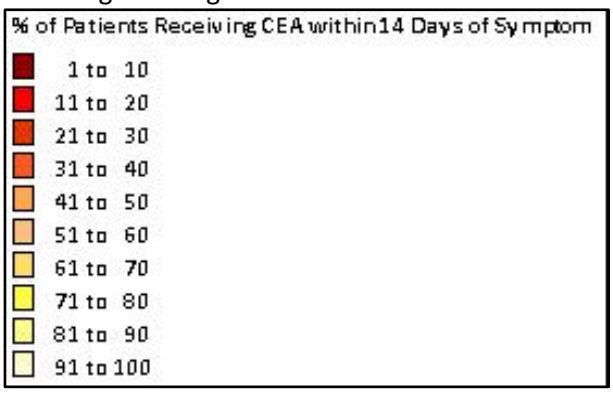


4.4 Comparison of patients reaching standards in the pathway by region

The following set of maps show the percentage of patients per region that reached the following standards:

- Symptom to referral within 7 days.
- Referral to procedure within 7 days.
- Overall symptom to procedure within 14 days.

The maps are also colour coded, but this time from white to dark brown, and are broken down into the following 10 categories:



The same colours are used for each map. In each set of maps the Round 3 map is shown on the left and Round 4 on the right, to see improvements over time.

Again, the number inside each region is the number of patients this median is based upon. For example, in the image below it is possible to see that:

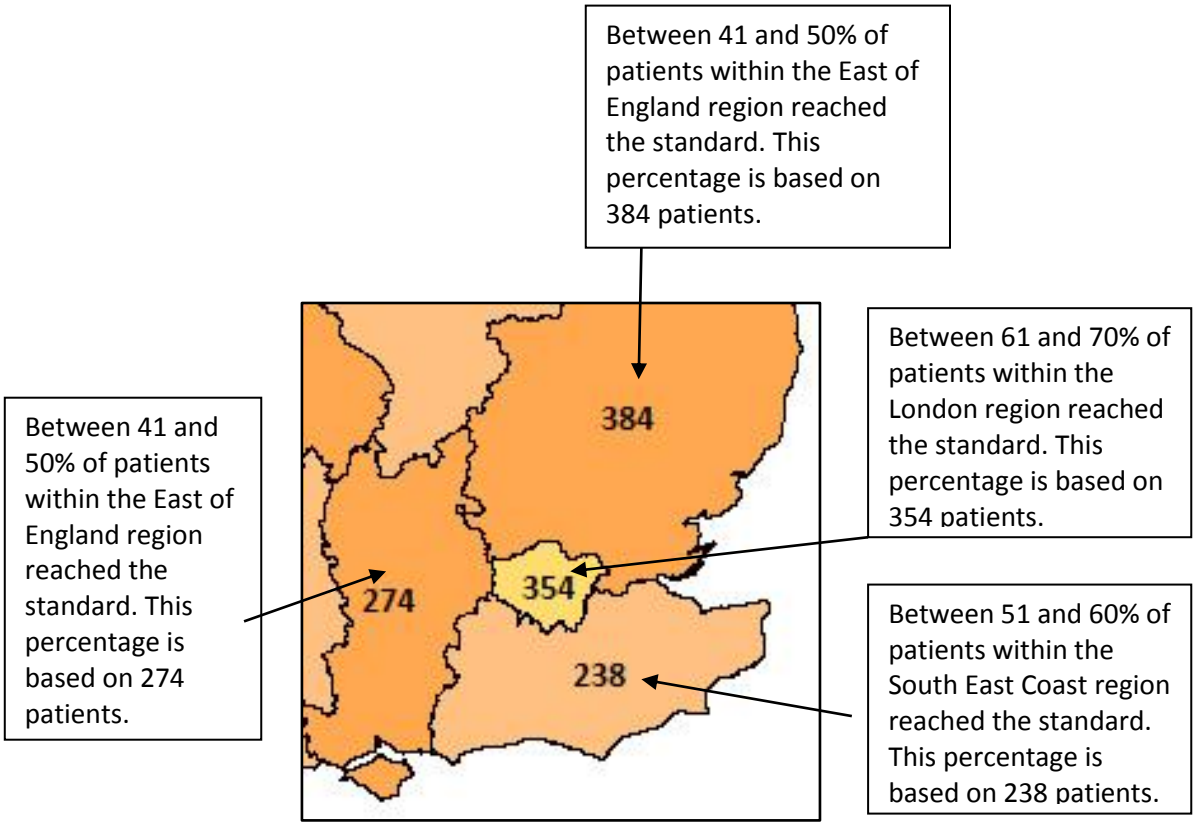


Fig 10: Median delays from symptom to referral

Round 3

Round 4

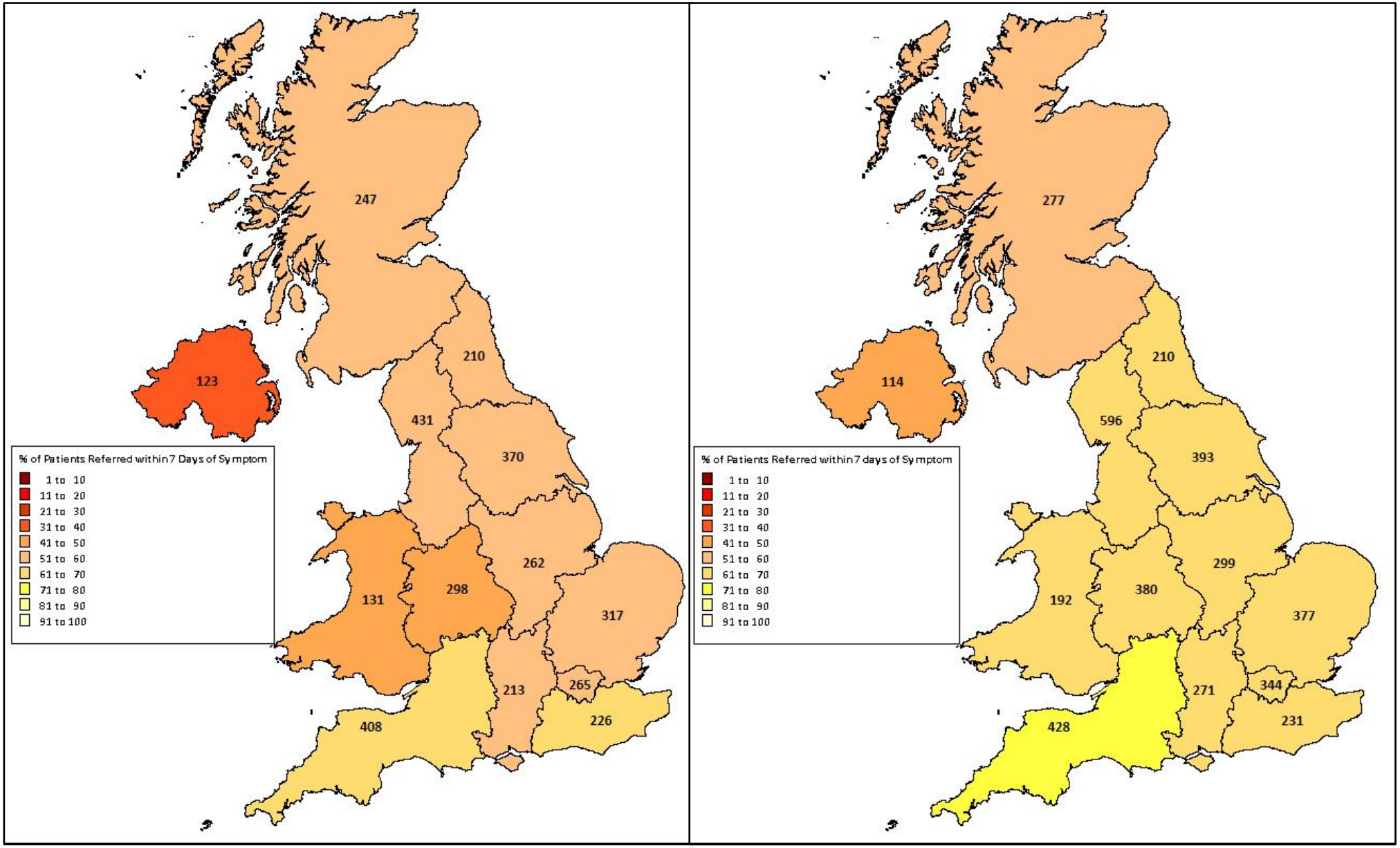


Fig 11: Median delays from referral to procedure

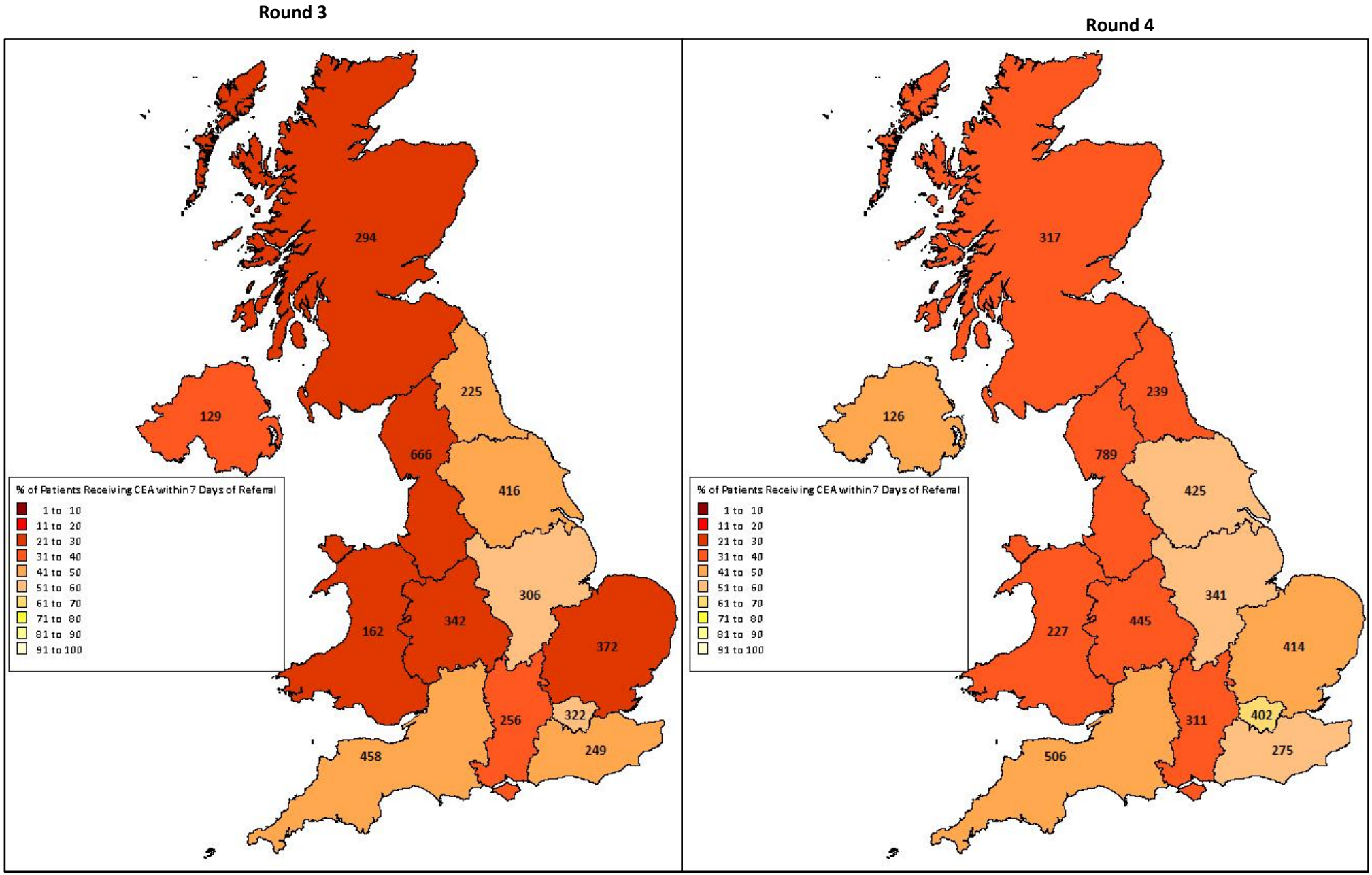
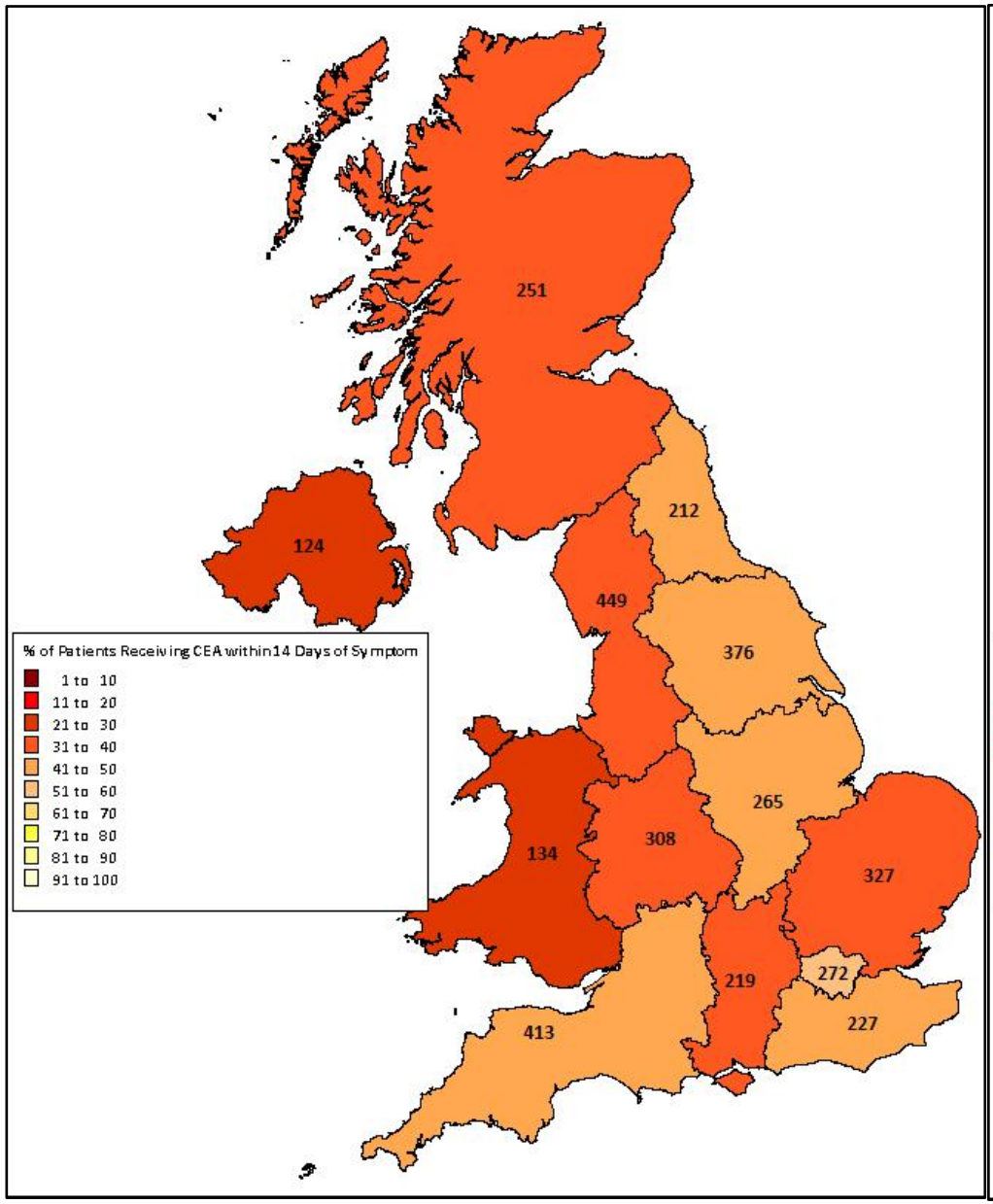
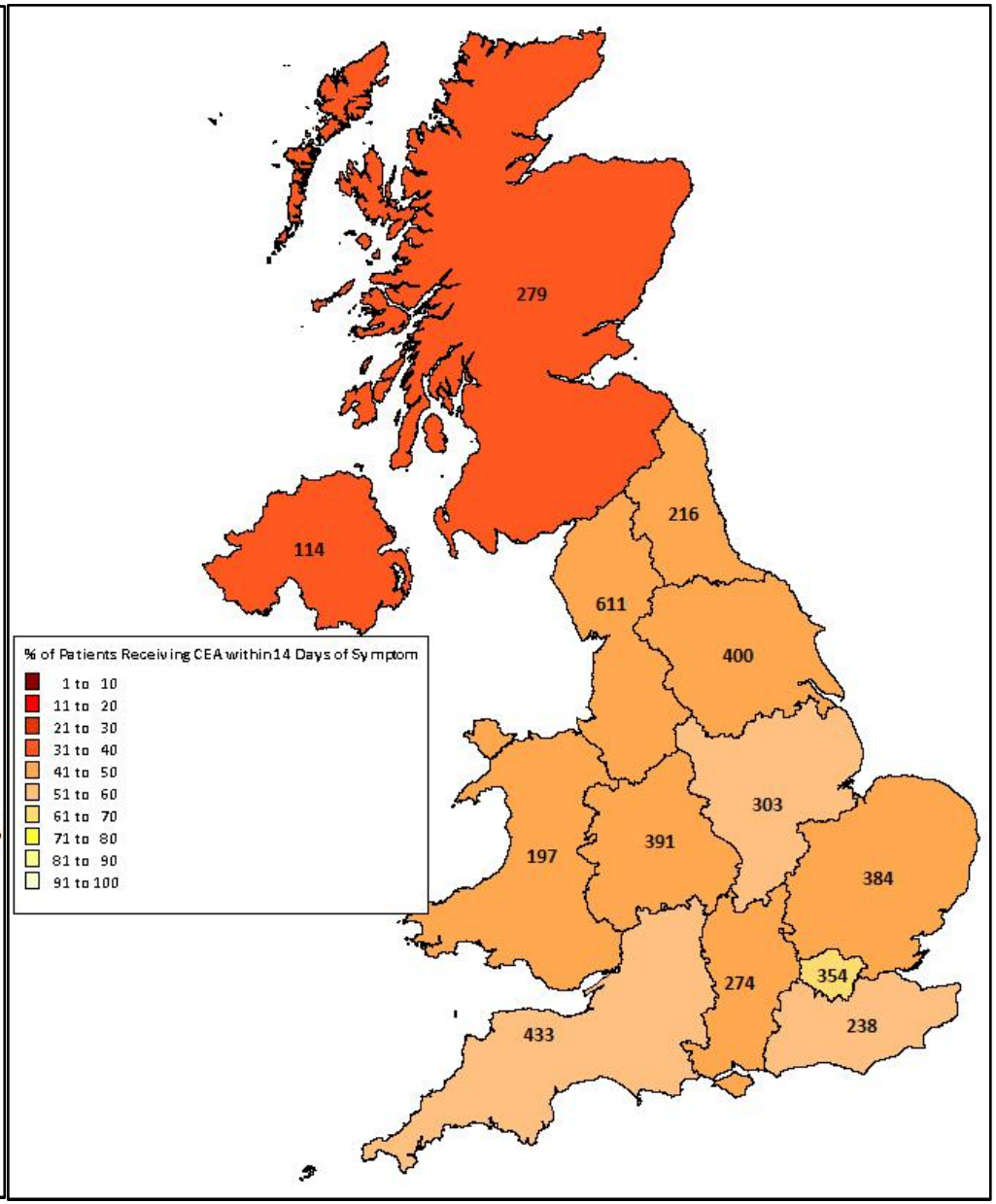


Fig 12: Median delays from symptom to procedure

Round 3



Round 4



Chapter 5: Key indicators for carotid endarterectomy

The key indicators for carotid endarterectomy (CEA) are based on recent guidance and policy: The NICE Acute Stroke and TIA Guideline and The National Stroke Strategy and have been selected in consultation with the Vascular Society of Great Britain and Ireland. As in the first time that these data were presented, the volume and sensitivity of the available data warrants careful consideration. It was therefore thought prudent to continue to present the results at two levels; all indicators at Strategic Health Authority (SHA) level and a selection at trust-level.

Presentation of results

The results are based on all symptomatic Round 4 cases (N =4818) that were submitted to the audit by a total of 125/128 (98%) trusts. The number (N) and percentage (%) of cases receiving care within the specified timeframe is given. These are presented in alphabetical order by country, SHA then name of trust. The national figures for comparison are presented on the top row. National refers to all eligible trusts within the UK.

At trust-level and SHA-level:

- Number of cases in HES.
- N (%) of patients referred within 2 days of symptom (Q4.1a to Q3.1).
- N (%) of patients referred within 14 days of symptom (Q4.1a to Q3.1).
- N (%) of patients receiving surgery within 2 days of referral (Q3.1 to Q1.1).
- N (%) of patients receiving surgery within 14 days of referral (Q3.1 to Q1.1).
- N (%) of patients receiving surgery within 2 days of symptom that triggered referral (Q4.1a to Q1.1).
- N (%) of patients receiving surgery within 14 days of symptom that triggered referral (Q4.1a to Q1.1).

At SHA-level only:

- N (%) of symptomatic patients, with stroke as the symptom that triggered referral, who had a stroke or died within 30 days of undergoing CEA.
- N (%) of symptomatic patients, with TIA or amaurosis fugax as the symptom that triggered referral, who had a stroke or died within 30 days of undergoing CEA.

In Round 4, for the first time we are presenting additional information per named trust:

- Patients referred to vascular surgery for CEA within 7 days of experiencing the index symptom that triggered referral. This indicator has been added because it is based on the NICE Guideline for management of acute stroke and TIA.

The following three indicators have been added to provide more detail and ease of interpretation. The inter-quartile ranges are provided to show the variability per trust.

- The median delay and inter-quartile range between the index symptom that triggered referral and the date of referral (Q4.1a to Q3.1).
- The median delay and inter-quartile range between the date of referral and the date of CEA (Q3.1 to Q1.1).
- The median delay and inter-quartile range between the index symptom that triggered referral and the date of CEA (Q4.1a to Q1.1).

Trust-level key indicators

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National	***5543***	**5591**	***6277***	***4818***	***4756***	**4112**	**1341**	**3149**	***4817***	**720**	**3149**	***4194***	**162 (4%)**	**2047**
Median per trust	*40*	*40*	*45*	*36*	*35*	*28*	**(33%)**	**(77%)**	*36*	**(15%)**	**(65%)**	*29*		**(49%)**
EAST MIDLANDS														
Derby Hospitals NHS Foundation Trust	29	31	30	29	29	23	10 (43%)	19 (83%)	29	9 (31%)	17 (59%)	24	1 (4%)	13 (54%)
Kettering General Hospital NHS Foundation Trust	35	35	35	29	29	22	3 (14%)	8 (36%)	29	1 (3%)	9 (31%)	23	1 (4%)	2 (9%)
Northampton General Hospital NHS Trust	44	43	42	39	38	36	15 (42%)	31 (86%)	39	5 (13%)	26 (67%)	36	1 (3%)	17 (47%)
Nottingham University Hospitals NHS Trust	84	85	92	78	76	68	27 (40%)	61 (90%)	78	32 (41%)	69 (88%)	68	3 (4%)	51 (75%)
Sherwood Forest Hospitals NHS Foundation Trust	37	38	40	26	25	23	5 (22%)	12 (52%)	26	1 (4%)	17 (65%)	24	0 (0%)	8 (33%)
United Lincolnshire Hospitals NHS Trust	28	28	45	26	25	19	5 (26%)	9 (47%)	26	5 (19%)	14 (54%)	19	1 (5%)	5 (26%)
University Hospitals of Leicester NHS Trust	123	121	121	114	113	108	43 (40%)	88 (81%)	114	19 (17%)	95 (83%)	109	0 (0%)	73 (67%)
EAST OF ENGLAND														
Basildon and Thurrock University Hospital NHS Foundation Trust	14	14	24	14	14	14	6 (43%)	9 (64%)	14	0 (0%)	8 (57%)	14	0 (0%)	6 (43%)
Bedford Hospital NHS Trust	50	51	48	42	42	40	8 (20%)	27 (68%)	42	1 (2%)	20 (48%)	41	1 (2%)	12 (29%)
Cambridge University Hospitals NHS Foundation Trust	94	94	102	78	78	74	24 (32%)	47 (64%)	78	4 (5%)	31 (40%)	77	1 (1%)	16 (21%)
Colchester Hospital University NHS Foundation Trust	42	41	41	38	37	34	19 (56%)	28 (82%)	38	7 (18%)	23 (61%)	35	2 (6%)	18 (51%)

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
East and North Hertfordshire NHS Trust	23	23	23	21	19	18	3 (17%)	13 (72%)	21	5 (24%)	15 (71%)	19	0 (0%)	11 (58%)
Ipswich Hospital NHS Trust	19	19	20	13	12	10	4 (40%)	8 (80%)	13	0 (0%)	4 (31%)	10	0 (0%)	2 (20%)
Mid Essex Hospital Services NHS Trust	34	34	38	22	22	20	3 (15%)	17 (85%)	22	0 (0%)	4 (18%)	20	0 (0%)	1 (5%)
Norfolk and Norwich University Hospitals NHS Foundation Trust	93	94	99	74	74	64	19 (30%)	50 (78%)	74	18 (24%)	54 (73%)	64	3 (5%)	38 (59%)
Peterborough and Stamford Hospitals NHS Foundation Trust	15	15	16	15	14	13	0 (0%)	3 (23%)	15	1 (7%)	2 (13%)	13	0 (0%)	1 (8%)
Princess Alexandra Hospital NHS Trust	37	36	36	24	24	21	2 (10%)	16 (76%)	24	8 (33%)	19 (79%)	21	1 (5%)	11 (52%)
Southend University Hospital NHS Foundation Trust	57	59	57	49	49	49	13 (27%)	49 (100%)	49	9 (18%)	48 (98%)	49	1 (2%)	43 (88%)
West Hertfordshire Hospitals NHS Trust	36	36	52	24	23	20	5 (25%)	13 (65%)	24	1 (4%)	11 (46%)	21	0 (0%)	7 (33%)
LONDON														
Barking, Havering And Redbridge University Hospitals NHS Foundation Trust	41	40	54	40	40	39	5 (13%)	26 (67%)	40	2 (5%)	32 (80%)	39	0 (0%)	17 (44%)
Barnet and Chase Farm Hospitals NHS Trust	17	17	27	12	11	8	3 (38%)	8 (100%)	12	3 (25%)	8 (67%)	8	0 (0%)	5 (63%)
Barts and The London NHS Trust	48	50	53	33	33	26	15 (58%)	24 (92%)	33	11 (33%)	31 (94%)	26	2 (8%)	24 (92%)
Croydon Health Services NHS Trust	0	0	3	No data										
Epsom and St Helier University Hospitals NHS Trust	0	0	7	No data										
Guy's and St Thomas' Hospital NHS Foundation Trust	31	32	31	25	24	24	10 (42%)	19 (79%)	25	12 (48%)	20 (80%)	25	4 (16%)	19 (76%)
Hillingdon Hospitals NHS Foundation Trust	2	2	10	1	1	1	0 (0%)	0 (0%)	1	0 (0%)	0 (0%)	1	0 (0%)	0 (0%)

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Imperial College Healthcare NHS Trust	103	107	119	79	78	65	29 (45%)	50 (77%)	79	16 (20%)	49 (62%)	68	4 (6%)	38 (56%)
King's College Hospital NHS Foundation Trust	64	67	90	47	47	39	17 (44%)	27 (69%)	47	19 (40%)	33 (70%)	41	9 (22%)	25 (61%)
Lewisham Healthcare NHS Trust	3	4	11	2	2	0	0 (NA%)	0 (NA%)	2	0 (0%)	0 (0%)	1	0 (0%)	1 (100%)
North West London Hospitals NHS Trust	39	39	40	27	26	24	18 (75%)	23 (96%)	27	5 (19%)	25 (93%)	24	2 (8%)	21 (88%)
Royal Free Hampstead NHS Trust	12	12	13	11	11	9	2 (22%)	7 (78%)	11	2 (18%)	8 (73%)	9	0 (0%)	5 (56%)
St George's Healthcare NHS Trust	70	70	70	67	66	62	26 (42%)	54 (87%)	67	28 (42%)	66 (99%)	64	8 (13%)	50 (78%)
University College London Hospitals NHS Foundation Trust	57	60	62	56	56	45	23 (51%)	40 (89%)	56	22 (39%)	49 (88%)	46	6 (13%)	35 (76%)
Whipps Cross University Hospital NHS Trust	2	2	3	2	2	2	0 (0%)	0 (0%)	2	0 (0%)	1 (50%)	2	0 (0%)	0 (0%)
NORTH EAST														
City Hospitals Sunderland NHS Foundation Trust	42	43	44	37	37	34	7 (21%)	24 (71%)	37	2 (5%)	26 (70%)	35	0 (0%)	19 (54%)
County Durham and Darlington NHS Foundation Trust	62	61	71	58	58	52	11 (21%)	40 (77%)	58	0 (0%)	30 (52%)	53	1 (2%)	17 (32%)
Gateshead Health NHS Foundation Trust	19	20	19	19	19	17	3 (18%)	10 (59%)	19	0 (0%)	16 (84%)	18	0 (0%)	6 (33%)
Newcastle upon Tyne Hospitals NHS Foundation Trust	76	81	90	65	64	52	12 (23%)	32 (62%)	65	4 (6%)	45 (69%)	55	0 (0%)	19 (35%)
South Tees Hospitals NHS Foundation Trust	61	63	59	60	60	55	21 (38%)	53 (96%)	60	5 (8%)	55 (92%)	55	3 (5%)	45 (82%)
NORTH WEST														

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Aintree University Hospitals NHS Foundation Trust	39	39	61	35	35	29	17 (59%)	26 (90%)	35	11 (31%)	32 (91%)	29	8 (28%)	23 (79%)
Blackpool Teaching Hospitals NHS Foundation Trust	0	0	42	No data										
Bolton NHS Foundation Trust	40	38	37	36	36	32	5 (16%)	11 (34%)	36	2 (6%)	15 (42%)	32	0 (0%)	9 (28%)
Central Manchester University Hospitals NHS Foundation Trust	77	76	82	70	69	50	27 (54%)	39 (78%)	70	3 (4%)	34 (49%)	50	2 (4%)	20 (40%)
Countess of Chester Hospital NHS Foundation Trust	52	52	56	45	42	31	13 (42%)	22 (71%)	45	6 (13%)	32 (71%)	34	2 (6%)	17 (50%)
East Lancashire Hospitals NHS Trust	87	90	90	61	61	55	36 (65%)	49 (89%)	61	7 (11%)	32 (52%)	58	4 (7%)	31 (53%)
Lancashire Teaching Hospitals NHS Foundation Trust	46	46	48	42	41	40	7 (18%)	27 (68%)	42	2 (5%)	28 (67%)	41	1 (2%)	15 (37%)
Mid Cheshire Hospitals NHS Foundation Trust	18	18	21	16	16	15	1 (7%)	9 (60%)	16	4 (25%)	10 (63%)	16	0 (0%)	8 (50%)
North Cumbria University Hospitals NHS Trust	20	20	28	20	20	20	3 (15%)	15 (75%)	20	3 (15%)	16 (80%)	20	1 (5%)	10 (50%)
Pennine Acute Hospitals NHS Trust	150	152	165	124	118	88	34 (39%)	63 (72%)	124	10 (8%)	60 (48%)	93	3 (3%)	39 (42%)
Royal Liverpool and Broadgreen University Hospitals NHS Trust	40	40	46	36	35	35	11 (31%)	30 (86%)	36	12 (33%)	35 (97%)	35	1 (3%)	28 (80%)
Southport and Ormskirk Hospital NHS Trust	22	22	21	22	22	21	4 (19%)	15 (71%)	22	1 (5%)	15 (68%)	21	0 (0%)	9 (43%)
Tameside Hospital NHS Foundation Trust	21	21	39	16	16	6	3 (50%)	6 (100%)	16	1 (6%)	8 (50%)	6	0 (0%)	1 (17%)
The Walton Centre NHS Foundation Trust	9	9	10	7	7	2	0 (0%)	0 (0%)	7	3 (43%)	3 (43%)	2	0 (0%)	0 (0%)
University Hospital of South Manchester NHS Foundation Trust	114	117	126	89	85	44	20 (45%)	36 (82%)	89	19 (21%)	59 (66%)	44	4 (9%)	24 (55%)

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
University Hospitals Of Morecambe Bay NHS Foundation Trust	44	44	50	42	42	28	18 (64%)	24 (86%)	42	8 (19%)	20 (48%)	28	5 (18%)	18 (64%)
Warrington and Halton Hospitals NHS Foundation Trust	46	46	51	44	44	28	7 (25%)	23 (82%)	44	2 (5%)	31 (70%)	29	2 (7%)	9 (31%)
Wirral University Teaching Hospital NHS Foundation Trust	52	52	52	49	49	48	21 (44%)	41 (85%)	49	7 (14%)	34 (69%)	48	2 (4%)	26 (54%)
Wrightington, Wigan And Leigh NHS Foundation Trust	41	40	50	35	34	24	4 (17%)	14 (58%)	35	0 (0%)	6 (17%)	25	0 (0%)	3 (12%)
SOUTH CENTRAL														
Basingstoke and North Hampshire NHS Foundation Trust	6	6	5	2	2	1	0 (0%)	0 (0%)	2	0 (0%)	0 (0%)	1	0 (0%)	0 (0%)
Buckinghamshire Hospitals NHS Trust	81	83	74	56	55	45	18 (40%)	38 (84%)	56	5 (9%)	35 (63%)	45	1 (2%)	21 (47%)
Milton Keynes Hospital NHS Foundation Trust	3	3	4	3	2	2	1 (50%)	1 (50%)	3	0 (0%)	2 (67%)	2	0 (0%)	1 (50%)
Oxford University Hospitals NHS Trust	82	82	99	75	75	73	23 (32%)	62 (85%)	75	8 (11%)	56 (75%)	74	0 (0%)	36 (49%)
Portsmouth Hospitals NHS Trust	87	89	92	77	76	62	29 (47%)	51 (82%)	77	6 (8%)	23 (30%)	64	1 (2%)	18 (28%)
Royal Berkshire NHS Foundation Trust	14	14	14	14	13	9	1 (11%)	6 (67%)	14	0 (0%)	9 (64%)	9	0 (0%)	4 (44%)
University Hospital Southampton NHS Foundation Trust	103	102	104	84	84	79	18 (23%)	71 (90%)	84	9 (11%)	62 (74%)	79	0 (0%)	46 (58%)
SOUTH EAST COAST														
Ashford And St Peter's Hospitals NHS Foundation Trust	38	36	39	32	32	22	7 (32%)	14 (64%)	32	4 (13%)	13 (41%)	24	1 (4%)	9 (38%)
Brighton and Sussex University Hospitals NHS	39	39	39	38	37	26	11 (42%)	24 (92%)	38	5 (13%)	30 (79%)	28	1 (4%)	21

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Trust														(75%)
Dartford and Gravesham NHS Trust	8	8	11	5	5	5	0 (0%)	3 (60%)	5	0 (0%)	1 (20%)	5	0 (0%)	0 (0%)
East Kent Hospitals University NHS Foundation Trust	71	72	89	58	58	53	22 (42%)	40 (75%)	58	36 (62%)	52 (90%)	53	9 (17%)	38 (72%)
East Sussex Healthcare NHS Trust	9	9	23	9	9	8	0 (0%)	3 (38%)	9	0 (0%)	5 (56%)	8	0 (0%)	0 (0%)
Frimley Park Hospital NHS Foundation Trust	57	57	66	49	49	44	14 (32%)	30 (68%)	49	15 (31%)	35 (71%)	46	5 (11%)	25 (54%)
Maidstone and Tunbridge Wells NHS Trust	11	11	7	11	10	8	3 (38%)	7 (88%)	11	2 (18%)	9 (82%)	8	0 (0%)	7 (88%)
Medway NHS Foundation Trust	25	25	25	21	21	19	5 (26%)	14 (74%)	21	3 (14%)	9 (43%)	19	0 (0%)	5 (26%)
Surrey and Sussex Healthcare NHS Trust	27	28	25	26	26	23	9 (39%)	21 (91%)	26	4 (15%)	20 (77%)	24	1 (4%)	13 (54%)
Western Sussex Hospitals NHS Trust	27	28	34	26	26	23	2 (9%)	13 (57%)	26	1 (4%)	18 (69%)	23	0 (0%)	5 (22%)
SOUTH WEST														
Dorset County Hospital NHS Foundation Trust	25	24	26	25	24	20	4 (20%)	13 (65%)	25	4 (16%)	15 (60%)	21	1 (5%)	10 (48%)
Gloucestershire Hospitals NHS Foundation Trust	62	63	60	61	61	56	20 (36%)	50 (89%)	61	7 (11%)	49 (80%)	56	1 (2%)	38 (68%)
Great Western Hospitals NHS Foundation Trust	23	22	22	16	16	15	3 (20%)	14 (93%)	16	1 (6%)	13 (81%)	15	0 (0%)	10 (67%)
North Bristol NHS Trust	27	29	29	26	26	25	4 (16%)	20 (80%)	26	3 (12%)	23 (88%)	26	0 (0%)	18 (69%)
Northern Devon Healthcare NHS Trust	23	23	23	21	21	18	3 (17%)	12 (67%)	21	3 (14%)	19 (90%)	18	0 (0%)	9 (50%)
Plymouth Hospitals NHS Trust	47	49	49	38	38	33	15 (45%)	29 (88%)	38	5 (13%)	27 (71%)	35	3 (9%)	18 (51%)

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				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	78	77	83	74	74	44	22 (50%)	40 (91%)	74	5 (7%)	28 (38%)	44	1 (2%)	17 (39%)
Royal Cornwall Hospitals NHS Trust	43	42	41	42	41	38	14 (37%)	33 (87%)	42	7 (17%)	38 (90%)	39	0 (0%)	28 (72%)
Royal Devon and Exeter NHS Foundation Trust	44	43	46	37	37	37	18 (49%)	33 (89%)	37	6 (16%)	24 (65%)	37	0 (0%)	22 (59%)
Royal United Hospital Bath NHS Trust	36	36	41	26	26	21	5 (24%)	14 (67%)	26	5 (19%)	20 (77%)	21	0 (0%)	11 (52%)
Salisbury NHS Foundation Trust	25	25	29	22	22	17	4 (24%)	11 (65%)	21	3 (14%)	14 (67%)	17	0 (0%)	8 (47%)
South Devon Healthcare NHS Foundation Trust	31	32	31	30	30	28	7 (25%)	18 (64%)	30	7 (23%)	20 (67%)	28	1 (4%)	13 (46%)
Taunton and Somerset NHS Foundation Trust	54	55	54	52	52	46	11 (24%)	41 (89%)	52	4 (8%)	36 (69%)	46	0 (0%)	23 (50%)
University Hospitals of Bristol NHS Foundation Trust	43	43	43	37	37	30	12 (40%)	26 (87%)	37	4 (11%)	20 (54%)	30	1 (3%)	16 (53%)
WEST MIDLANDS														
Dudley Group of Hospitals NHS Trust	84	86	85	63	63	61	20 (33%)	40 (66%)	63	1 (2%)	28 (44%)	62	1 (2%)	21 (34%)
Heart of England NHS Foundation Trust	81	82	85	66	66	55	35 (64%)	42 (76%)	66	9 (14%)	35 (53%)	55	7 (13%)	26 (47%)
Mid Staffordshire NHS Foundation Trust	10	11	12	7	7	7	0 (0%)	4 (57%)	7	0 (0%)	3 (43%)	7	0 (0%)	0 (0%)
Royal Wolverhampton Hospitals NHS Trust	38	39	38	33	33	31	10 (32%)	29 (94%)	33	11 (33%)	31 (94%)	31	2 (6%)	28 (90%)
Sandwell and West Birmingham Hospitals NHS Trust	30	32	30	27	27	26	4 (15%)	22 (85%)	27	0 (0%)	19 (70%)	27	0 (0%)	7 (26%)

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				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Shrewsbury & Telford Hospital NHS Trust	40	40	46	38	36	31	6 (19%)	25 (81%)	38	4 (11%)	21 (55%)	32	0 (0%)	14 (44%)
University Hospital Of North Staffordshire NHS Trust	48	53	62	44	44	32	17 (53%)	23 (72%)	44	1 (2%)	16 (36%)	35	1 (3%)	10 (29%)
University Hospitals Birmingham NHS Foundation Trust	45	44	57	33	32	17	6 (35%)	11 (65%)	33	0 (0%)	8 (24%)	17	0 (0%)	3 (18%)
University Hospitals Coventry and Warwickshire NHS Trust	69	69	77	60	57	54	23 (43%)	45 (83%)	60	8 (13%)	35 (58%)	56	3 (5%)	27 (48%)
Walsall Hospitals NHS Trust	28	27	38	27	24	23	10 (43%)	16 (70%)	27	3 (11%)	4 (15%)	26	3 (12%)	4 (15%)
Worcestershire Acute Hospitals NHS Trust	49	49	72	47	46	43	8 (19%)	29 (67%)	47	7 (15%)	37 (79%)	43	1 (2%)	19 (44%)
YORKSHIRE AND THE HUMBER														
Bradford Teaching Hospitals NHS Foundation Trust	48	51	57	45	45	41	10 (24%)	29 (71%)	45	4 (9%)	37 (82%)	43	1 (2%)	22 (51%)
Calderdale and Huddersfield NHS Foundation Trust	47	51	48	46	45	43	20 (47%)	37 (86%)	46	6 (13%)	32 (70%)	44	3 (7%)	23 (52%)
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	53	53	53	47	46	42	16 (38%)	32 (76%)	47	1 (2%)	37 (79%)	43	0 (0%)	23 (53%)
Hull and East Yorkshire Hospitals NHS Trust	64	64	63	60	60	60	4 (7%)	31 (52%)	60	9 (15%)	31 (52%)	60	0 (0%)	12 (20%)
Leeds Teaching Hospitals NHS Trust	38	39	63	37	37	35	16 (46%)	28 (80%)	37	18 (49%)	34 (92%)	36	5 (14%)	28 (78%)
Mid Yorkshire Hospitals NHS Trust	29	29	32	29	29	28	8 (29%)	25 (89%)	29	1 (3%)	16 (55%)	29	0 (0%)	10 (34%)
Northern Lincolnshire and Goole Hospitals NHS	10	10	10	10	9	8	3 (38%)	6 (75%)	10	1 (10%)	6 (60%)	8	0 (0%)	3 (38%)

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
Foundation Trust														
Scarborough and North East Yorkshire Healthcare NHS Trust	21	21	28	13	13	13	4 (31%)	11 (85%)	13	2 (15%)	9 (69%)	13	0 (0%)	6 (46%)
Sheffield Teaching Hospitals NHS Foundation Trust	64	64	73	60	60	51	5 (10%)	33 (65%)	60	5 (8%)	38 (63%)	52	0 (0%)	17 (33%)
York Teaching Hospital NHS Foundation Trust	94	91	92	78	76	72	22 (31%)	62 (86%)	78	38 (49%)	71 (91%)	72	7 (10%)	55 (76%)
NORTHERN IRELAND														
Belfast Health and Social Care Trust	122	124	121	100	100	90	16 (18%)	48 (53%)	100	13 (13%)	65 (65%)	90	1 (1%)	27 (30%)
Southern Health and Social Care Trust	10	10	17	8	8	7	1 (14%)	7 (100%)	8	1 (13%)	6 (75%)	7	0 (0%)	4 (57%)
Western Health and Social Care Trust	19	19	16	18	18	17	3 (18%)	12 (71%)	18	1 (6%)	14 (78%)	17	0 (0%)	6 (35%)
WALES														
Abertawe Bro Morgannwg University Health Board	91	90	133	81	81	71	25 (35%)	56 (79%)	81	19 (23%)	55 (68%)	71	5 (7%)	38 (54%)
Aneurin Bevan Health Board	52	54	64	47	47	36	3 (8%)	18 (50%)	47	3 (6%)	22 (47%)	38	0 (0%)	9 (24%)
Betsi Cadwaladr University Health Board	53	55	58	45	45	41	11 (27%)	33 (80%)	45	1 (2%)	13 (29%)	44	0 (0%)	9 (20%)
Cardiff and Vale University Health Board	6	6	52	5	5	5	2 (40%)	3 (60%)	5	1 (20%)	3 (60%)	5	1 (20%)	2 (40%)
Cwm Taf University Health Board	51	49	55	49	49	39	21 (54%)	35 (90%)	49	8 (16%)	42 (86%)	39	0 (0%)	30 (77%)
SCOTLAND														
NHS Ayrshire & Arran	21	21	24*	20	19	18	4 (22%)	16 (89%)	20	5 (25%)	16 (80%)	18	0 (0%)	11 (61%)
NHS Dumfries and Galloway	30	30	22*	29	28	23	2 (9%)	14 (61%)	29	2 (7%)	15 (52%)	23	0 (0%)	5 (22%)

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic patients		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
				Symptomatic cases	Patients referred because of stroke or TIA or amaurosis fugax	Patients with exact symptom and referral dates	Patients referred within **2 days** of symptom	Patients referred within **14 days** of symptom	Patients with exact referral and operation dates	Patients receiving surgery within **2 days** of referral	Patients receiving surgery within **14 days** of referral	Patients with exact symptom and operation dates	Patients receiving surgery within **2 days** of symptom that triggered referral	Patients receiving surgery within **14 days** of symptom that triggered referral
	N	**N**	**N**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	***4756*** *35*	**4112** *28*	**1341 (33%)**	**3149 (77%)**	***4817*** *36*	**720 (15%)**	**3149 (65%)**	***4194*** *29*	**162 (4%)**	**2047 (49%)**
NHS Fife	10	10	11	10	10	9	0 (0%)	8 (89%)	10	0 (0%)	3 (30%)	9	0 (0%)	1 (11%)
NHS Forth Valley	32	31	34	27	26	25	4 (16%)	20 (80%)	27	3 (11%)	16 (59%)	25	2 (8%)	8 (32%)
NHS Grampian	17	17	11*	13	13	10	4 (40%)	6 (60%)	13	2 (15%)	11 (85%)	11	1 (9%)	5 (45%)
NHS Greater Glasgow and Clyde	48	46	102*	45	45	34	6 (18%)	20 (59%)	45	2 (4%)	29 (64%)	35	0 (0%)	12 (34%)
NHS Highland	55	54	54	48	47	42	9 (21%)	24 (57%)	48	0 (0%)	25 (52%)	42	0 (0%)	9 (21%)
NHS Lanarkshire	17	17	37*	17	17	13	3 (23%)	8 (62%)	17	0 (0%)	11 (65%)	13	0 (0%)	1 (8%)
NHS Lothian	92	92	90	92	92	88	26 (30%)	81 (92%)	92	6 (7%)	66 (72%)	88	1 (1%)	43 (49%)
NHS Tayside	17	17	10*	16	16	15	2 (13%)	13 (87%)	16	4 (25%)	14 (88%)	15	0 (0%)	8 (53%)

***** Please see note regarding the accuracy of SMR01 data from these health boards on page 11.

SHA-level indicators

SHA	All cases in the audit		Symptomatic cases														
			Index symptom		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			30-day outcomes			
	Total number of cases reported in Round 4	Total cases complete to Phase 2 (required for 30-day outcome evaluation)	Total symptomatic cases	Total cases referred with stroke or TIA or amaurosis fugax as the index symptom	Total cases with exact symptom and referral dates	Total cases referred within **2 days** of symptom	Total cases referred within **14 days** of symptom	Total cases with exact referral and operation dates	Total cases receiving surgery within **2 days** of referral	Total cases receiving surgery within **14 days** of referral	Total cases with exact symptom and operation dates	Total cases receiving surgery within **2 days** of symptom that triggered referral	Total cases receiving surgery within **14 days** of symptom that triggered referral	Total cases, referred because of stroke, whose 30-day outcomes can be evaluated	Total cases, referred because of stroke, with stroke or death within **30 days**	Total cases, referred because of TIA or amaurosis fugax, whose 30-day outcomes can be evaluated	Total cases, referred because of TIA or amaurosis fugax, with stroke or death within **30 days**
	N	**N (%)**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N**	**N (%)**
National	**5543**	**5183 (94%)**	**4818**	**4756**	**4112**	**1341 (33%)**	**3149 (77%)**	**4817**	**720 (15%)**	**3149 (65%)**	**4194**	**162 (4%)**	**2047 (49%)**	**1615**	**44 (3%)**	**3075**	**59 (2%)**
East Midlands	380	373 (98%)	341	335	299	108 (36%)	228 (76%)	341	72 (21%)	247 (72%)	303	7 (2%)	169 (56%)	118	5 (4%)	216	6 (3%)
East of England	514	472 (92%)	414	408	377	106 (28%)	280 (74%)	414	54 (13%)	239 (58%)	384	9 (2%)	166 (43%)	139	1 (1%)	264	6 (2%)
London	489	484 (99%)	402	397	344	148 (43%)	278 (81%)	402	120 (30%)	322 (80%)	354	35 (10%)	240 (68%)	149	7 (5%)	247	7 (3%)
North East	260	253 (97%)	239	238	210	54 (26%)	159 (76%)	239	11 (5%)	172 (72%)	216	4 (2%)	106 (49%)	91	1 (1%)	147	2 (1%)
North West	918	879 (96%)	789	772	596	231 (39%)	450 (76%)	789	101 (13%)	470 (60%)	611	35 (6%)	290 (47%)	253	6 (2%)	518	8 (2%)
South Central	376	368 (98%)	311	307	271	90 (33%)	229 (85%)	311	28 (9%)	187 (60%)	274	2 (1%)	126 (46%)	129	3 (2%)	174	3 (2%)
South East Coast	312	295 (95%)	275	273	231	73 (32%)	169 (73%)	275	70 (25%)	192 (70%)	238	17 (7%)	123 (52%)	84	3 (4%)	184	3 (2%)
South West	561	493 (88%)	507	505	428	142 (33%)	354 (83%)	506	64 (13%)	346 (68%)	433	8 (2%)	241 (56%)	162	7 (4%)	316	8 (3%)
West Midlands	522	504 (97%)	445	435	380	139 (37%)	286 (75%)	445	44 (10%)	237 (53%)	391	18 (5%)	159 (41%)	137	2 (1%)	293	4 (1%)

SHA	All cases in the audit		Symptomatic cases													
			Index symptom		Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			30-day outcomes			
	Total number of cases reported in Round 4	Total cases complete to Phase 2 (required for 30-day outcome evaluation)	Total symptomatic cases	Total cases referred with stroke or TIA or amaurosis fugax as the index symptom	Total cases with exact symptom and referral dates	Total cases referred within **2 days** of symptom	Total cases referred within **14 days** of symptom	Total cases with exact referral and operation dates	Total cases receiving surgery within **2 days** of referral	Total cases receiving surgery within **14 days** of referral	Total cases with exact symptom and operation dates	Total cases receiving surgery within **2 days** of symptom that triggered referral	Total cases receiving surgery within **14 days** of symptom that triggered referral	Total cases, referred because of stroke, whose 30-day outcomes can be evaluated	Total cases, referred because of stroke, with stroke or death within **30 days**	Total cases, referred because of TIA or amaurosis fugax, whose 30-day outcomes can be evaluated	Total cases, referred because of TIA or amaurosis fugax, with stroke or death within **30 days**
	N	**N (%)**	**N**	**N**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N (%)**	**N**	**N (%)**	**N**	**N (%)**
National	**5543**	**5183 (94%)**	**4818**	**4756**	**4112**	**1341 (33%)**	**3149 (77%)**	**4817**	**720 (15%)**	**3149 (65%)**	**4194**	**162 (4%)**	**2047 (49%)**	**1615**	**44 (3%)**	**3075**	**59 (2%)**
Yorkshire and The Humber	468	361 (77%)	425	420	393	108 (27%)	294 (75%)	425	85 (20%)	311 (73%)	400	16 (4%)	199 (50%)	156	3 (2%)	261	6 (2%)
ENGLAND	4800	4482 (93%)	4148	4090	3529	1199 (34%)	2727 (77%)	4147	649 (16%)	2723 (66%)	3604	151 (4%)	1819 (50%)	1418	38 (3%)	2620	53 (2%)
NORTHERN IRELAND	151	133 (88%)	126	126	114	20 (18%)	67 (59%)	126	15 (12%)	85 (67%)	114	1 (1%)	37 (32%)	20	0 (0%)	103	5 (5%)
SCOTLAND	339	321 (95%)	317	313	277	60 (22%)	210 (76%)	317	24 (8%)	206 (65%)	279	4 (1%)	103 (37%)	117	2 (2%)	186	1 (1%)
WALES	253	247 (98%)	227	227	192	62 (32%)	145 (76%)	227	32 (14%)	135 (59%)	197	6 (3%)	88 (45%)	60	4 (7%)	166	0 (0%)

5.1 Trust variation in the delays from symptom to procedure

The report authors have included trust level information to illustrate the overall speed of symptom to surgery as shown by median values. The variation of delays for the group of patients within a single trust varies widely. By showing the inter quartile range for each trust, the extent to which performance across the trust is consistent can therefore be shown.

The plot on the following page shows the median symptom to procedure time and the inter-quartile range for all trusts within Round 4 that had 10 or more symptomatic cases with exact symptom and procedure dates. The median delay for each trust is represented by a black dot. The vertical red line in the graph represents the current NICE Guideline of 14 days from symptom to procedure. The inter-quartile ranges (IQRs) are shown by horizontal green lines. Any upper quartile line that is red indicates that the upper quartile value is above 110 days. This probably means that the number of patients with exact symptom and procedure dates for this trust is relatively small.
Please note that the graph needs to be studied in conjunction with the Key Indicators table on page 47, which includes how many patients this median and IQR is based upon, and how many cases were identified in HES within Round 4 for each trust. The trust numbers can be found in the table on page 47.

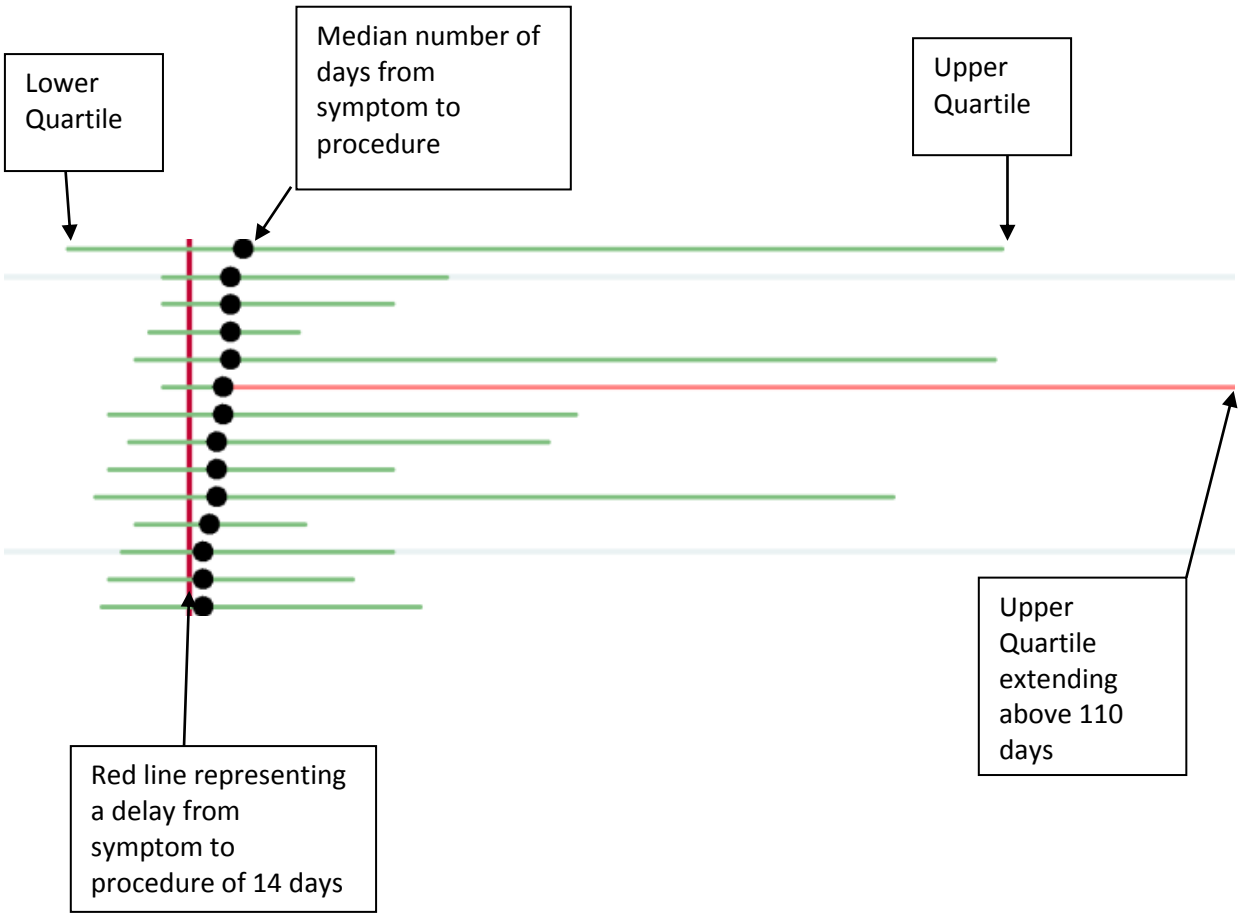
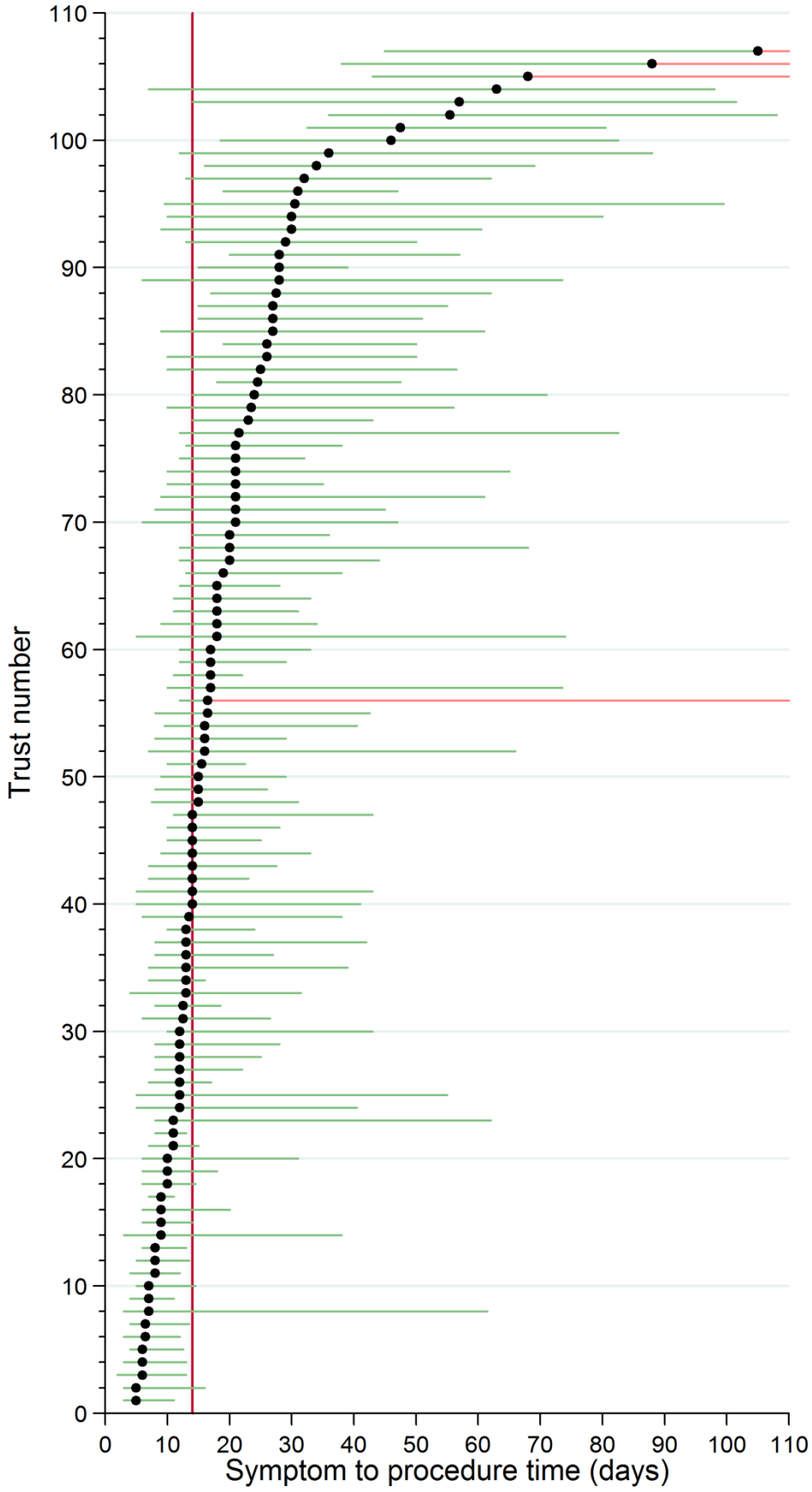


Fig 13: Median delay from symptom to procedure and IQR of every trust within Round 4 with 10 or more cases with exact symptom and procedure dates.



Trust level key indicators

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
EAST MIDLANDS														
Derby Hospitals NHS Foundation Trust	29	31	30	29	23	15 (65%)	4 (1-11)	29	14 (48%)	8 (2-29)	24	13 (54%)	13 (4-32)	33
Kettering General Hospital NHS Foundation Trust	35	35	35	29	22	5 (23%)	23 (8-49)	29	6 (21%)	27 (11-64)	23	2 (9%)	68 (43-119)	105
Northampton General Hospital NHS Trust	44	43	42	39	36	26 (72%)	3 (2-10)	39	20 (51%)	7 (4-20)	36	17 (47%)	15 (8-31)	48
Nottingham University Hospitals NHS Trust	84	85	92	78	68	52 (76%)	3 (1-7)	78	62 (79%)	3 (2-7)	68	51 (75%)	7 (5-15)	10
Sherwood Forest Hospitals NHS Foundation Trust	37	38	40	26	23	11 (48%)	9 (3-55)	26	4 (15%)	13 (9-22)	24	8 (33%)	22 (12-83)	77
United Lincolnshire Hospitals NHS Trust	28	28	45	26	19	7 (37%)	21 (2-80)	26	10 (38%)	13 (3-37)	19	5 (26%)	63 (7-98)	104
University Hospitals of Leicester NHS Trust	123	121	121	114	108	75 (69%)	3 (2-11)	114	81 (71%)	5 (3-10)	109	73 (67%)	9 (6-20)	16
EAST OF ENGLAND														
Basildon and Thurrock University Hospital NHS Foundation Trust	14	14	24	14	14	8 (57%)	6 (1-56)	14	2 (14%)	13 (10-57)	14	6 (43%)	17 (12-139)	56
Bedford Hospital NHS Trust	50	51	48	42	40	17 (43%)	9 (3-34)	42	8 (19%)	16 (8-28)	41	12 (29%)	32 (13-62)	97
Cambridge University Hospitals NHS Foundation Trust	94	94	102	78	74	42 (57%)	7 (2-27)	78	19 (24%)	19 (8-39)	77	16 (21%)	34 (16-69)	98
Colchester Hospital University NHS Foundation Trust	42	41	41	38	34	26 (76%)	2 (1-7)	38	19 (50%)	8 (4-37)	35	18 (51%)	14 (5-41)	40
East and North Hertfordshire NHS Trust	23	23	23	21	18	12 (67%)	5 (3-15)	21	13 (62%)	6 (3-17)	19	11 (58%)	11 (8-62)	23
Ipswich Hospital NHS Trust	19	19	20	13	10	7 (70%)	6 (2-12)	13	0 (0%)	26 (13-35)	10	2 (20%)	27 (15-51)	86
Mid Essex Hospital Services NHS Trust	34	34	38	22	20	14 (70%)	6 (4-9)	22	1 (5%)	43 (20-82)	20	1 (5%)	48 (33-81)	101
Norfolk and Norwich University Hospitals NHS	93	94	99	74	64	45 (70%)	5 (2-9)	74	41 (55%)	7 (3-15)	64	38 (59%)	12 (8-28)	29

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Foundation Trust														
Peterborough and Stamford Hospitals NHS Foundation Trust	15	15	16	15	13	2 (15%)	35 (17-43)	15	1 (7%)	52 (22-113)	13	1 (8%)	88 (38-152)	106
Princess Alexandra Hospital NHS Trust	37	36	36	24	21	10 (48%)	8 (4-14)	24	18 (75%)	4 (2-8)	21	11 (52%)	13 (8-27)	36
Southend University Hospital NHS Foundation Trust	57	59	57	49	49	42 (86%)	4 (2-7)	49	46 (94%)	4 (3-6)	49	43 (88%)	9 (7-11)	17
West Hertfordshire Hospitals NHS Trust	36	36	52	24	20	11 (55%)	5 (3-30)	24	9 (38%)	32 (6-58)	21	7 (33%)	24 (14-71)	80
LONDON														
Barking, Havering And Redbridge University Hospitals NHS Foundation Trust	41	40	54	40	39	20 (51%)	7 (5-18)	40	22 (55%)	7 (5-12)	39	17 (44%)	18 (11-33)	64
Barnet and Chase Farm Hospitals NHS Trust	17	17	27	12	8	6 (75%)	6 (2-8)	12	6 (50%)	8 (3-26)	8	5 (63%)	9 (7-24)	**
Barts and The London NHS Trust	48	50	53	33	26	21 (81%)	2 (1-3)	33	27 (82%)	4 (2-7)	26	24 (92%)	5 (3-11)	1
Croydon Health Services NHS Trust	0	0	3	No data										
Epsom and St Helier University Hospitals NHS Trust	0	0	7	No data										
Guy's and St Thomas' Hospital NHS Foundation Trust	31	32	31	25	24	16 (67%)	3 (1-10)	25	19 (76%)	3 (1-5)	25	19 (76%)	6 (3-13)	4
Hillingdon Hospitals NHS Foundation Trust	2	2	10	1	1	0 (0%)	18 (18-18)	1	0 (0%)	16 (16-16)	1	0 (0%)	34 (34-34)	**
Imperial College Healthcare NHS Trust	103	107	119	79	65	46 (71%)	3 (0-13)	79	40 (51%)	7 (3-32)	68	38 (56%)	12 (5-41)	24
King's College Hospital NHS Foundation Trust	64	67	90	47	39	24 (62%)	4 (1-26)	47	29 (62%)	4 (1-17)	41	25 (61%)	9 (3-38)	14
Lewisham Healthcare NHS Trust	3	4	11	2	0	0 (NA%)	NA	2	0 (0%)	30 (23-37)	1	1 (100%)	10 (10-10)	**
North West London Hospitals NHS Trust	39	39	40	27	24	21 (88%)	2 (1-3)	27	20 (74%)	3 (3-8)	24	21 (88%)	6 (4-13)	5
Royal Free Hampstead NHS Trust	12	12	13	11	9	6 (67%)	6 (4-10)	11	7 (64%)	7 (6-28)	9	5 (56%)	14 (11-32)	**

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
St George's Healthcare NHS Trust	70	70	70	67	62	43 (69%)	4 (1-10)	67	55 (82%)	4 (2-7)	64	50 (78%)	8 (5-14)	12
University College London Hospitals NHS Foundation Trust	57	60	62	56	45	38 (84%)	2 (1-5)	56	46 (82%)	4 (2-7)	46	35 (76%)	7 (4-11)	9
Whipps Cross University Hospital NHS Trust	2	2	3	2	2	0 (0%)	48 (42-54)	2	1 (50%)	20 (6-33)	2	0 (0%)	68 (48-87)	**
NORTH EAST														
City Hospitals Sunderland NHS Foundation Trust	42	43	44	37	34	19 (56%)	6 (3-26)	37	10 (27%)	9 (6-16)	35	19 (54%)	14 (11-43)	47
County Durham and Darlington NHS Foundation Trust	62	61	71	58	52	35 (67%)	6 (3-12)	58	12 (21%)	14 (8-33)	53	17 (32%)	23 (14-43)	78
Gateshead Health NHS Foundation Trust	19	20	19	19	17	6 (35%)	8 (4-21)	19	2 (11%)	11 (9-14)	18	6 (33%)	19 (13-38)	66
Newcastle upon Tyne Hospitals NHS Foundation Trust	76	81	90	65	52	28 (54%)	7 (3-29)	65	26 (40%)	9 (5-21)	55	19 (35%)	26 (10-50)	83
South Tees Hospitals NHS Foundation Trust	61	63	59	60	55	47 (85%)	3 (1-5)	60	39 (65%)	6 (5-9)	55	45 (82%)	11 (8-13)	22
NORTH WEST														
Aintree University Hospitals NHS Foundation Trust	39	39	61	35	29	22 (76%)	2 (1-6)	35	26 (74%)	4 (1-8)	29	23 (79%)	6 (2-13)	3
Blackpool Teaching Hospitals NHS Foundation Trust	0	0	42	No data										
Bolton NHS Foundation Trust	40	38	37	36	32	9 (28%)	28 (7-63)	36	12 (33%)	21 (6-36)	32	9 (28%)	57 (14-102)	103
Central Manchester University Hospitals NHS Foundation Trust	77	76	82	70	50	35 (70%)	2 (0-14)	70	17 (24%)	16 (8-42)	50	20 (40%)	21 (9-61)	72
Countess of Chester Hospital NHS Foundation Trust	52	52	56	45	31	20 (65%)	3 (0-21)	45	19 (42%)	9 (5-17)	34	17 (50%)	14 (9-33)	44
East Lancashire Hospitals NHS Trust	87	90	90	61	55	46 (84%)	1 (0-3)	61	20 (33%)	14 (6-33)	58	31 (53%)	14 (6-38)	39

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Lancashire Teaching Hospitals NHS Foundation Trust	46	46	48	42	40	22 (55%)	7 (3-23)	42	11 (26%)	12 (7-24)	41	15 (37%)	21 (13-38)	76
Mid Cheshire Hospitals NHS Foundation Trust	18	18	21	16	15	9 (60%)	4 (3-33)	16	8 (50%)	9 (3-57)	16	8 (50%)	28 (6-74)	89
North Cumbria University Hospitals NHS Trust	20	20	28	20	20	12 (60%)	7 (5-19)	20	10 (50%)	8 (4-14)	20	10 (50%)	16 (10-41)	54
Pennine Acute Hospitals NHS Trust	150	152	165	124	88	55 (63%)	4 (1-20)	124	36 (29%)	16 (7-55)	93	39 (42%)	21 (10-65)	74
Royal Liverpool and Broadgreen University Hospitals NHS Trust	40	40	46	36	35	28 (80%)	5 (2-7)	36	27 (75%)	4 (2-7)	35	28 (80%)	8 (6-13)	13
Southport and Ormskirk Hospital NHS Trust	22	22	21	22	21	13 (62%)	5 (4-15)	22	12 (55%)	7 (5-20)	21	9 (43%)	18 (11-31)	63
Tameside Hospital NHS Foundation Trust	21	21	39	16	6	4 (67%)	5 (1-9)	16	3 (19%)	21 (8-45)	6	1 (17%)	19 (15-47)	**
The Walton Centre NHS Foundation Trust	9	9	10	7	2	0 (0%)	175 (25-324)	7	3 (43%)	20 (1-35)	2	0 (0%)	207 (60-353)	**
University Hospital of South Manchester NHS Foundation Trust	114	117	126	89	44	30 (68%)	3 (1-12)	89	41 (46%)	8 (3-20)	44	24 (55%)	13 (6-27)	31
University Hospitals Of Morecambe Bay NHS Foundation Trust	44	44	50	42	28	24 (86%)	1 (0-6)	42	19 (45%)	17 (3-56)	28	18 (64%)	7 (3-62)	8
Warrington and Halton Hospitals NHS Foundation Trust	46	46	51	44	28	14 (50%)	8 (3-11)	44	17 (39%)	10 (6-16)	29	9 (31%)	17 (12-29)	59
Wirral University Teaching Hospital NHS Foundation Trust	52	52	52	49	48	36 (75%)	3 (1-8)	49	22 (45%)	9 (6-19)	48	29 (54%)	14 (7-28)	43
Wrightington, Wigan And Leigh NHS Foundation Trust	41	40	50	35	24	11 (46%)	8 (4-53)	35	3 (9%)	90 (23-187)	25	3 (12%)	105 (45-220)	107
SOUTH CENTRAL														
Basingstoke and North Hampshire NHS Foundation Trust	6	6	5	2	1	0 (0%)	112 (112-112)	2	0 (0%)	117 (103-131)	1	0 (0%)	215 (215-215)	**

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Buckinghamshire Hospitals NHS Trust	81	83	74	56	45	32 (71%)	4 (2-10)	56	25 (45%)	11 (6-20)	45	21 (47%)	16 (8-29)	53
Milton Keynes Hospital NHS Foundation Trust	3	3	4	3	2	1 (50%)	37 (2-72)	3	1 (33%)	13 (7-161)	2	1 (50%)	47 (9-85)	**
Oxford University Hospitals NHS Trust	82	82	99	75	73	43 (59%)	5 (2-11)	75	35 (47%)	8 (6-15)	74	36 (49%)	15 (8-26)	49
Portsmouth Hospitals NHS Trust	87	89	92	77	62	41 (66%)	3 (1-12)	77	18 (23%)	25 (8-51)	64	18 (28%)	25 (10-57)	82
Royal Berkshire NHS Foundation Trust	14	14	14	14	9	6 (67%)	7 (3-21)	14	4 (29%)	9 (7-20)	9	4 (44%)	17 (12-27)	**
University Hospital Southampton NHS Foundation Trust	103	102	104	84	79	62 (78%)	4 (3-7)	84	34 (40%)	9 (6-17)	79	46 (58%)	13 (10-24)	38
SOUTH EAST COAST														
Ashford And St Peter's Hospitals NHS Foundation Trust	38	36	39	32	22	13 (59%)	6 (2-26)	32	9 (28%)	32 (6-89)	24	9 (38%)	31 (10-100)	95
Brighton and Sussex University Hospitals NHS Trust	39	39	39	38	26	22 (85%)	4 (1-6)	38	18 (47%)	8 (5-13)	28	21 (75%)	10 (6-15)	18
Dartford and Gravesham NHS Trust	8	8	11	5	5	1 (20%)	14 (12-17)	5	0 (0%)	20 (20-23)	5	0 (0%)	37 (35-52)	**
East Kent Hospitals University NHS Foundation Trust	71	72	89	58	53	37 (70%)	3 (1-12)	58	49 (84%)	2 (1-4)	53	38 (72%)	5 (3-16)	2
East Sussex Healthcare NHS Trust	9	9	23	9	8	1 (13%)	25 (12-51)	9	2 (22%)	13 (8-30)	8	0 (0%)	48 (37-61)	**
Frimley Park Hospital NHS Foundation Trust	57	57	66	49	44	28 (64%)	4 (2-33)	49	26 (53%)	6 (2-16)	46	28 (54%)	12 (5-55)	25
Maidstone and Tunbridge Wells NHS Trust	11	11	7	11	8	7 (88%)	4 (2-6)	11	7 (64%)	6 (3-13)	8	7 (88%)	8 (6-11)	**
Medway NHS Foundation Trust	25	25	25	21	19	11 (58%)	5 (2-33)	21	6 (29%)	15 (7-28)	19	5 (26%)	27 (9-61)	85
Surrey and Sussex Healthcare NHS Trust	27	28	25	26	23	19 (83%)	3 (2-7)	26	13 (50%)	8 (5-13)	24	13 (54%)	13 (8-19)	32
Western Sussex Hospitals NHS Trust	27	28	34	26	23	10 (43%)	12 (5-26)	26	9 (35%)	9 (6-16)	23	5 (23%)	27 (15-55)	87
SOUTH WEST														
Dorset County Hospital NHS Foundation Trust	25	24	26	25	20	12 (60%)	6 (3-30)	25	13 (52%)	7 (4-28)	21	10 (48%)	21 (6-47)	70

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Gloucestershire Hospitals NHS Foundation Trust	62	63	60	61	56	47 (84%)	3 (2-6)	61	28 (46%)	8 (4-13)	56	38 (68%)	12 (7-17)	26
Great Western Hospitals NHS Foundation Trust	23	22	22	16	15	12 (80%)	4 (3-7)	16	7 (44%)	9 (4-13)	15	10 (67%)	13 (7-16)	34
North Bristol NHS Trust	27	29	29	26	25	18 (72%)	5 (4-8)	26	20 (77%)	6 (3-7)	26	18 (69%)	10 (6-18)	19
Northern Devon Healthcare NHS Trust	23	23	23	21	18	8 (44%)	12 (4-23)	21	14 (67%)	6 (3-9)	18	9 (50%)	18 (12-28)	65
Plymouth Hospitals NHS Trust	47	49	49	38	33	24 (73%)	3 (2-8)	38	15 (39%)	10 (5-21)	35	18 (51%)	14 (7-23)	42
Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	78	77	83	74	44	32 (73%)	3 (1-8)	74	18 (24%)	35 (8-60)	44	17 (39%)	30 (9-61)	93
Royal Cornwall Hospitals NHS Trust	43	42	41	42	38	31 (82%)	3 (2-5)	42	27 (64%)	6 (4-8)	39	28 (72%)	11 (7-15)	21
Royal Devon and Exeter NHS Foundation Trust	44	43	46	37	37	30 (81%)	3 (1-5)	37	19 (51%)	7 (3-17)	37	22 (59%)	10 (6-31)	20
Royal United Hospital Bath NHS Trust	36	36	41	26	21	10 (48%)	8 (3-26)	26	14 (54%)	7 (4-14)	21	11 (52%)	13 (7-39)	35
Salisbury NHS Foundation Trust	25	25	29	22	17	8 (47%)	8 (3-16)	21	10 (48%)	9 (6-15)	17	8 (47%)	21 (12-32)	75
South Devon Healthcare NHS Foundation Trust	31	32	31	30	28	14 (50%)	8 (3-23)	30	11 (37%)	13 (5-17)	28	13 (46%)	21 (8-45)	71
Taunton and Somerset NHS Foundation Trust	54	55	54	52	46	35 (76%)	5 (3-7)	52	22 (42%)	8 (6-19)	46	23 (50%)	15 (9-29)	50
University Hospitals of Bristol NHS Foundation Trust	43	43	43	37	30	23 (77%)	3 (2-7)	37	13 (35%)	13 (4-33)	30	16 (53%)	14 (5-43)	41
WEST MIDLANDS														
Dudley Group of Hospitals NHS Trust	84	86	85	63	61	39 (64%)	4 (2-27)	63	19 (30%)	16 (7-39)	62	21 (34%)	30 (10-80)	94
Heart of England NHS Foundation Trust	81	82	85	66	55	39 (71%)	0 (0-14)	66	27 (41%)	13 (5-52)	55	26 (47%)	18 (5-74)	61
Mid Staffordshire NHS Foundation Trust	10	11	12	7	7	2 (29%)	14 (6-34)	7	0 (0%)	16 (13-16)	7	0 (0%)	30 (18-47)	**
Royal Wolverhampton Hospitals NHS Trust	38	39	38	33	31	27 (87%)	3 (2-5)	33	29 (88%)	5 (2-7)	31	28 (90%)	8 (4-12)	11
Sandwell and West Birmingham Hospitals NHS Trust	30	32	30	27	26	13 (50%)	8 (4-12)	27	4 (15%)	12 (9-16)	27	7 (26%)	20 (14-36)	69

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
					Patients with exact symptom and referral dates	Patients referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Patients with exact referral and operation dates	Patients receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Patients with exact symptom and operation dates	Patients receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery	
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Shrewsbury & Telford Hospital NHS Trust	40	40	46	38	31	18 (58%)	5 (3-14)	38	18 (47%)	10 (4-43)	32	14 (44%)	17 (10-74)	57
University Hospital Of North Staffordshire NHS Trust	48	53	62	44	32	22 (69%)	2 (0-22)	44	9 (20%)	29 (10-72)	35	10 (29%)	36 (12-88)	99
University Hospitals Birmingham NHS Foundation Trust	45	44	57	33	17	9 (53%)	6 (1-25)	33	3 (9%)	31 (17-52)	17	3 (18%)	28 (20-57)	91
University Hospitals Coventry and Warwickshire NHS Trust	69	69	77	60	54	36 (67%)	5 (1-11)	60	25 (42%)	11 (5-43)	56	27 (48%)	17 (8-43)	55
Walsall Hospitals NHS Trust	28	27	38	27	23	14 (61%)	3 (0-20)	27	3 (11%)	38 (28-93)	26	4 (15%)	56 (36-108)	102
Worcestershire Acute Hospitals NHS Trust	49	49	72	47	43	21 (49%)	8 (3-19)	47	28 (60%)	7 (3-14)	43	19 (44%)	18 (9-34)	62
YORKSHIRE AND THE HUMBER														
Bradford Teaching Hospitals NHS Foundation Trust	48	51	57	45	41	21 (51%)	6 (3-24)	45	21 (47%)	8 (6-14)	43	22 (51%)	12 (10-43)	30
Calderdale and Huddersfield NHS Foundation Trust	47	51	48	46	43	33 (77%)	3 (2-6)	46	21 (46%)	8 (6-15)	44	23 (52%)	12 (8-22)	27
Doncaster and Bassetlaw Hospitals NHS Foundation Trust	53	53	53	47	42	27 (64%)	4 (2-14)	47	15 (32%)	9 (7-14)	43	23 (53%)	14 (10-28)	46
Hull and East Yorkshire Hospitals NHS Trust	64	64	63	60	60	22 (37%)	14 (6-48)	60	28 (47%)	14 (6-42)	60	12 (20%)	46 (19-83)	100
Leeds Teaching Hospitals NHS Trust	38	39	63	37	35	25 (71%)	3 (1-11)	37	32 (86%)	3 (2-5)	36	28 (78%)	7 (3-12)	6
Mid Yorkshire Hospitals NHS Trust	29	29	32	29	28	21 (75%)	5 (2-9)	29	8 (28%)	14 (7-30)	29	10 (34%)	20 (12-68)	68
Northern Lincolnshire and Goole Hospitals NHS Foundation Trust	10	10	10	10	8	6 (75%)	5 (2-18)	10	3 (30%)	11 (6-40)	8	3 (38%)	21 (9-40)	**
Scarborough and North East Yorkshire Health Care NHS Trust	21	21	28	13	13	8 (62%)	7 (2-10)	13	5 (38%)	9 (5-15)	13	6 (46%)	17 (11-22)	58
Sheffield Teaching Hospitals NHS Foundation	64	64	73	60	51	24 (47%)	11 (4-28)	60	22 (37%)	9 (7-31)	52	17 (33%)	29 (13-50)	92

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
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	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
Trust														
York Teaching Hospital NHS Foundation Trust	94	91	92	78	72	56 (78%)	4 (2-7)	78	64 (82%)	3 (1-4)	72	55 (76%)	7 (4-14)	7
NORTHERN IRELAND														
Belfast Health and Social Care Trust	122	124	121	100	90	37 (41%)	11 (4-35)	100	46 (46%)	8 (4-20)	90	27 (30%)	24 (10-56)	79
Southern Health and Social Care Trust	10	10	17	8	7	5 (71%)	6 (3-12)	8	4 (50%)	8 (4-18)	7	4 (57%)	11 (11-17)	**
Western Health and Social Care Trust	19	19	16	18	17	8 (47%)	8 (4-20)	18	7 (39%)	9 (7-14)	17	6 (35%)	17 (12-33)	60
WALES														
Abertawe Bro Morgannwg University Health Board	91	90	133	81	71	51 (72%)	4 (2-12)	81	37 (46%)	8 (3-19)	71	38 (54%)	13 (8-42)	37
Aneurin Bevan Health Board	52	54	64	47	36	10 (28%)	15 (7-29)	47	14 (30%)	15 (7-30)	38	9 (24%)	31 (19-47)	81
Betsi Cadwaladr University Health Board	53	55	58	45	41	28 (68%)	5 (2-10)	45	8 (18%)	19 (13-42)	44	9 (20%)	25 (18-48)	96
Cardiff and Vale University Health Board	6	6	52	5	5	3 (60%)	3 (1-35)	5	2 (40%)	12 (4-35)	5	2 (40%)	15 (5-70)	**
Cwm Taf University Health Board	51	49	55	49	39	33 (85%)	2 (1-5)	49	27 (55%)	7 (4-10)	39	30 (77%)	9 (6-14)	15
SCOTLAND														
NHS Ayrshire & Arran	21	21	24*	20	18	12 (67%)	5 (3-10)	20	10 (50%)	8 (4-12)	18	11 (61%)	12 (8-25)	28
NHS Dumfries and Galloway	30	30	22*	29	23	11 (48%)	9 (5-22)	29	7 (24%)	14 (8-24)	23	5 (22%)	28 (15-39)	90
NHS Fife	10	10	11	10	9	3 (33%)	10 (7-13)	10	1 (10%)	25 (14-31)	9	1 (11%)	38 (19-44)	**
NHS Forth Valley	32	31	34	27	25	16 (64%)	5 (3-11)	27	7 (26%)	11 (6-34)	25	8 (32%)	21 (10-35)	73
NHS Grampian	17	17	11*	13	10	5 (50%)	7 (2-37)	13	7 (54%)	7 (5-13)	11	5 (45%)	16 (7-66)	52
NHS Greater Glasgow and Clyde	48	46	102*	45	34	12 (35%)	11 (5-38)	45	17 (38%)	10 (6-17)	35	12 (34%)	20 (12-44)	67
NHS Highland	55	54	54	48	42	13 (31%)	13 (6-31)	48	4 (8%)	14 (10-24)	42	9 (21%)	28 (17-62)	88
NHS Lanarkshire	17	17	37*	17	13	4 (31%)	12 (7-38)	17	4 (24%)	12 (10-18)	13	1 (8%)	26 (19-50)	84

Trust name	All cases in the audit	HES comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)			Number in symptom to procedure plot on page 45
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	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	
National *Median per trust*	***5543*** *40*	**5591** *40*	***6277*** *45*	***4818*** *36*	**4112** *28*	**2639 (64%)**	***5 (2-14)***	***4817*** *36*	**2157 (45%)**	**9 (4-23)**	***4194*** ***29***	**2047 (49%)**	**15 (8-40)**	
NHS Lothian	92	92	90	92	88	66 (75%)	5 (2-8)	92	35 (38%)	10 (7-17)	88	43 (49%)	16 (10-23)	51
NHS Tayside	17	17	10*	16	15	8 (53%)	7 (5-9)	16	8 (50%)	7 (3-13)	15	8 (53%)	14 (10-25)	45

* Please see the note regarding the accuracy of SMR01 data from these health boards on page 11.

**These 18 trusts are not included in the plot on page 25 as they had fewer than 10 symptomatic patients in Round 4 with exact symptom and surgery dates.

SHA level Indicators

Region	Total number of cases reported in Round 4	HES Comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
					Total cases with exact symptom and referral dates	Total cases referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Total cases with exact referral and operation dates	Total cases receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Total cases with exact symptom and operation dates	Total cases receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**
National	**5543**	**5591**	**6277**	**4818**	**4112**	**2639 (64%)**	**5 (2-14)**	**4817**	**2157 (45%)**	**9 (4-23)**	**4194**	**2047 (49%)**	**15 (8-40)**
East Midlands	380	381	405	341	299	191 (64%)	4 (2-14)	341	197 (58%)	6 (3-18)	303	169 (56%)	12 (6-35)
East of England	514	516	556	414	377	236 (63%)	5 (2-16)	414	177 (43%)	10 (4-35)	384	166 (43%)	17 (9-55)
London	489	502	597	402	344	241 (70%)	3 (1-10)	402	272 (68%)	5 (2-11)	354	240 (68%)	9 (5-25)
North East	260	268	283	239	210	135 (64%)	5 (2-14)	239	89 (37%)	9 (6-17)	216	106 (49%)	15 (10-36)
North West	918	922	1077	789	596	390 (65%)	4 (1-14)	789	306 (39%)	11 (5-32)	611	290 (47%)	16 (7-50)
South Central	376	379	392	311	271	185 (68%)	4 (2-10)	311	117 (38%)	10 (6-25)	274	126 (46%)	16 (9-34)
South East Coast	312	313	358	275	231	149 (65%)	5 (2-17)	275	139 (51%)	7 (2-20)	238	123 (52%)	14 (6-41)
South West	561	563	577	507	428	304 (71%)	4 (2-10)	506	231 (46%)	8 (4-21)	433	241 (56%)	13 (7-30)
West Midlands	522	532	602	445	380	240 (63%)	4 (1-14)	445	165 (37%)	13 (6-40)	391	159 (41%)	21 (9-56)

Region	Total number of cases reported in Round 4	HES Comparator	Cases in HES	Symptomatic cases	Time from index symptom to referral (**A** to **B** on Figure 1)			Time from referral to surgery (**B** to **C** on Figure 1)			Time from symptom to surgery (**A** to **C** on Figure 1)		
					Total cases with exact symptom and referral dates	Total cases referred within **7 days** of symptom	Median delay and IQR from symptom to referral	Total cases with exact referral and operation dates	Total cases receiving surgery within **7 days** of referral	Median delay and IQR from referral to surgery	Total cases with exact symptom and operation dates	Total cases receiving surgery within **14 days** of symptom that triggered referral	Median delay and IQR from index symptom to surgery
	N	**N**	**N**	**N**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**	**N**	**N (%)**	**Med (IQR)**
National	**5543**	**5591**	**6277**	**4818**	**4112**	**2639 (64%)**	**5 (2-14)**	**4817**	**2157 (45%)**	**9 (4-23)**	**4194**	**2047 (49%)**	**15 (8-40)**
Yorkshire and The Humber	468	473	519	425	393	243 (62%)	6 (2-15)	425	219 (52%)	7 (3-15)	400	199 (50%)	15 (8-43)
ENGLAND	4800	4849	5366	4148	3529	2314 (66%)	4 (2-13)	4147	1912 (46%)	8 (4-24)	3604	1819 (50%)	14 (7-40)
NORTHERN IRELAND	151	153	154	126	114	50 (44%)	10 (4-29)	126	57 (45%)	8 (5-19)	114	37 (32%)	22 (11-47)
SCOTLAND	339	334	395*	317	277	150 (54%)	7 (3-14)	317	100 (32%)	11 (7-19)	279	103 (37%)	19 (11-36)
WALES	253	254	362	227	192	125 (65%)	5 (2-14)	227	88 (39%)	11 (5-24)	197	88 (45%)	19 (9-42)

*Please see note on the accuracy of the SMR01 data on page 11.

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Appendices

Appendix 1: Glossary

Amaurosis fugax	Transient loss of vision in one eye due to an interruption of blood flow to the retina.
Asymptomatic Patient	A patient who does not yet show any outward signs or symptoms of plaque.
Carotid Endarterectomy (CEA)	Carotid Endarterectomy is a surgical procedure in which build-up is removed from the carotid artery.
Carotid Stenosis	Abnormal narrowing of the neck artery to the brain.
Cranial Nerve Injury (CNI)	Damage to one of the 12 nerves supplying the head and neck.
Electrocardiogram (ECG)	An ECG records the electrical activity of the heart, and can be used to detect abnormal heart rhythms and is sometimes carried out before operations.
Hospital Episode Statistics (HES)	HES is the national statistical data warehouse for England regarding the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. There are equivalent agencies in Northern Ireland, Scotland and Wales but in this report, the term HES is used generically to describe data that are collected by any of these national agencies.
Inter-quartile range (IQR)	Once the data are arranged in ascending order, this is the central 50% of all values and is otherwise known as the 'middle fifty' or IQR.
Median	The median is the middle value in the data set; 50% of the values are below this point and 50% are above this point.
Myocardial Infarct (MI)	Otherwise known as a Heart Attack, MI involves the interruption of the blood supply to part of the heart muscle.
Occluded artery	An artery that has become blocked and stops blood flow.
Plaque	Scale in an artery made of fat, cholesterol and other substances. This hard material builds up on the artery wall and can cause narrowing or blockage of an artery or a piece may break off causing a blockage in another part of the arterial circulation.
Strategic Health Authority (SHA)	An organisation, accountable to government, that assesses the health needs of local people and ensures that local health services are commissioned and provided to meet those needs.
Stroke	A brain injury caused by a sudden interruption of blood flow with symptoms that last for more than 24 hours.
Symptomatic	A patient showing symptoms is known to be symptomatic.
Transient ischaemic attack (TIA)	A "mini-stroke" where the blood supply to the brain is briefly interrupted and recovers within 24 hours.
Trust or Health Board	A public sector corporation that contains a number of hospitals, clinics and health provisions. For example, there were 4 hospitals in the trust and 3 trusts in the SHA.
Vascular Society of Great Britain and Ireland (VSGBI)	The VSGBI is a registered charity founded to relieve sickness and to preserve, promote and protect the health of the public by advancing excellence and innovation in vascular health, through education, audit and research. The VSGBI represents and provides professional support for over 600 members and focuses on non-cardiac vascular disease.

Appendix 2: Proforma

Phase 1 [Referral to hospital discharge]

Section 1: Demographics

1.1 Date procedure was undertaken: _____ *[DD/MM/YYYY]*
[Date entered should be from 1st Dec 2005 onwards]

1.1a Was this procedure successfully completed? Yes ○ Abandoned ○ *[Tick 1 option only]*
[If Yes, go to 1.2] *[If Abandoned, 1.1b **must be completed**]*
[NB This form still needs to be completed even if the procedure was abandoned]

1.1b If procedure was *Abandoned*, give reason: _____

1.2 RCP surgeon code: *[On the web tool, this field is filled automatically if an individual login was used to access the web tool. If a 'unit admin' login was used, the relevant code must be selected from a drop down menu]* *[3 digits]*

1.2a GMC Number: *[On the web tool, this field is filled automatically once Q1.2 is filled]* *[7 digits]*

1.3 Hospital name: *[On the web tool, this field is filled automatically if the surgeon or radiologists performs carotid procedures at 1 hospital only, otherwise the relevant hospital name must be selected manually from a drop down menu]* *[Describes hospital where the procedure was performed]*

1.4 RCP Hospital code: *[On the web tool, this field is filled automatically] once Q1.3* *[3 digits]*

1.5 Date of birth: _____ *[DD/MM/YYYY]*

1.6a Patient code: *[Describes a random number (up to 3 digits) that you give to the patient for anonymity]*

1.6b Patient hospital number:
[On the web tool, this field is visible to hospital staff only] *[Describes the identifier that is on the patient's local hospital records]*

1.7 Gender: Male ○ Female ○ *[Tick 1 option only]*

1.9 Ethnicity: *[Tick 1 option only]*

White	○	British, Irish, Any other white background
Mixed	○	White and Black Caribbean, White and Black African, White and Asian, Any other Mixed background
Asian or Asian British	○	Indian, Pakistani, Bangladeshi, Any other Asian background
Black or Black British	○	Caribbean, African, Any other Black background
Chinese or other ethnic group	○	Chinese, Any other

1.10 Which of the following procedures was performed? *[Tick 1 option only]*

Surgical carotid endarterectomy ○ Angioplasty/stent ○ Combined CEA and angioplasty/stent ○

[If Surgical carotid endarterectomy is selected, ignore 13.1 to 13.1b and 13.10 to 13.12]
[If Angioplasty/stent is selected, ignore 12.3a and13.4 to 13.9]
[If Combined CEA & angioplasty/stent is selected, ignore 13.1 to 13.2a]

1.11 Date patient was admitted to this Hospital in **this episode** of care: _____
[DD/MM/YYYY] *[Date entered CANNOT be after date of procedure (1.1) but can be EQUAL to date of procedure (1.1)]*

Section 2: Risk Factors

2.1 Diagnosed Diabetic: Yes ○ No ○ *[Tick 1 option only]*

2.2 Any current symptoms of or treatment for ischaemic heart disease or congestive heart failure?

Yes ○ No ○ *[Tick 1 option only]*

2.3 Known peripheral arterial vascular disease (symptoms or previous intervention) Yes ○ No ○

2.4 Pre-operative blood pressure (e.g. taken on day or prior to surgery or in clinic):

Systolic BP (mmHg): [ ] *[Min= 20, Max=350]*
Diastolic BP (mmHg): [ ] *[Min= 20, Max=350]*

Section 3: Referral to surgeons

3.1 Date of referral to team under whose care surgery or angioplasty/stenting was undertaken: _____
[DD/MM/YYYY] [Date entered can be from 1st Dec 2003 onwards but CANNOT be after date of procedure (1.1)]

3.1a Date patient was first seen by team under whose care surgery or angioplasty/stenting was undertaken:
[DD/MM/YYYY] [Date entered can be from 1st Dec 2003 onwards but CANNOT be after date of procedure (1.1)]

3.2 Who referred the patient to the team under whose care surgery or angioplasty/stenting was undertaken?
[Tick 1 option only]

General Practitioner ○ Neurologist ○ Stroke Physician ○ Radiologist ○

Care of the Elderly Consultant ○ Vascular Surgeon ○ Cardiologist/Cardiothoracic surgeon ○

Ophthalmology ○ Self referral ○ Other Surgeon ○ Other ○
*[If NOT Other, go to 3.3] [If Other, 3.2a **must be completed**]*

3.2a If answered *Other* to 3.2, specify:

_____

3.3 Was the patient referred from another Trust? Yes ○ No ○ *[Tick 1 option only]*

Section 4: Indications that triggered referral

4.1 Was the patient symptomatic for carotid disease? Yes ○ No ○ *[Tick 1 option only]*
[If 'No', ignore 4.1a to 4.1d and 7.1.]
[If 'Yes', ignore 4.1e and 4.1a or 4.1b and 4.1c **must be completed**]

4.1a If *'Yes'*, give the **date** the patient experienced the symptom that triggered referral for surgery or angioplasty/stent:

_____ *[DD/MM/YYYY] [If date is given, go to 4.1c]*
[Date entered can be from 1st Dec 2000 onwards but CANNOT be after date of procedure (1.1)]

Date not known ○ *[If this option is selected 4.1b **must be completed**]*

4.1b If *Date Not known*, estimate the time between the date the patient experienced the symptom and the date that the initial referral for surgery or angioplasty/stent was made: *[Tick 1 option only]*

1-2 days ○ 3-7 days ○ 8-14 days ○ 15-21 days ○ 22-28 days ○ >28 days ○

4.1c What was the symptom that triggered referral for surgery or angioplasty/stent? *[Tick 1 option only]*
[NB only the INDEX symptom is required even if the patient had other symptoms]

Amaurosis fugax ○ Transient ischaemic attack ○ Stroke ○
Chronic cerebral hypoperfusion ○ Other ○
*[If Other is selected, 4.1d **must be completed**]*

4.1d If answered *Other* to 4.1c, specify: _____

4.1e If *'No'* to 4.1, is CEA or angioplasty/stent being undertaken prior to major surgery (e.g. CABG) or as part of randomised trial? *[Tick 1 option only]*

Major surgery (e.g. CABG) ○ Randomised trial ○ Neither of these ○

Section 5: DIAGNOSITIC carotid imaging *[i.e. Imaging that identified ICA stenosis requiring treatment]*

5.1 Date of the initial DIAGNOSTIC carotid imaging that identified ICA stenosis requiring treatment: _____ *[DD/MM/YYYY]*
[Date entered can be from 1st Dec 2003 onwards but CANNOT be after date of procedure (1.1)]

5.2 Specify imaging modalities used on date given in 5.1: *[Select at least 1 option]*
Duplex ☐ MR angiogram ☐ Catheter angiogram ☐ CT angiogram ☐ Other or Not documented ☐

5.2a Grade of ipsilateral carotid stenosis (based on **NASCET** criteria): *[Tick 1 option only]*
[Describes measurement used to identify suitability for intervention]

<50% ○ 50%-69% ○ 70%-89% ○ 90%-99% ○ Occluded ○

5.2b Grade of contralateral carotid stenosis (based on **NASCET** criteria): *[Tick 1 option only]*

Not done ○ <50% ○ 50%-69% ○ 70%-89% ○ 90%-99% ○ Occluded ○

5.3 Has the patient had further pre-operative carotid imaging after initial scan, to confirm diagnosis? *[Tick 1 option only]*
Yes ○ No ○ *[If No, go to 6.1]* *[If Yes, 5.3a **must be completed**]*

5.3a Date patient had further pre-operative carotid imaging after initial scan, to confirm diagnosis:
_____*[DD/MM/YYYY]* *[Date entered MUST be BEFORE date of procedure (1.1)]*

5.3b Specify imaging modalities used on date given in 5.3a: *[Select at least 1 option]*

Duplex ☐ MR angiogram ☐ Catheter angiogram ☐ CT angiogram ☐ Other or Not documented ☐

5.3c If answered *Yes* to 5.3, specify grade of ipsilateral carotid stenosis (based on **NASCET** criteria):

<50% ○ 50%-69% ○ 70%-89% ○ 90%-99% ○ Occluded ○

5.3d If answered *Yes* to 5.3, did the patient have a string sign (with a collapsed ICA)? Yes ○ No ○

5.3e If answered *Yes* to 5.3, specify grade of contralateral carotid stenosis (based on **NASCET** criteria):
[Tick 1 option only]
Not done ○ <50% ○ 50%-69% ○ 70%-89% ○ 90%-99% ○ Occluded ○

Section 6: Most recent carotid imaging prior to undergoing this surgery or angioplasty/stent

6.1 Has the patient had further pre-operative carotid imaging to confirm patency immediately prior to surgery or angioplasty/stent?
Yes ○ No ○ *[If No, go to 7.1]* *[If Yes, 6.1a **must be completed**]*

6.1a If answered *Yes* to 6.1, give date of pre-operative imaging to confirm patency prior to surgery or angioplasty/stent:
_____*[DD/MM/YYYY]* *[Date entered MUST be ON or BEFORE date of procedure (1.1)]*

Section 7: Function prior to undergoing this surgery or angioplasty/stent

7.1 Give date of the most recent ISCHAEMIC event prior to surgery or angioplasty/stent: _____
[DD/MM/YYYY]
[Date entered can be from 1st Dec 2003]

7.2 Rankin score immediately pre-operatively or prior to angioplasty/stent: *[Tick 1 option only]*

0 ○ Asymptomatic
1 ○ Non-disabling symptoms no interference with lifestyle
2 ○ Minor disability some restriction in lifestyle but does not interfere with patient's capacity to look after self
3 ○ Moderate disability symptoms significantly interfere with lifestyle or prevent totally independent existence
4 ○ Moderately severe symptoms prevent independent existence but patient does not need attention 24hrs
5 ○ Severely disabled totally dependent day and night

Section 8: Previous carotid interventional procedures

8.1 Previous ipsilateral carotid surgery: Yes ○ No ○ *[Tick 1 option only]*

8.2 Previous ipsilateral carotid angioplasty or stent: Yes ○ No ○ *[Tick 1 option only]*

Section 9: Tests prior to undergoing this surgery or angioplasty/stent

9.1 Creatinine: [ ] *(mmol/L)* *[Min=5 Max=1000]*

Section 10:Drug therapy prior to undergoing this surgery or angioplasty/stent

10.1 Was the patient on anti-platelet/thrombotic treatment prior to surgery or angioplasty/stent? Yes ○ No ○

[If No, go to 10.3] *[If Yes, 10.2 **must be completed**]*

10.2 Which of the following drugs was the patient taking prior to surgery or angioplasty/stent: *[Select at least 1 option]*

Aspirin ☐ Clopidogrel ☐ Dipyridamole ☐ Warfarin ☐ Other ☐

[If Aspirin is NOT selected, ignore 10.2a & 10.2b] *[If Clopidogrel is NOT selected, ignore 10.2c & 10.2d]*
[If Dipyridamole is NOT selected, ignore 10.2e & 10.2f] *[If Warfarin is NOT selected, ignore 10.2g & 10.2h]*

10.2a Was ASPIRIN stopped prior to surgery or angioplasty/stent? Yes ○ No ○ *[If No, ignore10.2b]*

10.2b If ASPIRIN was stopped, specify the number of days it was stopped prior to surgery or angioplasty/stent:
[ ] *[Days]*

10.2c Was CLOPIDOGREL stopped prior to surgery or angioplasty/stent? Yes ○ No ○ *[If No, ignore 10.2d]*

10.2d If CLOPIDOGREL was stopped, specify the number of days it was stopped prior to surgery or angioplasty/stent:
[ ] *[Days]*

10.2e Was DIPYRIDAMOLE stopped prior to surgery or angioplasty/stent? Yes ○ No ○ *[If No, ignore 10.2f]*

10.2f If DIPYRIDAMOLE was stopped, specify the number of days it was stopped prior to surgery or angioplasty/stent: [ ] *[Days]*

10.2g Was WARFARIN stopped prior to s surgery/angioplasty/stent? Yes ○ No ○ *[If No, ignore10.2h]*

10.2h If WARFARIN was stopped, specify the number of days it was stopped prior to surgery or angioplasty/stent:
[ ] *[Days]*

10.3 Was the patient on statin therapy prior to surgery or angioplasty/stent? Yes ○ No ○ *[Tick 1 option only]*

10.4 Was the patient on beta-blockers therapy prior to surgery or angioplasty/stent? Yes ○ No ○
[Tick 1 option only]

Section 11: Delay to surgery or angioplasty/stent

11.1 If elapsed time between the symptom that triggered referral and surgery or angioplasty/stent is **greater than 2 weeks**, specify reason(s):

[Select at least 1 option] *[If Other is NOT selected, ignore 11.1a]*

Delay in presentation	☐	Limited availability of surgeon	☐	Other	☐
Delay in referral	☐	Limited availability of anaesthetist	☐		
Delay in carotid imaging	☐	Limited availability of radiologist	☐		
Patient cancellation/delay - unfit	☐	Lack of operating time	☐		
Patient cancellation/delay – patient choice	☐	Other case took priority	☐		

11.1a If answered *Other* in 11.1, specify:

_____

_____

Section 12: Procedure details

12.1 Which carotid artery was treated? Left ○ Right ○ *[Tick 1 option only]*

12.2 Start time: [:] *[Hours:Minutes]*

12.3 Finish time: [:] *[Hours:Minutes]*

12.3a If length of procedure is <1hour or >3hours, give reason: _____

12.4 Grade of most senior surgeon in theatre: *[Tick 1 option only]* *[If NOT Specialist registrar, go to 12.5]*

Consultant ○ Non consultant career grade ○ Specialist registrar ○

12.4a If most senior surgeon in theatre was *Specialist registrar*, specify year of training: *[Tick 1 option only]*

Year 1 ○ Year 2 ○ Year 3 ○ Year 4 ○ Year 5 ○

12.5 Was this a joint consultant operation with two consultant surgeons operating together? Yes ○ No ○

12.6 Type of surgery: Elective ○ Unplanned/Emergency ○ *[Tick 1 option only]*

12.7 Type of anaesthetic used during surgery? General ○ Local/Blocks ○
Started with LA, switched to GA ○

12.8 Grade of most senior anaesthetist in theatre: *[Tick 1 option only]* *[If NOT Specialist registrar, go to 13.1]*

Consultant ○ Non consultant career grade ○ Specialist registrar ○

12.8a If most senior anaesthetist in theatre was *Specialist registrar*, specify year of training: *[Tick 1 option only]*

Year 1 ○ Year 2 ○ Year 3 ○ Year 4 ○ Year 5 ○

Section 13: Specific procedure data **[Complete Q13.1 to Q13.1b and 13.10 to 13.12 ONLY if the patient had angioplasty/stent]**

13.1 If angioplasty/stent only performed was conventional was surgery an option? Yes ○ No ○
[Tick 1 option only]

13.1a Whose care was the patient under when they underwent angioplasty/stent? *[If NOT Other, go to 13.2]*

Vascular surgeon ○ Neurosurgeon ○ Radiologist ○ Stroke Physician ○ Other ○

13.1b If answered *Other* to 13.1a, specify:

_____

13.2 Was this patient in a stenting versus surgery clinical trial? Yes ○ No ○

13.2 If the patient was in a stenting versus surgery trial were they in ICSS or ACST-2? ICSS ○ ACST-2 ○

13.3 Pathology: *[Select at least 1 option]* *[If NOT Other, ignore 13.3a]*

Atherosclerosis ☐ Post endarterectomy restenosis ☐ Post radiotherapy ☐ Other ☐

13.3a If answered *Other* to 13.3, specify: _____

13.4 Was a carotid shunt used? Yes ○ No ○ Attempted and abandoned ○ *[Tick 1 option only]*

13.5 Type of endarterectomy: Standard ○ Eversion ○ *[Tick 1 option only]*

13.6 Was a carotid patch used? Yes ○ No ○ *[Tick 1 option only]*

13.7 Were distal tacking sutures used? Yes ○ No ○ *[Tick 1 option only]*

13.8 Was heart surgery undertaken synchronously? Yes ○ No ○ *[Tick 1 option only]*

13.9 Which of the following completion assessment techniques were used? *[Select at least 1 option]*
[If 'None', go to 14.1] *[If NOT 'None', select at least 1 option]*

None ○ Angiography ☐ Duplex scan ☐ Angioscopy ☐ Hand-held Doppler ☐

13.10 Site of angioplasty/stenting: *[Select at least 1 option]*

Carotid bifurcation (including proximal ICA) ☐ Distal ICA (below base of skull) ☐

Common Carotid artery ☐ External Carotid artery ☐

13.11 Procedure details: Angioplasty alone ☐ Stent ☐ Cerebral protection device ☐
[Select at least 1 option] *[If Stent is NOT selected, ignore 13.11a & 13.11b]*
[If Cerebral protection device is NOT selected, ignore13.11c & 13.11d]

13.11a If answered *Stent* to 13.11, specify type: *[Select at least 1 option]* *[If NOT Other, ignore 13.11b]*

Abbott XAct ○ Abbott Acculink ○ Bard Vivax ○ Boston Scientific Wallstent ○

Boston Scientific NEX stent ○ Cordis Precise ○ Invatec Cristallo ○ Medtronic Exponent ○
Other ○

13.11b If answered *Other* to 13.11a, specify:

_____

13.11c If answered *Cerebral protection device* to 13.11, specify type: [Tick 1 option only] [If NO *Other*, ignore 13.11d]

Filter ○ Flow reversal ○ Proximal occlusion (MoMa) ○ Distal occlusion (PercuSurge) ○ Other ○

13.11d If answered *Other* to 13.11c, specify:

_____

13.12 Grade of most senior radiologist performing intervention: *[Tick 1 option only]*

Consultant ○ Non consultant career grade ○ Specialist registrar ○

Section 14: Destination post-operatively or post angioplasty/stent

14.1 Time spent in recovery area: *[Tick 1 option only]*

None ○ <4 hours ○ >4 ≤ 12 hours ○ >12 hours ○

14.2 Where was the patient admitted post-operatively or post angioplasty/stent (after any period in recovery)?

Intensive care unit ○ High dependency unit ○ Ward ○ PACU ○
[Tick 1 option only]

Section 15: Complications during inpatient stay

15.1 Did the patient suffer any complications during inpatient stay? Yes ○ No ○ *[If No, go to 15.6]*

15.1a If answered *'Yes* to 15.1', which of the following complications did the patient experience?
[Select at least 1 option]

Myocardial Infarct	☐	Cranial nerve injury (includes neuropraxia)	☐	Occlusion of treated carotid artery	☐
Stroke	☐	Heart Failure (includes cardiac arrhythmia)	☐	Respiratory	☐
TIA	☐	Urinary	☐	Thromboembolism related to the treated carotid artery	☐
Amaurosis fugax	☐	Cardiac arrest	☐	Post-intervention hypertension	☐
Bleeding	☐	Fit	☐	Other	☐

[If Myocardial infarct is NOT selected, ignore 15.2] *[If Stroke is NOT selected, ignore 15.3, 15.3a, 15.3b, 15.3c & 15.3d]*
[If TIA is NOT selected, ignore 15.4] *[If Cranial nerve injury is NOT selected, ignore 15.5 & 15.5a]*
[If Other is NOT selected, ignore 15.1b]

15.1b If answered *'Other'* to 15.1a, specify:

_____

15.2 If the patient experienced a *myocardial infarct*, specify timing: *[Tick 1 option only]*

≤24hrs of undergoing procedure ○
>24hrs after undergoing procedure and prior to discharge ○

15.3 If the patient experienced a *stroke*, specify timing: *[Tick 1 option only]*

During procedure (woke up with a stroke) ○
≤24hrs of undergoing procedure ○
>24hrs after undergoing procedure and prior to discharge ○

[If During procedure (woke up with stroke) OR ≤24hrs of undergoing procedure ignore 15.3a]
*[If >24hrs of undergoing procedure and prior to discharge15.3a **must be completed**]*

15.3a If patient experienced a stroke *>24hrs after undergoing procedure and prior to discharge*, give date patient of stroke: _____ *[DD/MM/YYYY]* *[Date entered MUST be AFTER date of procedure (1.1)]*

15.3b Side of stroke: Side on which this procedure was done ○ Contralateral side ○ *[Tick 1 option only]*

15.3c Severity of stroke: *[Tick 1 option only]*

0 ○ Asymptomatic
1 ○ Non-disabling symptoms no interference with lifestyle
2 ○ Minor disability some restriction in lifestyle but does not interfere with patient's capacity to look after self
3 ○ Moderate disability symptoms significantly interfere with lifestyle or prevent totally independent existence
4 ○ Moderately severe symptoms prevent independent existence but patient does not need attention 24hrs
5 ○ Severely disabled totally dependent day and night

15.3d Give date the assessment in 15.3c was made: _____
[DD/MM/YYYY] *[Date entered must be on or after date procedure was undertaken (1.1)]*

15.4 If patient experienced *TIA*, specify timing:
≤24hrs of undergoing procedure ○ >24hrs after undergoing procedure and prior to discharge ○

15.5 If patient experienced *cranial nerve injury,* specify date injury was found: _____ *[DD/MM/YYYY]*
[Date entered must be on or after date procedure was undertaken (1.1)]

15.5a Affected cranial nerve (or branch): *[Select at least 1 option]*

Hypoglossal ☐ Facial ☐ Glossopharyngeal ☐ Vagus ☐ Recurrent laryngeal ☐

15.6 Did the patient return to theatre for ANY reason during hospital stay? Yes ○ No ○ *[If 'No', go to15.7]*

15.6a If answered *Yes* to 15.6, specify reason patient returned to theatre: *[Select at least 1 option] [If NOT Other, go to 15.7]*
Bleeding ☐ Stroke ☐ Thromboembolism related to the treated carotid artery ☐ Other ☐

15.6b If answered *Other* to 15.6a, specify:

_____

15.7 Did the patient die during inpatient stay? Yes ○ No ○ *[Tick 1 option only] [If No, go to 16.1]*

15.7a If answered *Yes* to 15.7, give the date that the patient died: _____ *[DD/MM/YYYY]*
[Date entered must be equal to or greater than 1.1(date of procedure)]

15.7b Specify PRIMARY cause of death: Myocardial Infarct ○ Bleeding ○ Stroke ○ Other ○

[If NOT Other, complete 17.1. Then 18.1 to 21.1a DO NOT need to be completed]
*[If Other, 15.7c **must be completed**]*

15.7c If answered *Other* to 15.7b, specify: _____

Section 16: Discharge data

16.1 Date patient was discharged by team under whose care surgery or angioplasty/stent was performed:
_____ *[DD/MM/YYYY] [MUST be on or after date of procedure (1.1)]*

16.2 Date patient was discharged from hospital: _____*[DD/MM/YYYY]*
[MUST be on or after date of procedure (1.1)]

16.3 Discharge Destination: Home ○ Care Home ○ Other Hospital ○ Other ○
[If NOT 'Other' go to 16.4]

16.3a If answered *Other* to 16.3, specify: _____

16.4 What was the Rankin score at hospital discharge? *[Tick 1 option only]*

0 ○ Asymptomatic
1 ○ Non-disabling symptoms no interference with lifestyle
2 ○ Minor disability some restriction in lifestyle but does not interfere with patient's capacity to look after self
3 ○ Moderate disability symptoms significantly interfere with lifestyle or prevent totally independent existence
4 ○ Moderately severe symptoms prevent independent existence but patient does not need attention 24hrs
5 ○ Severely disabled totally dependent day and night

Section 17: Phase 1 Data entry

17.1 Who completed Phase 1? *[Tick 1 option only]*

Surgeon ○ Specialist Registrar (Surgical) ○ Basic surgical trainee ○ Nurse ○

Audit personnel ○ Radiologist ○ Specialist Registrar (Radiological) ○ Other ○

*[If Other, 17.1a **must be completed**]*
[If NOT Other, go to 18.1]

17.1a If answered *Other* to 17.1, specify: _____

Phase 2 [30-day survival/Follow-up assessment]

Section 18: Patient status at 30days after undergoing procedure

18.1 Did the patient die following discharge (up to 30 days after undergoing this procedure)? Yes ○ No ○
[If No, go to 19.1]

18.1a If answered *Yes* to 18.1, give date patient died: _____ *[DD/MM/YYYY]*
[Date entered must be equal to or greater than 16.2 (date patient was discharged from hospital)]

18.1b Cause of death: Myocardial infarct ○ Bleeding ○ Stroke ○ Other ○ Unknown ○
[Tick 1 option only] *[If NOT Other, go to 21.1]*

18.1c If answered *Other* to 18.1b, specify: _____ *[Go to 21.1]*

Section 19:Follow-up attendance

19.1 Was the patient offered a post-discharge follow-up appointment? Yes ○ No ○ *[If No, go to 21.1]*

19.2 If answered *Yes* to 19.1, did the patient attend post-operative follow-up appointment?
Yes ○ No ○ *[Tick 1 option only]* *[If No, go to 21.1]*

19.2a If answered *Yes* to 19.2, give date of post-discharge follow-up assessment: _____
[DD/MM/YYYY]
[Date entered must be ON or AFTER date of procedure (1.1)]

19.2b Form of follow-up: *[Tick 1 option only]*

Patient seen in OPD (own Trust) ○ Patient seen in OPD (other Trust) ○ Telephone follow-up ○
Postal follow-up ○

19.3 Specify specialty of professional that assessed the patient: *[Select at least 1 option]*

Surgeon ☐ Neurologist ☐ Stroke Physician ☐ Care of the Elderly Consultant ☐

Cardiologist/Cardiothoracic surgeon ☐ Other ☐ *[If NOT Other, go to 20.1]*

19.3a If answered *Other* to 19.3, specify specialty: *[e.g. Vascular SpR]*

_____

Section 20: Post-operative follow-up data

20.1 Was the patient re-admitted for a complication <30days after operation and after hospital discharge?

Yes ○ No ○ *[If No, go to 20.2]*

20.1a If answered *Yes* to 20.1, give date patient was re-admitted: _____ *[DD/MM/YYYY]*
[Date entered must be equal to or greater than 16.2 (date patient was discharged from hospital)]

20.1b *Specify reason for re-admission:* *Stroke* ☐ *Cardiac* ☐ *Respiratory* ☐ *Other* ☐ *[Select at least 1 option]* *[If 'No', go to 20.2]*

20.1 c If answered *Other* to 20.1b, specify: _____

20.2 Was evidence of cranial nerve injury found at follow-up (that was NOT identified prior to discharge)? Yes ○ No ○
[If 'No', go to 20.3]

20.2a If answered *Yes* to 20.2, which nerve (or branch) was affected? *[Select at least 1 option]*

Hypoglossal ☐ Facial ☐ Glossal pharyngeal ☐ Vagus ☐ Recurrent laryngeal ☐

20.3 Has the patient had a stroke **since discharge**? Yes ○ No ○ *[If No, go to 20.4]*

20.3a If answered *Yes* to 20.3 give date patient experienced stroke (if exact date is not known, give best estimate):
[Date entered must be EQUAL to or GREATER than 16.2 (date patient was discharged from hospital)]

20.4 Rankin score at this visit (follow-up): *[Tick 1 option only]*

0 ○ Asymptomatic
1 ○ Non-disabling symptoms no interference with lifestyle
2 ○ Minor disability some restriction in lifestyle but does not interfere with patient's capacity to look after self
3 ○ Moderate disability symptoms significantly interfere with lifestyle or prevent totally independent existence
4 ○ Moderately severe symptoms prevent independent existence but patient does not need attention 24hrs
5 ○ Severely disabled totally dependent day and night

20.5 What drug therapy is the patient on post-operatively? *[Select at least 1 option]*

Anti-platelet/thrombotic ☐ Statin ☐ Beta-blockers ☐ *[If NOT Anti-platelet/thrombotic, go to 21.1]*

20.5a If answered *Anti-platelet/thrombotic* to 20.5, specify drug(s): *[Select at least 1 option]* *[If NOT Other, go to 21.1]*

Aspirin ☐ Clopidogrel ☐ Dipyridamole ☐ Warfarin ☐ Other ☐

20.5b If answered *Other* to 20.5a, specify: _____

Section 21: Phase 2 Data entry

21.1 Who completed Phase 2? *[Tick 1 option only]*

Surgeon ○ Specialist Registrar (surgical) ○ Basic surgical trainee ○ Nurse ○

Audit personnel ○ Radiologist ○ Specialist Registrar (radiological) ○ Other ○
[If NOT Other, ignore 21.1a]

21.1a If answered *Other* to 21.1, please specify: _____

Appendix 3: CIA steering group

Mrs Sara Baker, Vascular Society Research Associate, Royal Bournemouth Hospital

Dr Geoffrey Cloud, Stroke Programme Associate Clinical Director, Royal College of Physicians of London

Dr Trevor Cleveland, Consultant Vascular Radiologist, Northern General Hospital

Professor Alison Halliday, Professor of Vascular Surgery, Oxford Radcliffe Hospital

Mr Tim Hartshorne, Chief Vascular Technician, Leicester Royal Infirmary

Professor Mike Horrocks, Professor of Vascular Surgery, Royal United Hospital

Ms Helen Laing, Healthcare Contracts and Commissioning Manager, Healthcare Quality Improvement Partnership (HQIP)

Mr David Mitchell, Chair of the Vascular Society of Great Britain and Ireland Audit and Quality Improvement Committee

Professor Ross Naylor, Professor of Vascular Surgery, Leicester Royal Infirmary

Mr William Nicklin, Patient Representative, Nuneaton

Professor John Potter, Professor of Ageing & Stroke Medicine, University of East Anglia

Professor Peter Rothwell, Professor of Neurology, Radcliffe Infirmary

Professor Anthony Rudd, Stroke Programme Clinical Director, Royal College of Physicians of London