



**Royal College  
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# **The National Sentinel Audit of Stroke 2006**

**National and Local Results for the Process of  
Stroke Care Audit 2006**

**Generic hospital report**

**Prepared on behalf of  
The Intercollegiate Stroke Working Party  
by**

**CLINICAL  
EFFECTIVENESS &  
EVALUATION UNIT**

**Clinical Standards Unit**

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## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### REPORT PREPARED BY

**Mrs Alex Hoffman (LCST MSc)**

National Stroke Audit Manager, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians

**Mr Robert Grant BSc DipStat, GradStat**

Medical Statistician, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians

**Miss Fatima Wurie BSc (Hons)**

Stroke Programme Coordinator, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians

**Mr Derek Lowe MSc/C.Stat**

Medical Statistician, Clinical Effectiveness and Evaluation Unit, Royal College of Physicians

**Dr Anthony Rudd FRCP**

Chair of the Intercollegiate Stroke Working Party, Programme Director for Stroke (CEEu), Consultant Stroke Physician, Guy's and St Thomas' Hospital, London

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The web based data collection tool was developed by Modevo Ltd and subsequently updated by Netsolving.

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- The Health Care Commission (and their predecessor organisation the Commission for Health Improvement) who funded the fifth round of the National Sentinel Stroke Audit.
- Many team members who contributed to organising the collection and retrieval of data including audit staff, IT and coding staff in addition to members of the clinical teams.

This report is divided into sections for downloading from the web. They are contained within four pdf files. Three pdf files cover firstly the introduction, executive summary and Sections 1 and 2, secondly Section 7 key indicator results and finally the Appendices. These sections are common for all hospitals. Sections 3-6 (individual hospital results in full) are only available to the hospital concerned.

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## EXECUTIVE SUMMARY

This audit will inform stroke clinicians and those involved in organising care about their performance against predetermined standards (National Clinical Guidelines for Stroke Second Edition 2002 – subsequently referred to as the National Clinical Guidelines - and the National Service Framework for Older People Chapter 5). Individual site results are benchmarked against the other participants in the audit. The first four cycles of the audit in 1998, 1999, 2001 and 2004 showed there were significant areas of stroke care that needed improvement, with considerable variations in the standards of care between Trusts.

### Methods

#### Selection criteria for the cohort

Patients who were admitted between 1 April 2006 and 30 June 2006 were included. Sites were instructed to obtain the case records of a minimum of 20 and a maximum of 80 consecutive admissions with a primary diagnosis of stroke (ICD10 codes I61, I63 or I64). To ensure that the indicators were based on a sufficiently large number of applicable patients hospitals were asked to obtain data on all admissions within the time period or 80 if they had admitted more than 80.

#### Data collection tool

A web-based tool was used to collect data extracted from the clinical notes from each site. This web tool included context specific online help including definitions and clarifications. Security and confidentiality was maintained by the use of site codes. Sites accessed the proforma using unique identifiers and passwords and data could be saved during as well as at the end of an input session.

Formal data collection began on 2 October 2006 for cases admitted from 1 April 2006 and each participating Trust was provided with an appropriate login and password and help booklets. However the web tool went live on August 1<sup>st</sup> 2006 to accommodate the increased sample size. A telephone and email helpdesk was provided by the CEEu to answer any individual queries. The final record was submitted on 6<sup>th</sup> December 2006.

This 2006 audit relates to patients admitted from 1 April 2006 to 30 June 2006 and takes place exactly two years since the last audit of patients admitted 1 April 2004 to 30 June 2004. It follows on as Phase II directly from the audit of stroke organisation at 1 April 2006 conducted in the summer of 2006 (Phase I).

A total of 224 sites from 203 Trusts submitted data on a total of 13,625 patients. This represents 100% of acute trusts admitting Stroke patients in England, Wales, Northern Ireland and the Islands.

### Summary of Results

#### Case Mix

- The case mix of patients included in the 2006 audit was very similar to previous years
- Mortality rates have fallen slightly since 2004

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### Use of Hospital Beds and Institutionalisation Rates

- Mean length of stay has fallen considerably over the last two cycles of audit from 34 days in 2001, to 25.4 days in 2006. Similar reductions in length of stay are shown for patients dying in hospital, falling from 21.1 days in 2001 to 18.6 days in 2006 and for those discharged alive from 39.5 days to 27.7 days. For an estimated 120,000 stroke patients in the UK annually this would translate into a reduction of about 2800 beds for their care.
- The shorter lengths of stay observed this time are not being achieved at the expense of earlier inappropriate discharge into care homes with no change in the percentage of patients (only 13%) being newly institutionalised after their stroke.
- The proportion of patients with mild stroke (Barthel 15-19) has fallen from 29% in the 2004 audit. This suggests that patients are being discharged earlier with residual impairments while in the past they would have remained in hospital to complete their rehabilitation. Given that the organisational audit in 2006 did not show a significant increase in the availability of specialist community rehabilitation teams this is concerning and highlights the need for audit data looking at the longer term outcomes of stroke patients.

### Stroke Unit Provision

- 62% of the sample was admitted to a stroke unit at some point during their stay and 54% spent more than 50% of their stay in a stroke unit. This is a significant and welcome improvement over the last two years from 46% and 40% respectively. It reflects the fact that 95% of hospitals now have a stroke unit. There is still however clearly a lack of capacity within these units to manage all appropriate stroke patients.
- 76% of patients with minor stroke, staying in hospital less than 2 days, are not being managed on specialist units. These are often patients at very high risk of stroke recurrence and it is particularly important that they receive expert care and investigation. This is more likely to occur on a stroke unit and improvement of services for these patients should become a priority in the development of stroke services in the UK.
- 78% of patients staying in hospital more than 28 days spend some of their admission on a stroke unit. The objective should be to increase this figure to nearly 100%
- Of the 341,343 bed-days captured in this audit, 195,629 (57%) were spent in a stroke unit.
- Speed of access to stroke unit care is better than in 2004 but needs to be further improved. Only 15% of patients are admitted to a stroke unit on the same day as their stroke and only 12% of patients are being admitted directly to a stroke unit (within 4 hours of arrival in hospital) The opportunities to optimise acute care at the time when ischaemic brain remains potentially salvageable is not being maximised. Direct admission to an acute stroke unit should be the standard that the NHS should be setting.
- For many patients the delay in admission to a stroke unit is totally unacceptable, stretching to days and weeks.
- 54% of the patients spent more than half of their stay on a stroke unit, 33% on a general ward.

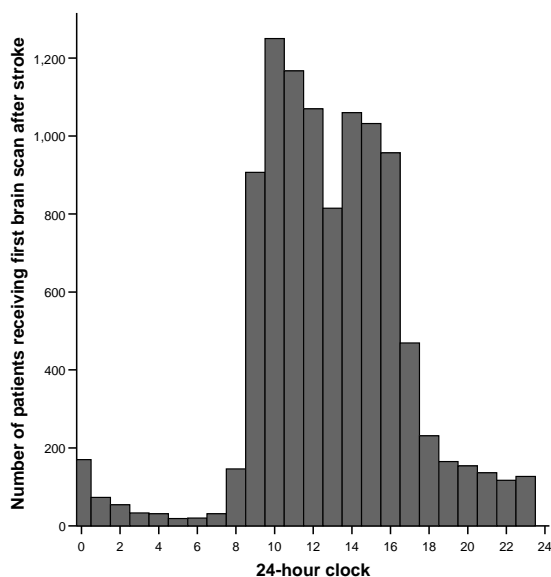
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- There are a large number of patients whose admission to hospital is delayed. It is likely that this adversely affects outcome and it highlights the need for a public and professional awareness campaign that stroke is a medical emergency and that immediate admission to hospital should be arranged for all cases.
- Of the 7502 patients where time of stroke and time of scan are recorded only about 39% are admitted within 2 hours of stroke. These are the patients who might be appropriate for thrombolysis given that they will need to be assessed clinically and scanned before the 3 hour time window. To increase this percentage professionals and public need to recognise symptoms of stroke, know how to respond and be provided with the facilities for rapid transfer to a stroke thrombolysis centre. The majority of patients with stroke are admitted between 8am and midnight. Provision of a thrombolysis service between these hours will cover 6 out of seven patients
- Patients managed on a stroke unit had considerably better results for the key indicators than patients looked after in other settings. (see section 3.11 for details) They were much more likely to have a swallow screen, to have started aspirin within 48 hours, been assessed by therapists within recommended time frames and had rehabilitation goals documented and have a home visit performed before discharge.

### Brain Imaging

- Only 42% of patients had brain imaging to confirm their diagnosis within 24 hours of the onset of symptoms. This is unacceptably low. Speed of access to imaging needs to be radically improved.
- Of the patients scanned (6559 with times of stroke and scan known) only 9% were scanned within 3 hours of stroke
- The delay from stroke to brain scan data suggests that those patients not scanned during daytime hours on the day of admission have to wait until the next working day before the scan is performed
- The National Clinical Guidelines for Stroke (2004) recommend scanning within 24 hours of stroke. Only 42% of patients achieved this standard which is worse than the 59% achieved in the 2004 audit
- The histogram below showing the times of day scans are performed suggests that the reason for delays in scanning are not likely to be due to a lack of scanners.

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- It is clear that the scanning machines are scarcely used outside normal working hours and there is also spare capacity during the lunch hour. Improving the standards for scanning needs the issues of radiographer and radiologist staffing to be solved, not the provision of more machines

### Comparison between England, Wales and Northern Ireland

- Stroke services in Wales need urgent attention. The very low rate of stroke unit admission is unacceptable. Patients in Wales will be dying or surviving with higher levels of disability than is necessary.

### Promotion of continence

- Overall 29% of patients were catheterised following their stroke. Of these 35% (or about 10% of all stroke admissions) were catheterised because of urinary incontinence. While it is clearly appropriate to catheterise patients in urinary retention, where the patient has been admitted with a catheter in situ or where there is a need for accurate fluid balance monitoring, urinary incontinence per se is not usually an acceptable indication. Catheterisation increases the risk of infection; it is an unpleasant experience for patients and prevents any attempt being made to regain continence. The 10% catheterised overall represents a small reduction in catheterisation for incontinence from 12% in 2004, but the figure remains unacceptably high.
- Effective management of urinary incontinence is extremely important for the patients for whom it is a distressing and disabling complication of stroke. That only just over half of patients with incontinence had any evidence of a written plan to promote continence is appalling. This aspect of stroke care should be given the highest priority for service development over the next year.

### Documentation of Pathology and Impairments

- Overall there have been improvements in the standards of care for screening of impairments however these are happening at a painfully slow rate. It is disgraceful that only 66% of patients are screened to see if they can swallow safely and that 26% of patients have no record in their notes about whether their visual fields have been affected by the stroke



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### Multi-disciplinary Assessment

- Nearly all trusts reported in the 2006 Organisational Audit that they conduct regular multidisciplinary meetings. And yet a quarter of patients with physical impairments have no rehabilitation goals documented in their notes. What purpose do the multidisciplinary meetings have for these patients?

### Management/Care Planning

- Problems remain with stroke patients getting timely access to therapists and social workers. The standards set for the audit should not be too challenging to meet. Yet a third of patients with swallowing disorders have not been assessed by a Speech and Language Therapist within 72 hours of admission or 7 days for those with communication deficits. 29% of patients with motor problems have not seen a physiotherapist within 72 hours and access to occupational therapy and social work is even worse. Not only is this likely to lead to worse patient outcomes but it will almost certainly increase the time that patients spend in hospital. Part of the problem is the persistence of policies within the NHS that attempt to provide all 'routine' care between 9 and 5 Mondays to Fridays. The service needs to acknowledge that illness does not recognise days of the week or times of day.
- There have been slow improvements in some of these standards but again the targets set should not be challenging and it is disappointing that so many patients are still not being offered adequate screening and functional assessment. Assessment of nutritional status, mood and cognition should be performed in nearly all patients
- For the first time a question has been asked about whether and how patients are nourished in the acute phase of stroke. A high percentage – 93% were receiving some form of nutrition by 72 hours.
- The number of home visits prior to discharge home is falling with each cycle of audit. This represents a 6% decrease for patients in whom such a visit was considered to be applicable in 2004

### Communication with Patients and Carers

- Assessment of carer needs is one of the areas of practice that has improved most since the last audit from 43% compliance to 68%. Smaller improvements were seen in the teaching of skills to carers to manage stroke patients at home.
- There has been a small deterioration in the standards assessing discussion with the patient about diagnosis and prognosis. A third of patients had nothing recorded in their notes to indicate that these issues had been raised with them

### Primary and Secondary Prevention

- Only 9% of admitted patients were recorded as being current smokers. The majority of whom did have evidence of being advised to stop.
- Exercise after stroke is a valuable as a way of improving physical fitness and losing weight. Less than half of people who had regained the ability to walk (as judged by a mobility score on the Barthel Index of 3) were recorded as having been given advice about exercise
- Nearly all stroke patients should receive dietary advice, particularly about salt intake, cholesterol and calories. However again only 42% had any documentation to show that this has been provided

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- 72% of patients were on an antihypertensive, an antithrombotic, an antiplatelet or a lipid lowering drug before admission.
- The fact that so many patients are on anti-platelet agents and antihypertensive drugs prior to admission highlights the urgent need for research to ascertain whether these drugs should be stopped, continued or changed following an acute stroke

### Antihypertensive Medication

- 57% of patients were admitted already taking at least one antihypertensive drug. 82% of people with known hypertension were taking antihypertensive drugs.
- 17% of discharged patients had treatment with blood pressure lowering drugs initiated during their admission to hospital, and on discharge 70% of patients were on treatment. Clinical guidelines recommend not starting treatment until two weeks after acute ischaemic stroke so it is likely that the total percentage of stroke patients ending up on antihypertensive treatment will be even higher

### Antithrombotic Treatment

- Of patients with a pre-stroke co-morbidity of atrial fibrillation, 25% were on warfarin before admission. Given the clear evidence that anticoagulation of patients in atrial fibrillation is the most effective way of preventing stroke in these patients, this is a much lower figure than one would have hoped
- Only 79% of the patients with a previous history of ischaemic heart disease were admitted on any form of antithrombotic medication. This is an unacceptably large failure in the provision of the most basic form of secondary prevention. Correcting this would probably reduce the stroke rate considerably, saving lives and reducing long term disability.
- Only 23% of patients were discharged on the combination of aspirin and dipyridamole MR. Since the collection of this data the ESPRIT trial has been published confirming the previous ESPS 2 study that the combination of aspirin and dipyridamole is superior to aspirin alone at preventing recurrent stroke. The expectation is that the use of the combination will increase between now and the next round of audit
- The combined use of aspirin and clopidogrel has reduced since the last audit from 4% to 2% in line with the evidence that the combination is inappropriate for stroke prevention.
- 34% of patients with atrial fibrillation were discharged on an anticoagulant. While not all patients in atrial fibrillation will be appropriate for anticoagulation (because of severe stroke, risk of falling and other contraindications) this figure is lower than one would predict for ideal stroke management. Use of anticoagulation has risen since 2001 but is still an underused treatment.
- A key audit standard is commencement of aspirin by 48 hours after stroke. This is based upon two large randomised trials, IST and CAST which showed modest, but definite benefit for early use of aspirin after ischaemic stroke. It is of grave concern that only 71% of patients achieved this standard

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### Management of Lipids

- The increased use of statins in primary care is confirmed in the audit. In 2004 22% of patients were admitted on a lipid lowering drug and this has now increased to 33%
- One third of patients are admitted already taking a statin and 78 % are taking one by discharge. This is a dramatic increase in the use of statins over the last 5 years
- Surprisingly large numbers of patients with a history of diabetes or ischaemic heart disease were not taking a statin on admission (44% and 47% respectively)

### Research

- Only 3% of stroke patients were entered into a research trial. If care for stroke patients is to improve more patients should be entered into research studies. The Stroke Research Network has been set up to address this issue and the evidence from this audit suggests that there is enormous capacity to increase participation in research

### Conclusions

Stroke clinicians, managers and politicians can feel proud of the advances that have been made over the last ten years - there are few other conditions that have progressed as rapidly. However there are still many areas of care that need to be improved and some hospitals that have failed to recognise that their stroke patients need 21<sup>st</sup> century management.

### The Top Ten Recommendations

1. The Welsh Assembly Government, Commissioners, Managers and Clinicians should urgently address the growing divide in quality of stroke care between Wales and rest of the United Kingdom. The highest priority should be given to the development of specialist stroke services, both in hospital with full provision of stroke units and the community.
2. Stroke should be treated as a medical emergency. This means raising the profile of stroke amongst the general public and health professionals and the rapid transfer of stroke patients to hospitals able to provide the best quality of specialist acute care including thrombolysis and diagnostics.
3. Virtually all stroke patients should be admitted directly to a stroke unit and remain there for the duration of their hospital stay. The only exceptions are those that require intensive care with respiratory support and a few who may be more appropriately managed in palliative care units.
4. All stroke patients should have brain scanning. Where thrombolysis is a possibility or there are specific urgent indications this should be done immediately upon arrival at hospital. Otherwise the absolute maximum delay should not be more than 48 hours.
5. All patients should have a full clinical examination including assessment of motor, sensory, swallowing, communication and higher cognitive function.
6. The standards set out in the National Clinical Guidelines for Stroke for evaluation and treatment by therapists should be met in all cases.
7. Management of stroke patients with incontinence should be a top priority for service developments. No patient should be catheterised without good reason and all patients should have adequate assessment for the cause of the incontinence and a management plan implemented.
8. All patients with ischaemic stroke, unless there are specific contraindications should be receiving aspirin within a maximum of 24 hours after admission.
9. Patients in atrial fibrillation should be anticoagulated to prevent stroke, unless there are clear contraindications.
10. All patients and their carers should receive information and advice about the stroke, its management and prevention.

## INTRODUCTION

The National Sentinel Audit of Stroke has taken place on a two-year cycle since 1998. As in the previous round the results for organisation of care are being published separately from the clinical process standards. Clinical data were collected from October 2006 and reported in February 2007. No references have been quoted in the report for reasons of space. All relevant evidence is available in the second edition of the National Clinical Guidelines for Stroke (2004).

(<http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm>)

### **Aims of the audit**

1. To enable Trusts to benchmark the quality of their stroke services against national evidence based standards
2. To identify changes in stroke service organisation and quality of care for stroke patients since the 2004 national sentinel audit
3. To evaluate the extent to which the National Clinical Guidelines for Stroke have been implemented
4. To monitor the progress of stroke care delivery post National Service Framework Older People (Chapter 5 stroke) and the National Audit Office report on Stroke.

### **Organisation of the Audit**

This audit was funded by the Healthcare Commission and run by the Clinical Effectiveness and Evaluation unit (CEEu) of the Royal College of Physicians, London. It was co-ordinated by the CEEu and data was collected within Trusts using a standardised method. Data collection was overseen at a Trust level by a lead clinician for stroke who was responsible for the quality of data supplied. The project was guided by a multidisciplinary steering group responsible for the Stroke Programme – the Intercollegiate Working Party for Stroke (ICWP) (Appendix 1). The steering group oversaw the preparation, conduct, analysis and reporting of the audit

### **Availability of this report in the public domain**

Site results will be made available to the Department of Health and the Healthcare Commission in England, NHS Wales Department (Welsh Assembly Government) in Wales, Department of Health, Social Services and Public Safety in Northern Ireland, Primary Care Trusts for their participating hospitals and Directors of Public Health in Strategic Health Authorities. The key 12 clinical indicators in this report and key indicators from Phase 1 (the organisational audit published in 2006) will be made public in April 2007 on a named hospital basis.

### **Evidence-based**

The results from this clinical audit are based on information obtained retrospectively from patient records. They compare delivery of care with standards derived from systematically retrieved and critically appraised research evidence and agreed by experts in all disciplines involved in the management of stroke. The strength of evidence is outlined in National Clinical Guidelines for Stroke 2004 second edition Intercollegiate Stroke Working Party Royal College of Physicians

(<http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm>)

## METHODS

### Key indicators of Stroke care

Following the third round of audit in 2002 a minimum dataset was selected to best represent the total clinical process for each hospital. The final selection of 11 key indicators involved both clinical reasoning and statistical considerations.

The 11 key standards are as follows:

- More than 50% of stay on a stroke unit
- Screened for swallowing disorders within first 24 hours of admission
- Brain scan within 24 hours of stroke
- Commenced aspirin by 48 hours after stroke
- Physiotherapy assessment within first 72 hours of admission
- Assessment by an Occupational Therapist within 7 days of admission
- Weighed at least once during admission
- Mood assessed by discharge
- On antithrombotic therapy by discharge
- Rehabilitation goals agreed by the multi-disciplinary team
- Home visit performed before discharge

As in 2004 within this report we have added one further key item:

- Treated in a stroke unit during their stay

Site compliance rates for each key standard and an average compliance across standards will be released to the Department of Health strategic health authorities and the public. Rates will also be used for comparative purposes within this report.

### Your key indicator scores can be found in Section 7 of this report

The benefits of having a stroke unit are demonstrated by research. One indicator therefore refers to patients spending most of their stay on a stroke unit. The chosen indicators represent important facets of care and together cover a broad spectrum of care. It is argued that this set of indicators is valid in its own right in terms of face and content validity. Validity is enhanced by its broad agreement with the total process score as has been seen in successive rounds of the audit.

### Standards in the audit

The full proforma of questions is shown in Appendix 2 and many questions are the same as in the 2004 audit. Approximately one third of questions have been removed from this audit round to balance the effort of auditors in collecting good quality data and representativeness of the sample. The working party have selected those which are judged to be particularly good indicators, based on their ability to discriminate the quality of care and their statistical reliability, as well as their perceived clinical value in stroke. This is not to deny the value to clinical care of the items removed. This allows an assessment of change over time, a high priority for hospitals. If you wish to access your 2004 results these are still available on <http://strokeaudit.rcplondon.ac.uk> using your login and password. As standards changed and new areas were considered, the Intercollegiate Working Party agreed some additional questions for Stroke. These link to the National Clinical Guidelines for Stroke. The new questions were piloted during December 2005.

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**NO, BUT...answers:** The diversity of effects from a stroke creates difficulties for clinical management and for determining overall standards of care. For example if someone is unconscious after their stroke it would not be possible to test their walking or speech difficulties within the time frames normally required. The audit therefore designated specified circumstances where standards would not be applicable. The full wording of questions can be found in Appendix 2.

**COMPLIANCE RATES:** The compliance rate is recorded as a percentage, with 100% being optimal. The denominator for the compliance rate was only those cases for whom the standards applied, i.e. any NO,BUT... exceptions would not have been included in the calculations of compliance.

### **Definition of a 'site'**

Lead clinicians were asked to collect data on the basis of a unified service within a Trust. For most Trusts the 'site' was the Trust. For some Trusts there were several 'sites' each offering a distinct service. A few other 'sites' were combinations of Trusts. There are some differences in configuration between the organisational audit (Phase I conducted in April 2006) and the clinical audit (Phase II).

### **Recruitment**

The 224 sites that participated in the previous round of the audit were kept informed of the proposed timetable for the fifth round. Changes in Trust configuration and the details of lead clinician and audit co-ordinator were updated regularly. All the eligible Trusts that participated in 2004 were enrolled again. In all data on 13,625 cases were received from 224 sites, within 203 Trusts.

### **Selection criteria for the cohort**

Patients who were admitted between 1 April 2006 and 30 June 2006 were included. Sites were instructed to obtain a minimum of 20 and a maximum of 80 consecutive admissions with a primary diagnosis of stroke (ICD10 codes I61, I63 or I64). To ensure that the indicators were based on a sufficiently large number of applicable patients hospitals were asked to obtain data on all admissions within the time period or 80 if they had admitted more than 80.

### **Data collection tool**

A web-based tool was used to collect data from sites. This web tool included context specific online help including definitions and clarifications. Security and confidentiality was maintained by the use of site codes. Sites accessed the proforma using unique identifiers and passwords and data could be saved during as well as at the end of an input session.

Formal data collection began on 2 October 2006 for cases admitted from 1 April 2006 and each participating Trust was provided with an appropriate login and password and help booklets. However the web tool went live on August 1<sup>st</sup> 2006 to accommodate the increased sample size. A telephone and email helpdesk was provided by the CEEu to answer any individual queries. The final record was submitted on 6<sup>th</sup> December 2006.

### **Data reliability**

Sites were asked to re-audit their first 5 cases, using a different auditor. 143 sites submitted 624 cases. Because this audit again used web-based data entry data completeness was again very high. Problems in finding data (typically one auditor

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found information about a batch of patients whilst the other did not) were low. The levels of agreement for categorical data were generally very good with the majority of questions having kappa values of 0.81 and higher (kappa median 0.82, Inter-Quartile range 0.73-0.90, n=125 questions).

- For questions unchanged from the previous audit reliability: kappa median 0.82, Inter-Quartile range 0.74-0.91, n=69 questions.
- For questions amended from the previous round of audit, reliability: kappa median 0.87, Inter-Quartile range 0.76-0.92, n=28 questions.
- For questions new to this round of audit: kappa median 0.78 Inter-Quartile range 0.66-0.85, n=28 questions.

Kappa levels were generally higher for patient characteristic and medication (sections 1, 2 and 6 of the proforma had the majority of kappa scores in the range 0.81-1.0) than for standards, which require a greater degree of scrutiny of case-notes (sections 3, 4, 5, 7 of the proforma had the majority of kappa scores in the range 0.61-0.80). Further details can be found in Appendix 3.

### **Presentation of results**

Wherever possible the audit question numbers have been added within tables of results to facilitate reference to the actual questions in the audit tool in Appendix 2. A total of 34 duplicate cases were found and excluded from the dataset



## Section 1. Key National Results 2006 and compared with previous rounds

This section summarises changes in stroke care measured between the fourth round of the audit in 2004 and this round in 2006 (and where applicable 2001). The data have been summarised according to performance on key process indicators (as described in the methods) and by domains of care. The former comprise a minimum dataset and the latter enables hospitals to identify broad areas of care (domains) on which to focus improvements.

### 1.1 Overall results for key process indicators in 2006 compared to 2004 and 2001

- Provision of stroke unit care has improved significantly over the last five years, both as measured by the proportion of hospitals with a stroke unit (94% nationally) and in terms of the proportions of patients accessing them, which has improved dramatically since 2004 rising to 62% of all admissions. The proportion of patients managed on a stroke unit for the majority of their stay has doubled since 2001.
- Access to physiotherapy and occupational therapy has also improved somewhat, although not proportionally as much.
- Performance in the other key indicators was less impressive, not showing as much change as expected given the rise in stroke unit care. This raises the possibility that although more stroke beds are available they are not being resourced appropriately.

Table gives % compliance with each indicator, for applicable patients			National 2006	National 2004	National 2001
		Patients	13625	8697	8200
1	Q1.7	Treated in a stroke unit during their stay	62	46	36
2	Q1.9	More than 50% of stay on a stroke unit	54	40	27
3	Q3.1	Screened for swallowing disorders within first 24 hours of admission	66	63	64
4	Q1.2iii	Brain scan within 24 hours of stroke*	42	59	58
5	Q3.3	Commenced aspirin by 48 hours after stroke	71	68	65
6	Q3.5	Physiotherapy assessment within first 72 hours of admission	71	63	59
7	Q4.2	Assessment by an Occupational Therapist within 7 days of admission	68	57	51
8	Q5.1	Weighed at least once during admission	57	52	49
9	Q5.3	Mood assessed by discharge	55	47	52
10	Q6.3	On antithrombotic therapy by discharge	100	95	91
11	Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	76	68	61
12	Q7.4	Home visit performed before discharge	63	69	73
Average for 12 indicators			65	61	57

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 1.2 Site variation for key process indicators in 2006 (n=224 sites)

There was considerable variability between sites in compliance for all but one of these key indicators. The box-plot below shows median, inter-quartile range and outlier site scores.

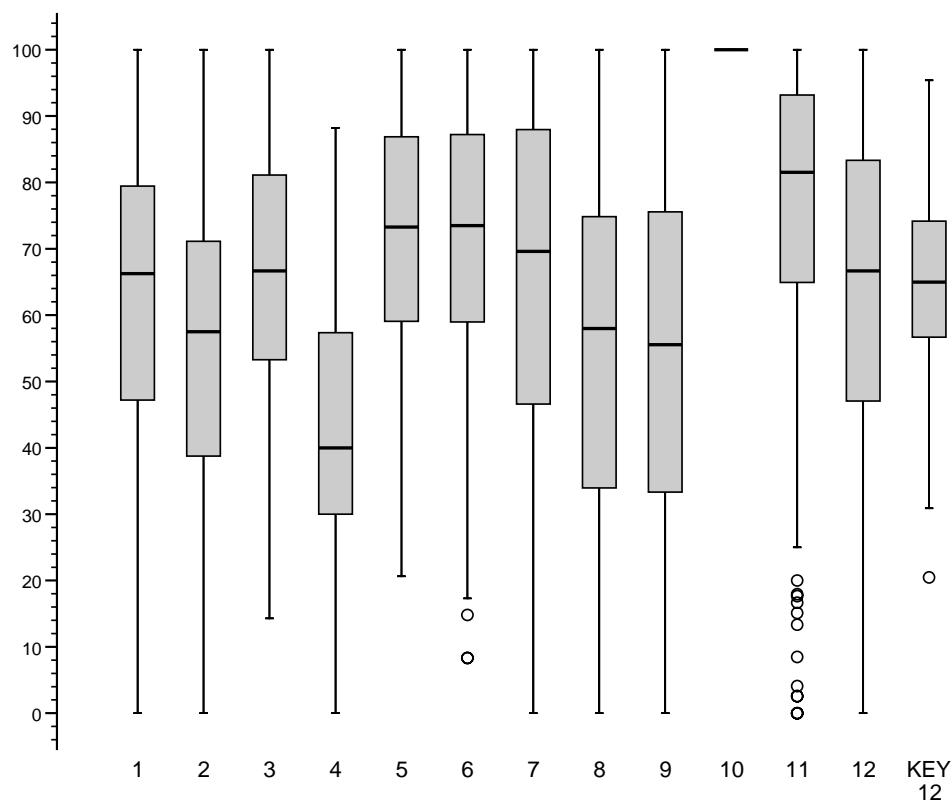
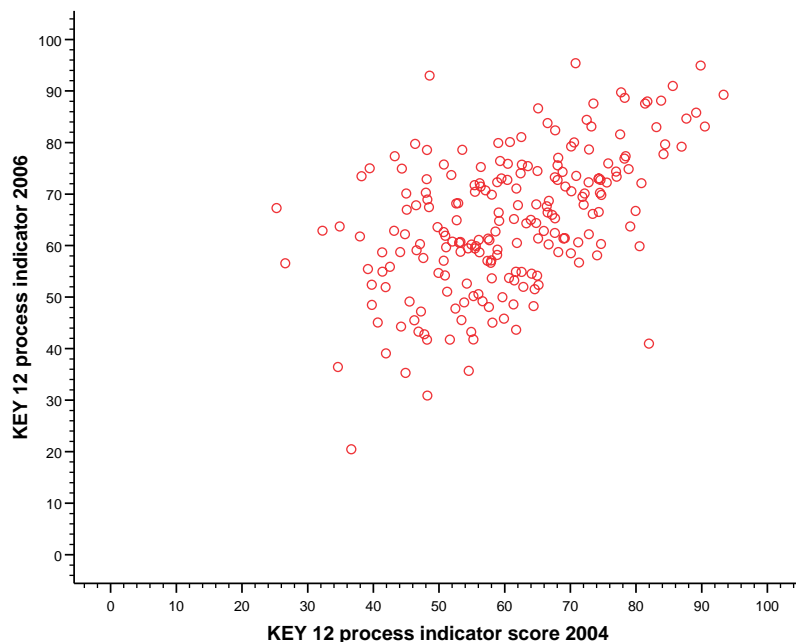


	Table gives % compliance with each indicator, for applicable patients	ALL 224 sites	25% sites score below	Median score	25% of sites score above
1	Q1.7 Treated in a stroke unit during their stay		47	66	80
2	Q1.9 More than 50% of stay on a stroke unit		39	58	71
3	Q3.1 Screened for swallowing disorders within first 24 hours of admission		53	67	81
4	Q1.2iii Brain scan within 24 hours of stroke		30	40	57
5	Q3.3 Commenced aspirin by 48 hours after stroke		59	73	87
6	Q3.5 Physiotherapy assessment within first 72 hours of admission		59	73	87
7	Q4.2 Assessment by an Occupational Therapist within 7 days of admission		47	70	88
8	Q5.1 Weighed at least once during admission		34	58	75
9	Q5.3 Mood assessed by discharge		33	56	76
10	Q6.3 On antithrombotic therapy by discharge	All sites scored 100%			
11	Q5.5 Rehabilitation goals agreed by the multi-disciplinary team		65	82	93
12	Q7.4 Home visit performed before discharge		47	67	84
KEY12	Average for 12 indicators for 2006		57	65	74

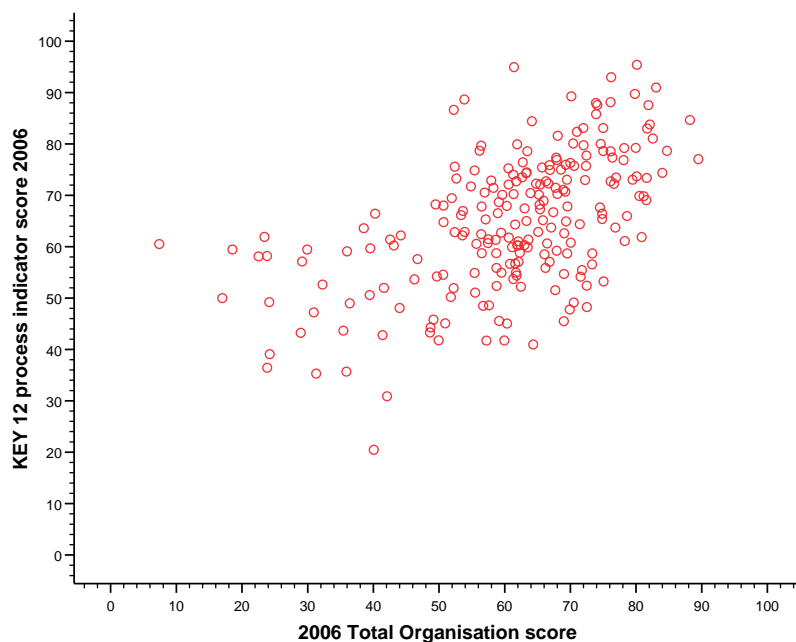
### 1.3 Site variation for key process indicator score in 2004 compared to 2006

There is reasonable correlation between performance 2 years ago and performance in this audit (Spearman 0.50,  $P < 0.001$ ). Sites with better results in 2006 tended to be the ones with better results in 2004.



### 1.4 Site variation for key process indicator score in 2006 compared to organisational score in 2006

There is reasonable correlation between the 12 key indicators and the performance in the 2006 organisational audit (Spearman 0.56,  $P < 0.001$ ). Sites with better process results in 2006 tended to be the ones with better organisation scores.

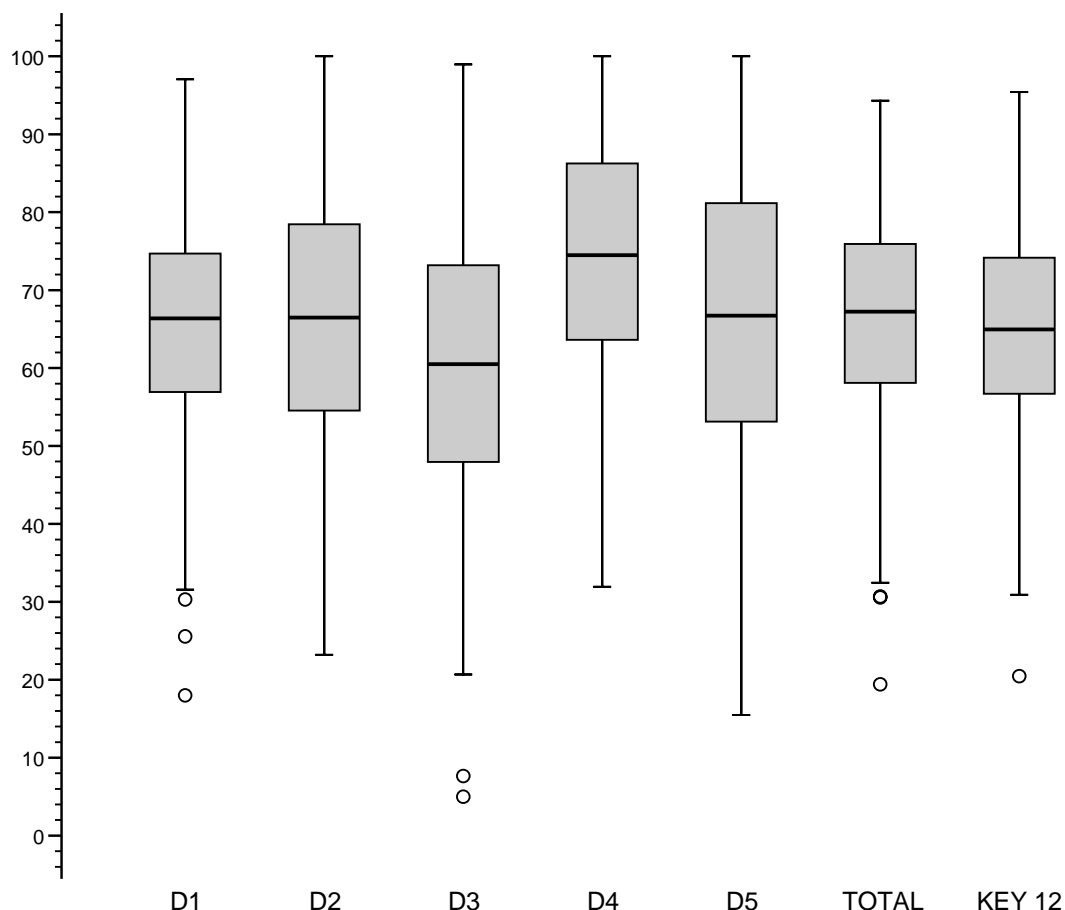


## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 1.5 Site variation for process domain and total scores in 2006 (n=224 sites)

The total number of standards of care was divided up into domains as in earlier audit rounds. Process domain scores were obtained as the simple average of compliance rates to standards within domains. The total process score was a simple average of domains scores. Standards within domains and the names of domains have been changed for the 2006 because the dataset was reduced. As with the 12 key indicator score, also shown below, there is considerable site variation in the process domain and total scores.

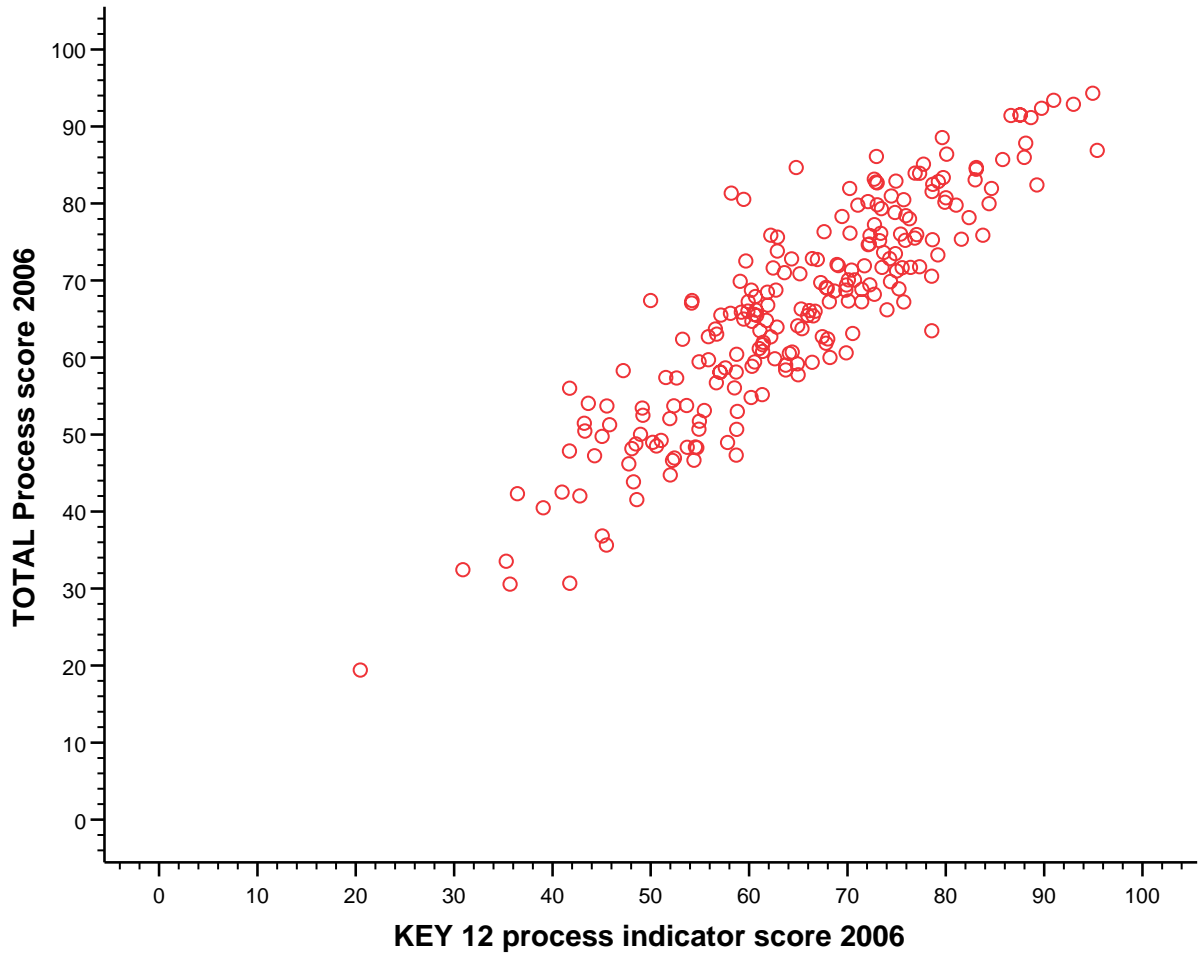
The box-plot shows median, inter-quartile range and outlier site scores.



2006 Process of care Domains	SITE VARIATION	ALL sites		
		25% sites score below	Median score	25% of sites score above
D1	Initial patient assessment (4 standards)	57	66	75
D2	Multidisciplinary assessment (5)	54	66	79
D3	Screening & Functional assessment (3)	48	61	73
D4	Care planning (3)	64	74	86
D5	Communication with patients and carers (5)	53	67	81
Total	(D1+D2+D3+D4+D5)/5	58	67	76
KEY12	Items as described earlier	57	65	74

### 1.6 Site variation for process total and key process indicator scores in 2006

The 12 key process indicators are an strong correlate of performance overall (Spearman 0.88,  $P < 0.001$ ,  $n = 224$ ), providing reassurance that the data available to the Healthcare Commission and the public are a fair representation of overall performance using all the standards measured in this audit.



## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 1.7 Compliance by standard in 2004 compared to 2006

Standards	% applicable			% compliance			Change 04-06
	2006	2004	2001	2006	2004	2001	
Aspirin within 48 hours of stroke	<b>73</b>	67	66	<b>71</b>	68	65	+3
On an antithrombotic by discharge	<b>86</b>	66	63	<b>100</b>	95	91	+5
% admitted to a stroke unit during their stay	<b>100</b>	100	100	<b>62</b>	46	36	+16
% spending >50% of stay in a stroke unit	<b>100</b>	100	100	<b>54</b>	40	27	+14
<b>(D1) Initial assessment</b>							
Screen swallowing disorders	<b>79</b>	79	79	<b>66</b>	63	64	+3
Visual Fields	<b>70</b>	67	67	<b>74</b>	65	63	+9
Sensory testing	<b>70</b>	68	68	<b>81</b>	73	69	+8
Brain scan carried out within 24 hours of stroke*	<b>99</b>	70	60	<b>42</b>	59	58	N/A
<b>(D2) Multidisciplinary assessment</b>							
Swallowing assessed by Speech and Language Therapist within 72 hours of admission	<b>47</b>	50	53	<b>67</b>	65	62	+2
Patient assessed by Physiotherapist within 72 hours of admission	<b>83</b>	82	81	<b>71</b>	63	59	+8
Initial assessment of communication problems by speech and language therapist within 7 days of admission	<b>46</b>	47	50	<b>69</b>	68	64	+1
Patient assessed by Occupational therapist within 7 days of admission	<b>65</b>	65	64	<b>68</b>	57	51	+11
Social work assessment within 7 days of referral	<b>42</b>	47	46	<b>56</b>	53	45	+3
<b>(D3) Screening and Functional Assessment</b>							
Patient weighed at least once during admission	<b>84</b>	83	82	<b>57</b>	52	49	+5
Evidence patient's mood has been assessed	<b>81</b>	80	80	<b>55</b>	47	52	+8
Cognitive status assessed	<b>80</b>	80	Not asked	<b>71</b>	65	Not asked	+6
<b>(D4) Care planning</b>							
Written evidence that rehabilitation goals agreed by multidisciplinary team	<b>68</b>	67	68	<b>76</b>	68	61	+8
Plan to promote urinary continence?	<b>31</b>	28	36	<b>54</b>	58	63	-4
Receiving nutrition within 72 hours	<b>87</b>	Not asked	Not asked	<b>93</b>	Not asked	Not asked	N/A
<b>(D5) Communication: Patients and carers</b>							
Discussion with patient about diagnosis	<b>65</b>	66	70	<b>69</b>	70	63	-1
Discussion with patient about prognosis	<b>64</b>	66		<b>59</b>	63		-4
Discussion with patient about therapy goals	<b>Not asked</b>	64	69	<b>Not asked</b>	65	60	N/A
Carer needs for support assessed separately	<b>50</b>	59	62	<b>68</b>	43	41	+25
Skills taught to care for patient at home	<b>23</b>	24	25	<b>71</b>	63	60	+8
Home visit performed	<b>28</b>	31	32	<b>63</b>	69	73	-6

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

## Section 2. Key Results 2006 for England, Wales & Northern Ireland and in comparison with 2004 and 2001

### 2.1 Clinico-demographic results 2006

The three sites (67 patients) in the Channel Islands and Isle of Man are not shown in this section. This selection of results indicates a similar mix of audit patients for England, Wales, Northern Ireland and the Islands.

Comparisons by country	National	England	Wales	N Ireland
Sites (Patients)	230 (13625)	196 (12231)	19 (925)	12 (402)
Gender -% male	48	48	49	48
Worst level of consciousness in first week - % Fully conscious	62	62	64	64
Worst level of consciousness in first week - % Unconscious	14	15	10	13
% newly institutionalised on discharge	12	13	7	7
% discharged Barthel score of 20	39	39	45	40
% discharged Barthel scores of <10	22	22	16	30
Mean (SD) Age	75 (13)	75 (13)	75 (12)	74 (13)
Median (IQR) age	78 (68-85)	78 (68-85)	77 (69-84)	75 (66-84)
Mean (median) LOS to discharge or death	25 (14)	25 (14)	29 (13)	27 (14)
Mean (median) LOS to discharge	28 (15)	27 (15)	30 (13)	28 (15)
Mean (median) LOS to death	19 (10)	18 (9)	25 (11)	22 (14)

## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 2.2 Overall results for key process indicators in 2006

In terms of overall score the lack of an NSF including stroke standards in Wales until 2006 appears to have severely handicapped the development of their specialist stroke services and compliance with standards. The provision of stroke unit care was highest in Northern Ireland but there were disappointing results regarding home visits before discharge.

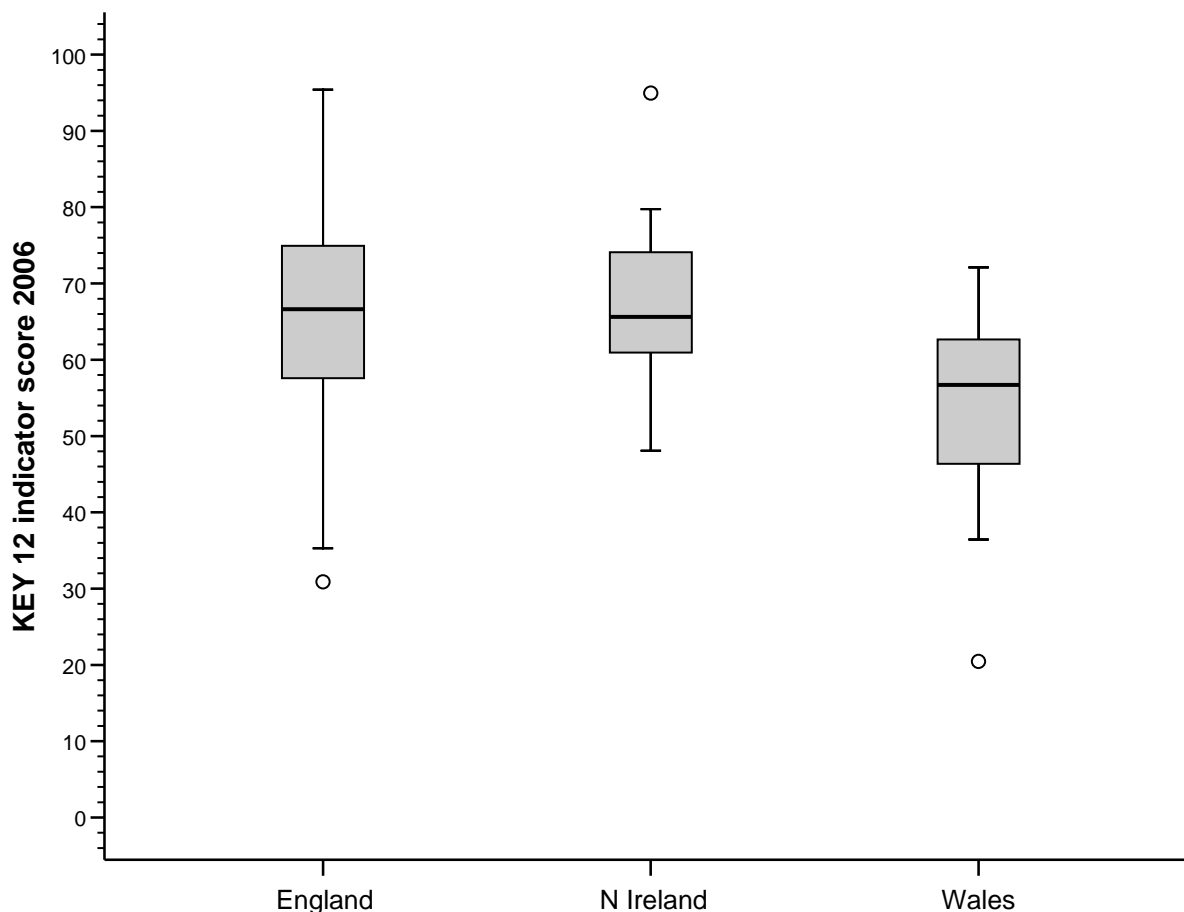
Table gives % compliance with each indicator, for applicable patients		National	England	Wales	N Ireland
	Sites	230	196	19	12
Q1.7	Treated in a stroke unit during their stay	62	64	28	73
Q1.9	More than 50% of stay on a stroke unit	54	56	22	60
Q3.1	Screened for swallowing disorders within first 24 hours of admission	66	67	55	62
Q1.2iii	Brain scan within 24 hours of stroke*	42	43	38	40
Q3.3	Commenced aspirin by 48 hours after stroke	71	71	76	68
Q3.5	Physiotherapy assessment within first 72 hours of admission	71	72	54	74
Q4.2	Assessment by an Occupational Therapist within 7 days of admission	68	69	50	73
Q5.1	Weighed at least once during admission	57	57	54	50
Q5.3	Mood assessed by discharge	55	54	53	77
Q6.3	On antithrombotic therapy by discharge	100	100	100	100
Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	76	76	70	88
Q7.4	Home visit performed before discharge	63	64	53	50
Average for 12 indicators for 2006		65	66	54	68

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.



### 2.3 Site variation for key process indicator score in 2006 (n=224 sites)

The site variation box-plot below shows median, inter-quartile range and outlier site scores by country. This confirms the overall message of broad similarity between countries, and the slightly worse set of scores for Wales reflects its relative lack of stroke unit provision.



### 2.4 Site variation for process domain and total scores in 2006 (n=224 sites)

Domain scores were obtained as the simple average of compliance rates to all standards within each domain. The total process score was a simple average of domain scores. As with the 12 key indicator score, the results show similarity between country and considerable site variation within country.

2006 Process of care	SITE VARIATION – table gives median (IQR) scores	National (224 sites)	England (190 sites)	Wales (19 sites)	N Ireland (12 sites)
D1	Initial patient assessment	66 (57-75)	67 (58-76)	59 (47-74)	66 (55-73)
D2	Multidisciplinary assessment	66 (54-79)	67 (54-79)	56 (48-70)	77 (60-82)
D3	Screening & Functional assessment	61 (48-73)	60 (48-73)	59 (42-79)	68 (61-79)
D4	Care planning	74 (64-86)	74 (64-86)	76 (58-88)	84 (78-89)
D5	Communication with patients & carers	67 (53-81)	67 (54-81)	64 (51-88)	70 (53-82)
Total	(D1+D2+D3+D4+D5)/5	67 (58-76)	67 (58-76)	63 (50-76)	73 (66-76)
KEY12	Key 12 items as described earlier	65 (57-74)	67 (57-75)	57 (46-63)	66 (61-75)

## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 2.5 Comparison of results in England from 2001-6

England has improved over the last five years in all the 12 standards apart from access to home visits but given the improvement in speed of access to occupational therapists, deterioration in home visiting is difficult to explain. The change in the level of brain scanning must be interpreted in the light of the change in the way this question was asked.

Table gives % compliance with each indicator, for applicable patients		England 2006	England 2004	England 2001
	Patients	12231	7619	7238
Q1.7	Treated in a stroke unit during their stay	64	47	36
Q1.9	More than 50% of stay on a stroke unit	56	41	27
Q3.1	Screened for swallowing disorders within first 24 hours of admission	67	64	64
Q1.2iii	Brain scan within 24 hours of stroke*	43	59	57
Q3.3	Commenced aspirin by 48 hours after stroke	71	68	64
Q3.5	Physiotherapy assessment within first 72 hours of admission	72	65	59
Q4.2	Assessment by an Occupational Therapist within 7 days of admission	69	57	49
Q5.1	Weighed at least once during admission	57	52	48
Q5.3	Mood assessed by discharge	54	46	50
Q6.3	On antithrombotic therapy by discharge	100	95	91
Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	76	69	61
Q7.4	Home visit performed before discharge	64	70	73
Average for 12 indicators		66	61	57

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 2.6 Comparison of results in Wales from 2001-6

The late launch of a National Service Framework including stroke standards in Wales appears to have handicapped the development of specialist stroke services in Wales.

Table gives % compliance with each indicator, for applicable patients		Wales 2006	Wales 2004	Wales 2001
Patients		925	667	530
Q1.7	Treated in a stroke unit during their stay	28	28	22
Q1.9	More than 50% of stay on a stroke unit	22	23	17
Q3.1	Screened for swallowing disorders within first 24 hours of admission	55	51	60
Q1.2iii	Brain scan within 24 hours of stroke*	38	62	60
Q3.3	Commenced aspirin by 48 hours after stroke	76	73	72
Q3.5	Physiotherapy assessment within first 72 hours of admission	54	49	58
Q4.2	Assessment by an Occupational Therapist within 7 days of admission	50	55	62
Q5.1	Weighed at least once during admission	54	51	56
Q5.3	Mood assessed by discharge	53	47	52
Q6.3	On antithrombotic therapy by discharge	100	97	91
Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	70	67	58
Q7.4	Home visit performed before discharge	53	69	80
Average for 12 indicators		54	56	57

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

## National Sentinel Audit of Stroke 2006 Clinical Audit Report

### 2.7 Comparison of results in Northern Ireland from 2001-6

Northern Ireland has consistently out-performed England and Wales in the stroke audits since the first round in 1998. However the results this time show a disappointing failure to improve on 2001 levels in some of the key measures, particularly in areas of commencing aspirin within 48 hours of stroke and home visit.

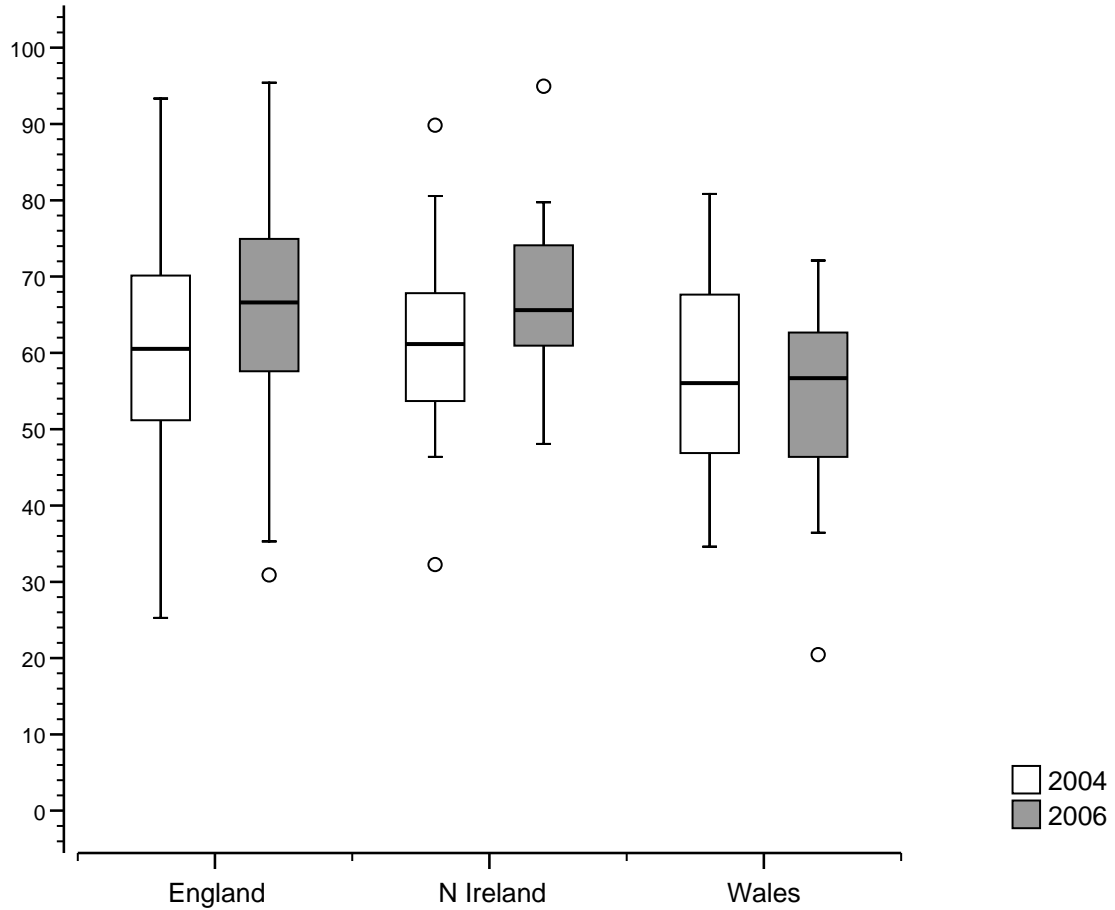
Table gives % compliance with each indicator, for applicable patients		N Ireland 2006	N Ireland 2004	N Ireland 2001
	Patients	402	350	372
Q1.7	Treated in a stroke unit during their stay	73	62	57
Q1.9	More than 50% of stay on a stroke unit	60	55	46
Q3.1	Screened for swallowing disorders within 24 hrs of admission	62	66	66
Q1.2iii	Brain scan within 24 hours of stroke*	40	59	59
Q3.3	Commenced aspirin by 48 hours after stroke	68	63	74
Q3.5	Physiotherapy assessment within first 72 hours of admission	74	59	66
Q4.2	Assessment by an Occupational Therapist within 7 days of admission	73	67	67
Q5.1	Weighed at least once during admission	50	49	50
Q5.3	Mood assessed by discharge	77	53	74
Q6.3	On antithrombotic therapy by discharge	100	98	91
Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	88	58	63
Q7.4	Home visit performed before discharge	50	50	68
Average for 12 indicators		68	62	65

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

# National Sentinel Audit of Stroke 2006 Clinical Audit Report

## 2.8 Site variation for key process indicator score in 2006 compared to 2004

Overall standards of care appear only to have improved since 2004 for England and Northern Ireland.



## Sections 3-6 Individual Hospital results compared to national sample National Sentinel Audit of Stroke 2006

<b>Name of site</b>
---------------------

This section of the report should be read in conjunction with sections one and two which cover the national results and the Appendices.

This part of the report shows your site results compared with the National statistics, and is in four sections:

- Clinic-demographic
- Process of care
- Medication
- One-page summary

Clinico-demographic results are presented first so that you can compare the characteristics of your own sample with the national profile

### **Number of sites and number of patients in the 2006 audit**

224 sites from 203 Trusts submitted data on 13625 patients. This represents 100% active participation in the audit.

The number of sites in this clinical audit differs from the 240 sites who participated in the organisational audit in Phase I because some multiple site Trusts opted for a single site analysis, and the others had insufficient cases to warrant participation or acted as collaborators to the acute admission site.

The median number of cases submitted per site was 64 with an inter-quartile range (IQR) of 46-78. **Your site submitted      cases.**

118 sites (51%) submitted 569 cases for the inter-rater study, and a further 55 duplicate cases from 33 sites (8 of whom had submitted inter-rater cases) were identified prior to the main data analysis and set aside for inclusion in the inter-rater study. These 55 may have been duplicated in error, possibly by the same auditor in both cases. Their inclusion does not invalidate the assessment of the reliability of the stroke audit tool. **Your site contributed   .... cases to this** (see Appendix 3 for further details on reliability analysis)

### **Data Collectors:**

The disciplines involved in collecting the audit data were:

- Medicine (41% of cases)
- Nursing (39%)
- Clinical audit (24%)
- Therapy (11%)
- Others (9%)

For 17% of cases there was a collaboration between disciplines stated.

## Section 3 Comparative Results for 2006: Clinico-demographic

### Introduction

This section summarises a national cross-section of stroke patients in terms of a wide range of characteristics. It confirms the representativeness of the audit sample with epidemiological studies and between the cycles of audit.

The results given are all in relation to the number of known responses.

### 3.1 Patient Demographics

#### Gender

	% Male	% Female
All sites (13625)	48	52
<b>Your site</b>		

#### Age

As in all the previous audits the average age of male stroke patients is significantly younger than females

	Age (in years)				Mean	Median
	% <65	% 65-74	% 75-84	% 85+		
Male						
All sites (6514)	25	26	33	16	72 yr	74 yr
					<b>Your site - yr</b>	
Female						
All sites (7111)	12	17	37	34	78 yr	81 yr
					<b>Your site - yr</b>	

### 3.2 Date of stroke and admission

The date of admission was known for all but 15 cases (99.9%). For 976 cases (7%) the date of stroke was unknown and for these cases the date of admission was taken as a proxy for the date of stroke. In 72% of cases with a stroke date the date of admission coincided with the date of stroke. In 15% admission was the next day, with 3% admitted 2 days later, 2% admitted 3 days later and 4% admitted later than 3 days. In 4% the admission pre-dated the stroke. 146 patients were still in hospital at the time of audit.

### 3.3 Mortality

Mortality rates at both 7 and 30 days have shown a slight improvement since the last audit. Participants did not know in 5% of cases whether the patient was alive at 30 days after stroke. For the remainder, 22% were known to have died in 30 days.

	Died within 7 days		Died within 30 days Q1.6		Died in hospital Q1.3	
	Known N	%	Known N	%	Known N	%
All sites	13358	11	12957	22	13479	26
<b>Your site</b>						

### 3.4 Hospital Length of Stay (LOS)

- Mean length of stay has fallen considerably over the last two cycles of audit from 34 days in 2001, to 25.4 days in 2006. Similar reductions in length of stay are shown for patients dying in hospital, falling from 21.1 days in 2001 to 18.6 days in 2006 and for those discharged alive from 39.5 days to 27.7 days. For an estimated 120,000 stroke patients in the UK annually this would translate into a reduction of about 2800 beds for their care since 2001.

Date of discharge was defined as either from inpatient rehabilitation or from hospital to home/residential care. For cases transferred from acute care to rehabilitation units locally auditors were advised to use the date of discharge from the inpatient rehabilitation facility if the whole episode of care was included.

For 13462/13625 (99%) of patients in the audit, it was possible to calculate their length of stay, either from admission to discharge or admission to death. The differences between these two are shown below, but taken together, they represent 341,343 bed-days, a mean of 25.4 per patient. It should be borne in mind that auditors were asked to collect data only on the first inpatient episode if a patient was re-admitted.

Overall mean (median) LOS to discharge/death for 13459 patients was 25.4 (14) days.

LOS for those who died in hospital				
	Known	% 14 + days	Mean N of days	Median N of days
All sites	3447	41	18.6	10
<b>Your site</b>				
LOS for those who were discharged				
	Known	% 14 + days	Mean N of days	Median N of days
All sites	10015	54	27.7	15
<b>Your site</b>				

### 3.5 Stroke type as shown by scan

These data on stroke type and co-morbidities and stroke severity suggest a representative sample of stroke subtypes have been included in the audit. The percentages are given out of all 12687 patients who had a brain scan. More detail on brain scans is given in Section 4.1.

Q1.12	% Ischaemic /Infarct	% Primary Intra-cerebral Haemorrhage	% Haemorrhagic infarct	% Unknown
All sites (12687)	68	12	3	18
<b>Your site ( )</b>				



### 3.6 Co-morbidity

83% (11298) of patients were reported as having a “serious illness that influences prognosis or management of stroke”. 3% (298) of these, specified under “other”, were not relevant pathologies to stroke care.

Q2.1 Co-morbidity (13625)	N All sites	% All sites	% Your site
Atrial Fibrillation (AF)	2671	20	
Previous stroke/Transient Ischaemic Attack (TIA)	3993	29	
Diabetes Mellitus	2227	16	
Hyperlipidaemia	2549	19	
Hypertension	7179	53	
Myocardial Infarction (MI)/angina/IHD	2721	20	
Valvular heart disease	449	3	
None of the above	2834	21	
1 of the above	3992	29	
2 of the above	3722	27	
3 or more of the above	3077	23	

The proportion of patients presenting with a diagnosis of hyperlipidaemia has increased markedly from 9% in 2001 to 15% in 2004 and 19% in 2006.

5% of patients (735) had a different co-morbidity reported in free-text under “other”. From these, the following categories contributed 1% or more of all patients, and accounted for the vast majority of the “others”:

- Malignancy 2% (326)
- Peripheral vascular disease 1% (172)
- Alcohol and other recreational drugs 1% (125)

Completion of this free-text information was not compulsory, nor were those conditions asked for. Hence the overall rates for these will be underestimated.

The audit also asked about prescriptions for antihypertensives, antiplatelets, antithrombotics and lipid lowering drugs. 72% of patients (9831/13625) were prescribed one or more of these prior to admission. **The rate for your site was %**  
See Section 5 for more details about drugs.

### 3.7 Clinical Status at time of maximum severity

For the items in this section it should be noted that the measures are based on time of maximum severity within the first week after stroke

#### Worst level of consciousness

Q2.5	Known	% Fully conscious	% Drowsy	% Semi - conscious	% Unconscious
All sites	13622	62	16	8	14
<b>Your site</b>					

### 3.8 Institutionalisation

- The shorter lengths of stay observed this time are not being achieved at the expense of earlier inappropriate discharge into care homes with no change in the percentage of patients (only 13%) being newly institutionalised after their stroke.

This question is simpler and more specific than in previous rounds. We have focussed on those patients newly institutionalised rather than asking about all accommodation prior to admission and after discharge.

Institutionalisation rates may reflect either effectiveness of rehabilitation or ease of access to care homes within a district. The percentage of patients discharged to care homes in this audit was identical to the figures for the 2004 audit.

Institutionalisation (Q2.2)	Applicable	% newly institutionalised at discharge
All sites	9665	13
<b>Your site</b>		

### 3.9 Level of independence

**Proportion of patients independent in everyday activities before stroke**  
(eg Barthel 19-20 or Rankin <3)

Q2.4	Known	% YES
All sites	12911	77
<b>Your site</b>		

#### Disability (Barthel score) at Discharge

- The proportion of patients with mild stroke (Barthel 15-19) has fallen from 29% in the 2004 audit. This suggests the possibility that patients are being discharged earlier with residual impairments while in the past they would have remained in hospital to complete their rehabilitation. Given that the organisational audit in 2006 did not show a significant increase in the availability of specialist community rehabilitation teams this is concerning and highlights the need for audit data looking at the longer term outcomes of stroke patients than these data can provide.

Q2.5	Barthel Known	% Independent (20)	% Mild (15-19)	% Moderate (10-14)	% Severe (5-9)	% Very Severe (0-4)
All sites	9178	39	24	15	8	13
<b>Your site</b>						

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Completion rates were 92% (9178/10028) at discharge, which is a large improvement on previous rounds. For Barthel scale interpretation see Clinical Audit tool at Appendix 2.

The Barthel score at discharge is lower (increased disability) in patients with longer lengths of stay. There are 9165 patients in whom Barthel at discharge and length of stay is known. (More detail on length of stay is given under sections 3.11 and 3.12)

		% Barthel score on discharge				
		Independent (20)	Mild (15-19)	Moderate (10-14)	Severe (5-9)	Very severe (0-4)
Length of stay	0-2 days (n=696)	78	12	5	1	4
	3-7 days (n=1914)	68	19	6	2	4
	8-28 days (n=3560)	40	30	14	7	9
	>28 days (n=2995)	12	24	22	16	26

### 3.10 Promotion of Continence

- Overall 29% of patients were catheterised following their stroke. Of these 35% (or about 10% of all stroke admissions) were catheterised because of urinary incontinence. While it is clearly appropriate to catheterise patients in urinary retention, where the patient has been admitted with a catheter in situ or where there is a need for accurate fluid balance monitoring, urinary incontinence per se is not usually an acceptable indication. Catheterisation increases the risk of infection; it is an unpleasant experience for patients and prevents any attempt being made to regain continence. The 10% catheterised overall represents a small reduction in catheterisation for incontinence from 12% in 2004, but the figure remains unacceptably high.

#### **Indwelling urinary catheter in the first week after admission?**

Q4.3	Known	N YES	% YES
All sites	13598	3915	29
<b>Your site</b>			

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### Documented reason for urinary catheterisation:

Q4.3a-g	N	% YES	Your site
Reason documented (3163):			
Urinary retention	709	22	
Pre-existing catheter	276	9	
Urinary Incontinence	1377	44	
Need for accurate fluid balance monitoring	870	28	
Critical skin care	524	17	
Not documented (of 3915 with catheter)			
	752	19	

Multiple reasons were possible.

107 patients (3%) had another reason for catheterisation given in freetext comments. Of these, 39% (42) were not adequate reasons. About half (36/65) of the other adequate reasons were for palliative care.

### 3.11 Use of Stroke Unit beds

#### Admission to a stroke unit

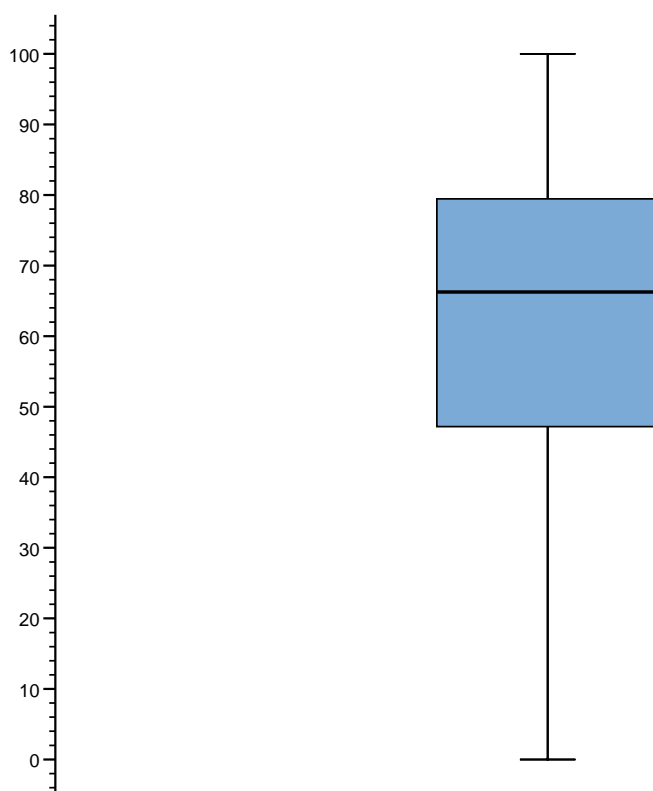
- 62% of the sample was admitted to a stroke unit at some point during their stay and 54% spent more than 50% of their stay in a stroke unit. This is a significant and welcome improvement over the last two years from 46% and 40% respectively. It reflects the fact that 95% of hospitals now have a stroke unit. There is still however clearly a lack of capacity within these units to manage all appropriate stroke patients.
- 76% of patients staying in hospital less than 2 days are not being managed on specialist units. These may include patients at very high risk of stroke recurrence and it is particularly important that they receive expert care and investigation. This is more likely to occur on a stroke unit and improvement of services for these patients should become a priority in the development of stroke services in the UK.
- 78% of patients staying in hospital more than 28 days do spend some of their admission on a stroke unit. The objective should be to increase this figure to nearly 100%
- Of the 341,343 bed-days captured in this audit, 195,629 (57%) were spent in a stroke unit.
- Patients managed on a stroke unit had considerably better results for the 12 key indicators than patients looked after in other settings. They were much more likely to have a swallow screen, to have started aspirin within 48 hours, been assessed by therapists within recommended time frames and had rehabilitation goals documented and have a home visit performed before discharge.

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### Proportion of patients treated in a Stroke Unit at any time during their stay

Q1.7	Known	N yes	% Yes	% Your site
All sites, all patients	13625	8383	62	
Patients with length of stay in hospital to discharge or death:				
0-2 days	1494	352	24	
3-7 days	2880	1454	50	
8-28 days	5143	3380	66	
>28 days	3945	3086	78	
Not known	17	9	53	

Site variation (n=224) in % of patients treated in a stroke unit at any time



Site median = 66%, IQR 47-80%  
15 sites (7%) had no patients treated in a stroke unit, 4 sites had 100%.

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Getting patients admitted to stroke units quickly facilitates acute care and multi-disciplinary assessment. We investigated the key indicators of care (except numbers 1 and 2, which are related to stroke unit admission) for those people who were admitted to a stroke unit, and those who were not.

			ALL 224 sites	
Table gives % compliance with each indicator, for applicable patients			% Patients admitted to stroke unit (8383)	% Patients <b>not</b> admitted to a stroke unit (5242)
3	Q3.1	Screened for swallowing disorders within first 24 hours of admission	73	53
4	Q1.12iii	Brain scan within 24 hours of stroke	45	38
5	Q3.3	Commenced aspirin by 48 hours after stroke	74	66
6	Q3.5	Physiotherapy assessment within first 72 hours of admission	78	56
7	Q4.2	Assessment by an Occupational Therapist within 7 days of admission	74	51
8	Q5.1	Weighed at least once during admission	66	37
9	Q5.3	Mood assessed by discharge	64	36
10	Q6.3	On antithrombotic therapy by discharge	100	100
11	Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	86	50
12	Q7.4	Home visit performed before discharge	73	36

### Delay in admission to stroke unit

- Speed of access to stroke unit care is better than in 2004 but needs to be further improved. Only 15% of patients are admitted to a stroke unit on the same day as their stroke and only 12% of patients are being admitted directly to a stroke unit (within 4 hours of arrival in hospital) The opportunities to optimise acute care at the time when ischaemic brain remains potentially salvageable is not being maximised. Direct admission to an acute stroke unit should be the standard that the NHS should be setting.
- For many patients the delay in admission to a stroke unit is totally unacceptable, stretching to days and weeks.

Ideally the majority of patients would be admitted directly to the stroke unit. There is evidence to support early specialist care in a unit equipped to carefully monitor and control physiological function. Hospitals should therefore be providing both acute stroke units and rehabilitation units of sufficient size to enable direct admission and continuing management until discharge into the community is appropriate.

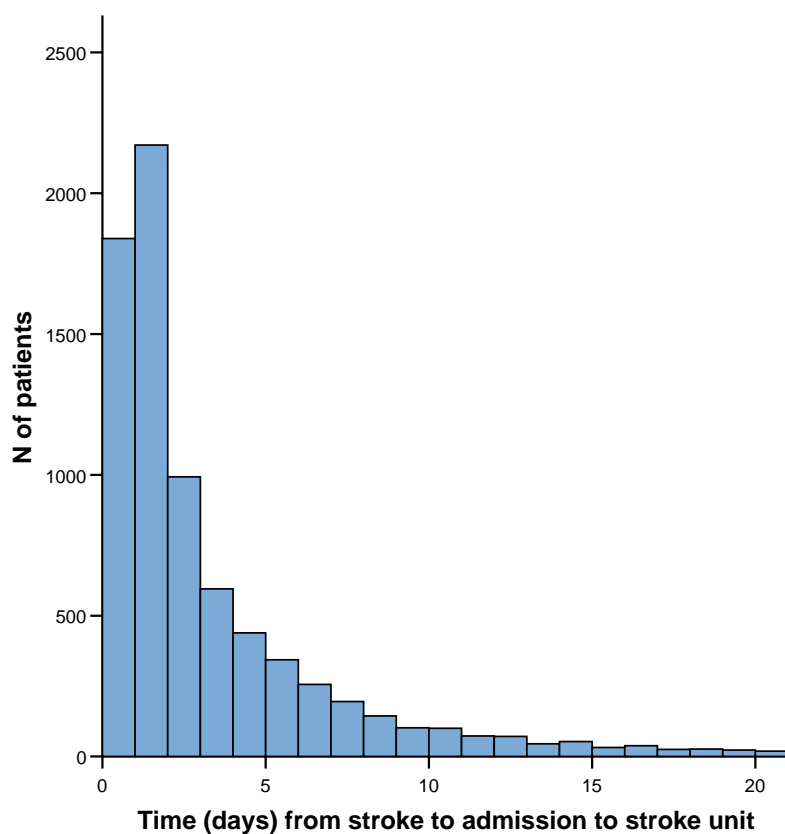
In 7805/8383 (93%) of patients admitted to a stroke unit, both date of stroke and date of admission to stroke unit were known. The delay to stroke unit admission in days is known for the 7805 patients. Out of all 13625 patients, 976 patients had unknown date of stroke, and a further 17 are reported as having been in the stroke unit when the

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current stroke occurred. We are able to assess percentages achieving access to stroke units within 4 hours for the remaining 12632 patients. Of these, 15% (1839) were admitted to a stroke unit on the same day as their stroke, whilst 32% (4010) were admitted either on the same day or on the day following their stroke.

Delay from stroke to admission to Stroke unit	Known	Median delay	IQR
All sites	7805	1 day	1-4 days
<b>Your site</b>			

Was the patient admitted to a stroke unit within 4 hours of arrival at hospital? ( denominator = 13625 patients)	%
All sites	12
<b>Your site</b>	

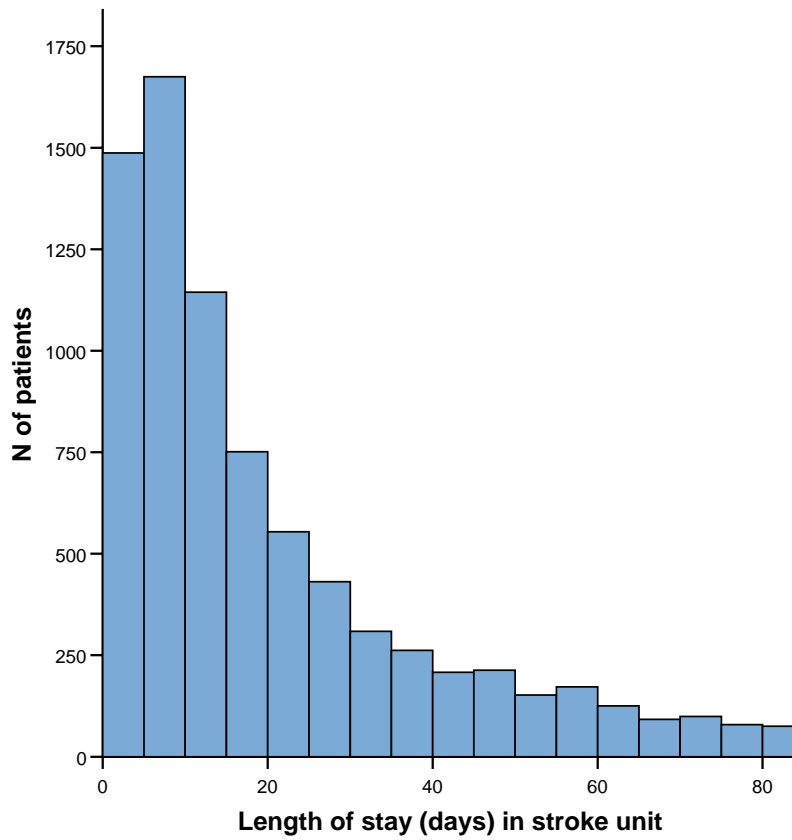


3% of 7805 patients had delays between stroke and admission to stroke unit longer than 20 days, and are not shown for clarity in the histogram above.

### Length of stay in stroke unit

	Known	Mean	Median	IQR
All sites, all overall lengths of stay	8213	24 days	14 days	6-31 days
<b>Your site</b>				

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5% of 8213 patients had stroke unit lengths of stay longer than 80 days, and are not shown for clarity in the histogram above.



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### 3.12 All inpatient locations

The audit asked where the majority of care was provided. 146 patients still in hospital at the time of the audit were excluded from this analysis, leaving a denominator of 13479

- 54% (7298) of the cases spent more than half of their stay on a stroke unit, 33% on a general ward.

Q1.9	Known	% General Ward (includes care of the elderly ward)	% Stroke Unit	% Rehabilitation Unit	% Other
All sites, all patients	13475	33% (4392)	54% (7226)	6% (842)	8% (1015)
<b>% Your site</b>					
Patients with length of stay:					
0-2 days	1492	42	22	0.3	36
3-7 days	2880	44	47	1	8
8-28 days	5142	34	59	4	3
>28 days	3944	19	63	15	2
Not known	17	18	53	6	24

The other locations (1015 patients) were:

- Admissions/ medical assessment unit (432)
- ICU (128)
- Surgical/orthopaedic (87)
- CCU (67)
- Neurology/neurosurgery (51)
- A&E (28)
- Community / primary care beds (20)
- HDU (7)
- Other type of ward / unit (185)
- Other hospital (10)

### Ratio of days in stroke unit to days in hospital

For patients admitted to a stroke unit we computed this ratio indicating the proportion of stroke unit stay to hospital stay:

- For 5851 staying most of their time on a stroke unit the median (IQR) ratio was 0.93 (0.79 - 1.00).
- For 460 who went to a stroke unit but who spent most time in a rehabilitation unit the median (IQR) ratio was 0.25 (0.14 - 0.45).
- For 346 patients who went to a stroke unit but spent most time on a general or geriatric ward the median (IQR) ratio was 0.32 (0.19 - 0.40).

	Known	Median ratio	IQR
All sites, all overall lengths of stay for those admitted to a stroke unit	6746	0.90	0.67-1.00
<b>Your site</b>			

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	Known	Median ratio	IQR
Patients with overall length of stay:			
0-2 days	247	1.00	0.50-1.00
3-7 days	1153	0.86	0.67-1.00
8-28 days	2749	0.90	0.71-1.00
>28 days	2597	0.92	0.61-0.98

### Admitted elsewhere

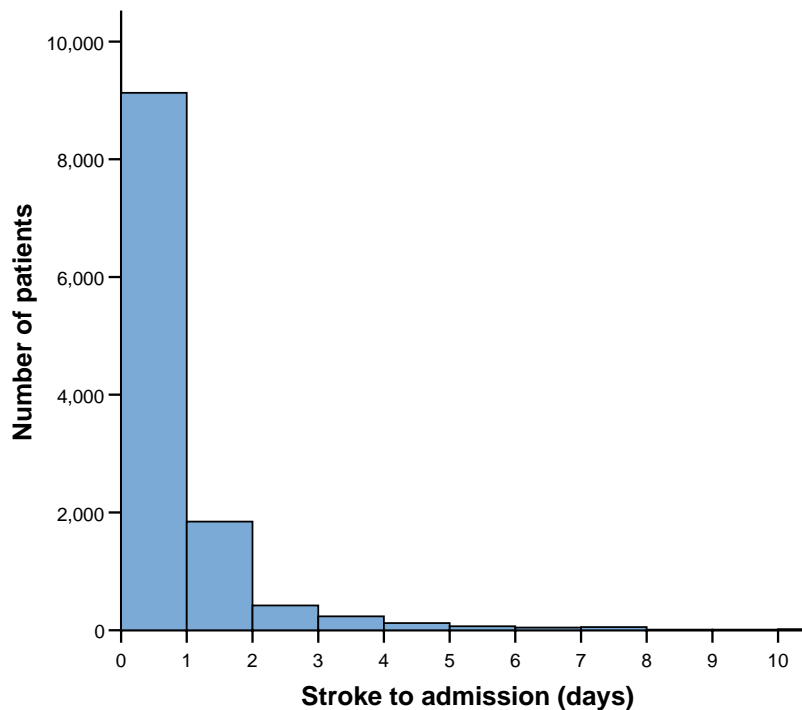
1% of 13625 cases were initially admitted elsewhere and spent the initial part of their acute stay at another hospital. **Your site: %**

### Delays in admission to hospital

- These data show that there are a large number of patients whose admission to hospital is delayed. It is likely that this adversely affects outcome and it highlights the need for a public and professional awareness campaign that stroke is a medical emergency and that immediate admission to hospital should be arranged for all cases.
- Only about 39% of patients are admitted within 2 hours of stroke. These are the patients who might be appropriate for thrombolysis given that they will need to be assessed clinically and scanned before the 3 hour time window. To increase this percentage professionals and public need to recognise symptoms of stroke, know how to respond and be provided with the facilities for rapid transfer to a stroke thrombolysis centre. The majority of patients with stroke are admitted between 8am and midnight. Provision of a thrombolysis service between these hours will cover 6 out of seven patients
- The time in days from stroke to admission can be calculated in 12643 (93%) of patients. 553 (4%) of these patients were in hospital when in stroke occurred, and therefore have negative "delays". The histogram below shows the distribution of actual, positive delays up to 10 days. The great majority of patients present to hospital, and are admitted, the same day.

Admitted:	All sites		<b>Your site %</b>
	N	%	
Before stroke	553	4	
Same day as stroke	9126	72	Same day
1 day after stroke	1845	15	1 day after
2 days after stroke	421	3	More than 1 day after
3 days after stroke	239	2	
More than 3 days after stroke	459	4	
Total	12643	100%	

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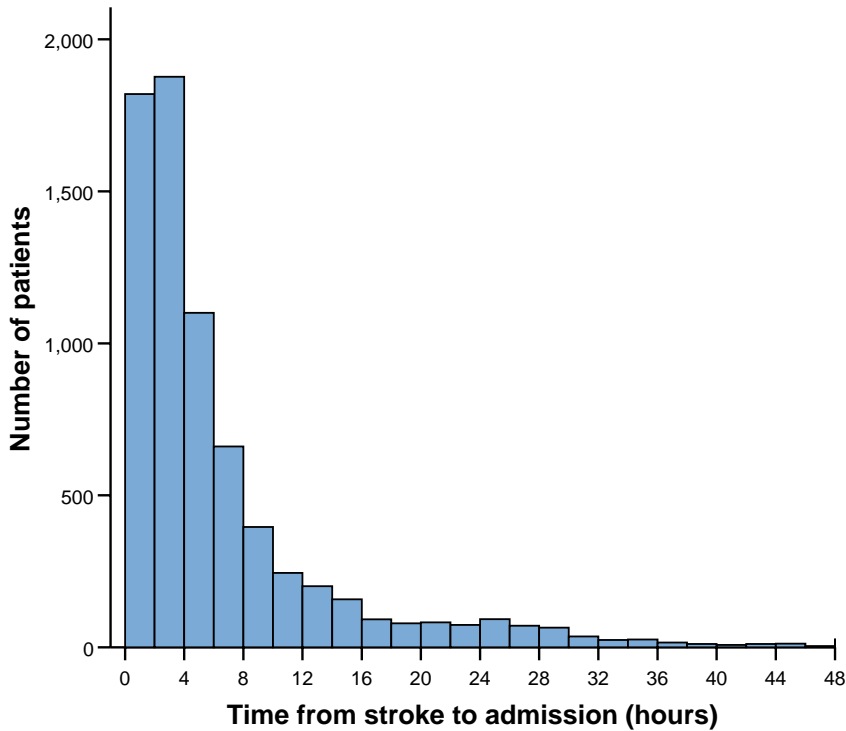


The histogram above shows time from stroke to admission up to 10 days, 0.9% of patients having times greater than 10 days.

We also examined the delay in hours. This is the first round of the audit in which this has been possible, but information on the time of stroke is less readily available, and the delay in hours could only be calculated for 7997 (59%) patients. Auditors frequently reported uncertainty about the time of stroke. The graphs and tables below focus on the 0-48 hour period, and 495 patients reported as having been admitted prior to stroke (negative times) are excluded from the denominator.

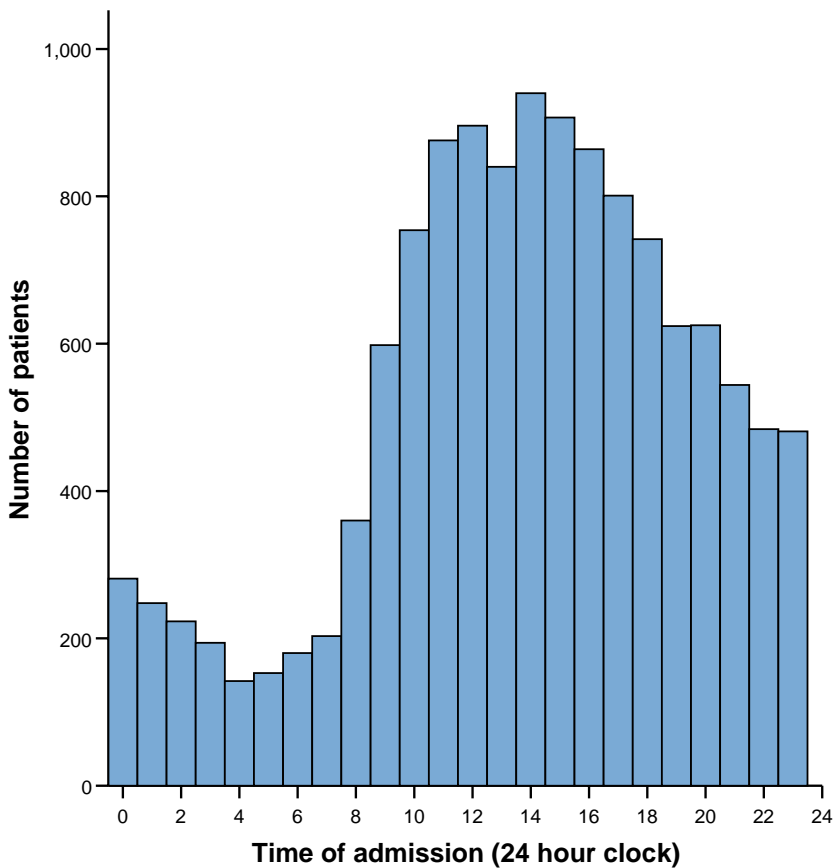
2957/7502 (39%) of patients were admitted within two hours of stroke.

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328 patients (4%) had times from stroke to admission over 48 hours and are not shown in the histogram above.

The histogram below shows the pattern of admissions across a 24 hour clock (n=12960):



## Section 4 Comparative Results for 2004: Process of Care

### Introduction

The results from the clinical audit are based on information obtainable from the patient records retrospectively.

The standards of care have been divided into the following domains:

- Domain 1 Initial Patient Assessment
- Domain 2 Multidisciplinary Assessment
- Domain 3 Screening and Functional Assessment
- Domain 4 Management / Care Planning
- Domain 5 Communication with Patients and Carers

The data are summarised in such a way that sites can view their own results for standards that make up each of the above domains against the national results.

A domain average score was obtained by computing a simple average of the compliance rates of standards within the domains.

PLEASE NOTE that the standards within domains have been changed from 2004 and for this reason your domain average scores are not strictly comparable over time. For comparability between audits we have focused on 12 key indicators.

The non-response rates with web-entry were so low that we have stopped reporting them within the tables. The % of cases for which a standard applied were computed after excluding any non-response.

## 4.1 Initial Patient Assessment and Clinical Diagnosis (Domain 1)

### Initial Patient Assessment

- Overall there have been improvements in the standards of care for screening of impairments however these are happening at a painfully slow rate. It is disgraceful that only 66% of patients are screened to see if they can swallow safely and that 26% of patients have no record in their notes about whether their visual fields have been affected by the stroke
- Only 42% of patients had brain imaging to confirm their diagnosis within 24 hours of the onset of symptoms. This is unacceptably low. Speed of access to imaging needs to be radically improved.

	Standard (Assessment within 24 hours)	% cases standard applicable		% compliance with standard	
		All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q3.1	Screen swallowing disorders	79		66	
Q3.2i	Visual fields	70		74	
Q3.2ii	Sensory testing	70		81	
Q1.12iii	Brain scan carried out within 24 hours of stroke (as reported by auditor)*	99		42	
Average for Initial assessment and Clinical Diagnosis				66	

\*The question for 2006 differs from previously in that a much greater proportion of patients were regarded as applicable. The standard has therefore become more stringent.

Q1.12iii is not applicable to the 1% of patients audited in sites which did not perform acute care for that patient.

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## Brain scanning

- Of the patients scanned (6559 with times of stroke and scan known) only 9% were scanned within 3 hours of stroke
- The delay from stroke to brain scan data suggests that those patients not scanned during daytime hours on the day of admission have to wait until the next working day before the scan is performed
- The National Clinical Guidelines for Stroke (2004) recommend scanning within 24 hours of stroke.
- The histogram showing the times of day scans are performed suggests that delays in scanning are not likely to be due to a lack of scanners. It is clear that the scanning machines are scarcely used outside normal working hours and there is also spare capacity during the lunch hour. Improving the standards for scanning needs the radiographer and radiologist staffing issues to be solved, not provision of more machines

In 0.5% of patients (64/13625), it was not known whether a brain scan had been carried out or not. All participants who reported no brain scan within 24 hours of stroke were asked to provide a reason why. 718/865 patients were deemed to have appropriate reasons, which meant the standard was not applicable to these patients:

- Patient died before scan (46)
- Patient already had a scan (16)
- Patient is under palliative care (563)
- Patient refused (61)
- Other valid reason (32)

No brain scan date was given for 19 patients out of 12687 who definitely had a scan (0.1%). In a further 882 cases (7%), no stroke date was known. In the remaining 11786 patients, a time in days from stroke to first brain scan was calculated.

	All sites	
Patients known	11786	
Time from stroke to scan in days:	N	%
0	2834	24
1	3539	30
2	1849	16
3	1128	10
4-7	1809	15
8-14	385	3
15-28	98	0.7
>28	144	1

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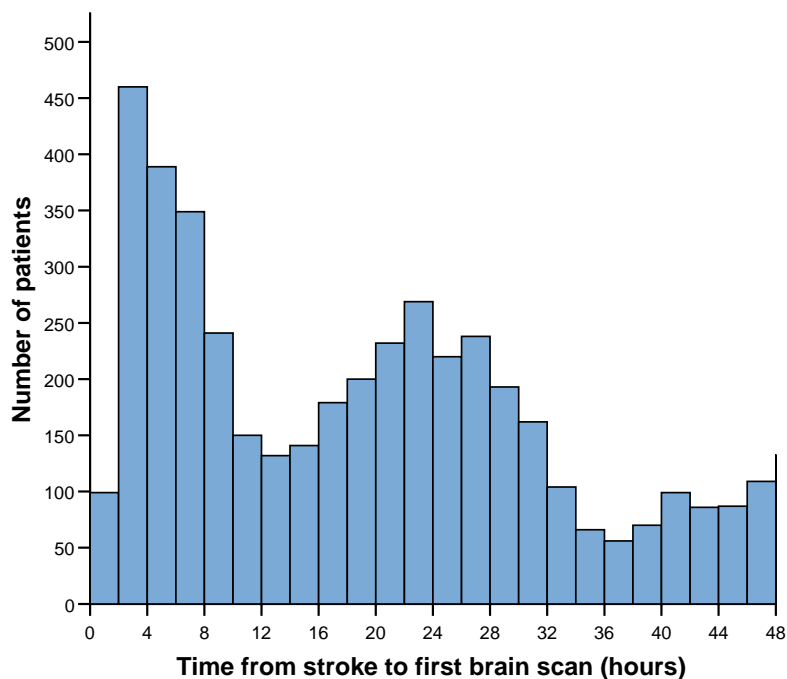
Among these 11786 patients, a time of stroke was known for 8112 and a time of first brain scan for 9460. There are 6617 patients in whom we know both values and can calculate a time from stroke to first brain scan in hours. However, 58 of the stroke to scan times in hours were negative and were removed from the analysis. The time from the stroke to the first brain scan is summarised below:

All sites		
6559		
Time from stroke to scan in hours:	N	%
0-1	99	2
2	247	4
3	213	3
4	201	3
5-12	984	15
13-24	1209	18
25-48	1438	22
>48	2168	33%
<b>Your site</b>		
		<b>%</b>
<b>Within 3 hrs</b>	559	9
<b>Within 24 hrs</b>	2953	45

The percentage achieving scans within 24 hours above (45%) is similar to the auditor reported answer (42%) used in the domain score.



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There were 2168 patients with times from stroke to brain scan over 48 hours (33%), who are not shown above.

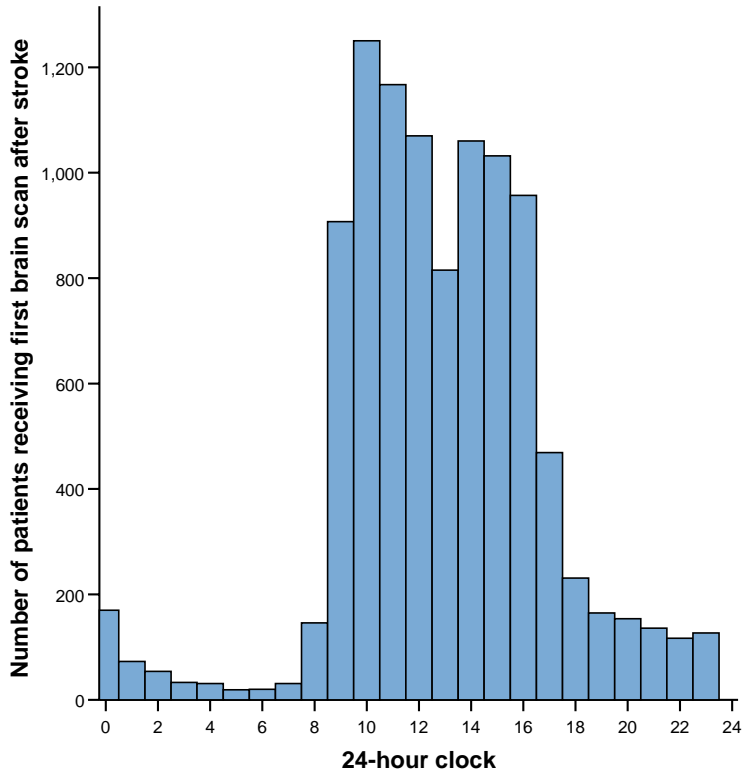
The peaks and troughs in the histogram of delay in hours may be explained by little scanning taking place overnight, while most people are admitted during the day.

	All sites			Your site
	Known	Median	IQR	Median
Time from stroke to first scan in days	11786	1	1-3	
Time from stroke to first scan in hours	6559	27	11-64	

**In your site, the time from stroke to first brain scan in hours was known for patients.**

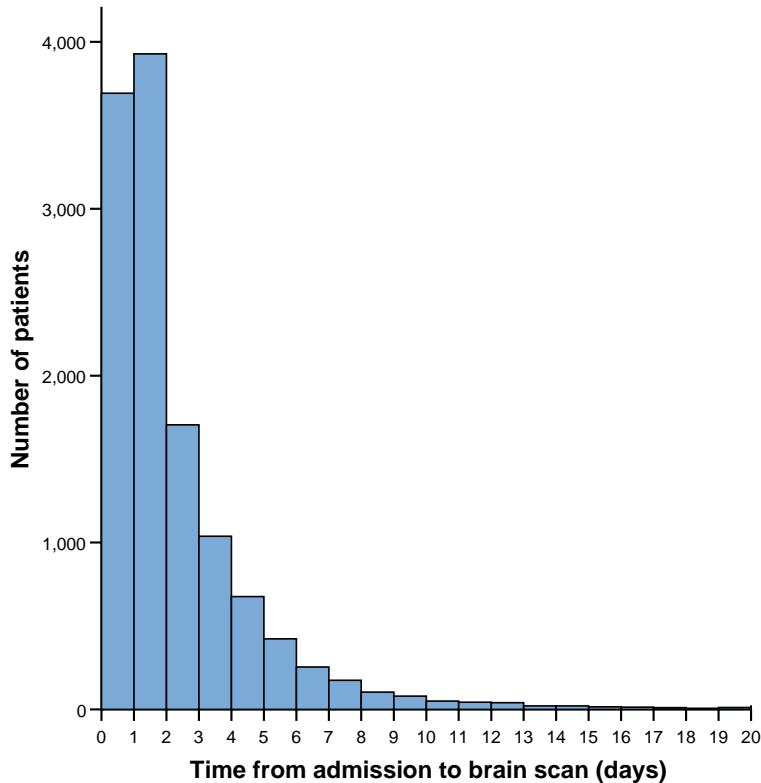
The graph below shows the pattern of scanning over a 24 hour day. This can be contrasted with the time of admission in section 3.12:

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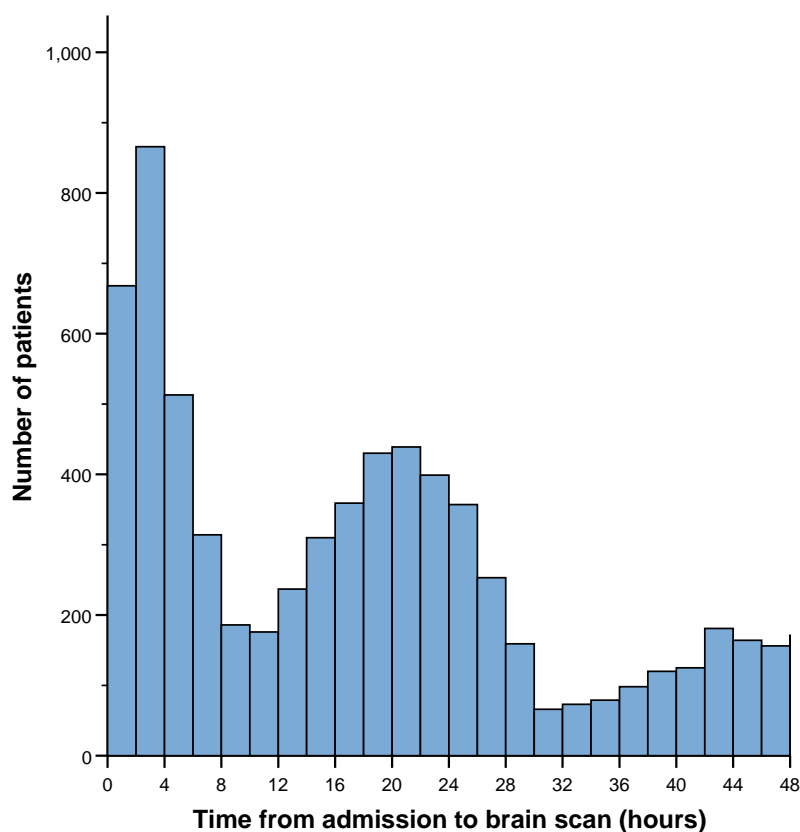


The histograms below show the same calculations of time in days and hours, but from admission to brain scan rather than stroke to brain scan.

Admission to scan in days could be calculated for 12659/12687 (99.8%) of those who had brain scans. 1.7% of these times were greater than 20 days and are not shown here for clarity.



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The time from admission to brain scan could be calculated for 9930/12687 (78%) of those patients who had a brain scan. 346 (3%) of these times were negative and were excluded from the analysis. The histogram above shows times from 0 to 48 hours; 29% of these times were greater than 48 hours and are not shown above for clarity.

All sites		
Patients known	12659	
Time from admission to scan in days:	N	%
0	3752	30
1	3953	31
2	1716	14
3	1045	8
4-7	1542	12
8-14	363	3
15-28	130	1
>28	158	1

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All sites		
9584		
Time from admission to scan in hours:	N	%
0-1	668	7
2	478	5
3	388	4
4	302	3
5-12	997	10
13-24	2258	24
25-48	1725	18
>48	2768	29
		<b>% Your site</b>
<b>Within 3 hrs</b>	1534	16
<b>Within 24 hrs</b>	5091	53

	All sites			Your site
	Known	Median	IQR	Median
Time from admission to first scan in days	12659	1	0-3	
Time from admission to first scan in hours	9584	23	8-59	

**In your site, the time from admission to first brain scan in hours was known for    patients.**

## 4.2 Multi-disciplinary Assessment (Domain 2)

- Problems remain with stroke patients getting timely access to therapists and social workers. The standards set for the audit should not be too challenging to meet. Yet a third of patients with swallowing disorders have not been assessed by a Speech and Language Therapist within 72 hours of admission or 7 days for those with communication deficits. 29% of patients with motor problems have not seen a physiotherapist within 72 hours and access to occupational therapy and social work is even worse. Not only is this likely to lead to worse patient outcomes but it will certainly increase the time that patients spend in hospital. Part of the problem is the persistence of policies within the NHS that attempt to provide all 'routine' care between 9 and 5 Mondays to Fridays. The service needs to acknowledge that illness does not recognise days of the week or times of day.

Standard	% cases standard applicable		% compliance with standard	
	All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q3.4 Swallowing assessed by Speech and Language Therapist within 72 hours of admission	47		67	
Q3.5 Patient assessed by Physiotherapist within 72 hours of admission	83		71	
Q4.1 Initial assessment of communication problems by speech and language therapist within 7 days of admission	46		69	
Q4.2 Patient assessed by Occupational therapist within 7 working days of admission	65		68	
Q5.2 Social work assessment within 7 days of referral	42		56	
Average for multidisciplinary assessment			66	

Of the 5949 patients assessed by an occupational therapist within 7 days, 74% (4419) were assessed within 4 days.

## 4.3 Screening and Functional Assessment (Domain 3)

- There have been slow improvements but again the targets set should not be challenging and it is disappointing that so many patients are still not being offered adequate screening and functional assessment. Assessment of weight, mood and cognition should be performed in nearly all patients.

Standard	% cases standard applicable		% compliance with standard	
	All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q5.1 Patient weighed at least once during admission	84		57	
Q5.3 Evidence patient's mood has been assessed	81		55	
Q5.4 Cognitive status assessed	80		71	
Average for Screening and Functional Assessment			61	

#### 4.4 Management/Care Planning (Domain 4)

- Nearly all trusts reported in the 2006 Organisational Audit that they conduct regular multidisciplinary meetings. And yet a quarter of patients with physical impairments have no rehabilitation goals documented in their notes. What purpose do the multidisciplinary meetings have for these patients?
- Effective management of urinary incontinence is extremely important for the patients for whom it is a distressing and disabling complication of stroke. That only just over half of patients with incontinence had any evidence of a written plan to promote continence is appalling. This aspect of stroke care should be given the highest priority for service development over the next year.
- For the first time a question has been asked about whether and how patients are nourished in the acute phase of stroke. A high percentage – 93% were receiving some form of nutrition by 72 hours.

Standard	% cases standard applicable		% compliance with standard	
	All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q5.5	Written evidence that rehabilitation goals agreed by multidisciplinary team	68	76	
Q4.4	Plan to promote urinary continence?	31	54	
Q3.6	Patient was receiving nutrition within 72 hours of admission	87	93	
Average for care planning			74	

#### 4.5 Communication with Patients and Carers (Domain 5)

- Assessment of carer needs is one of the areas of practice that has improved most since 2004 from 43% compliance to 68%. Smaller improvements (63% to 71%) were seen in the teaching of skills to carers to manage stroke patients at home.
- There has been a small deterioration in the standards assessing discussion with the patient about diagnosis (-1%) and prognosis (-4%). A third of patients had nothing recorded in their notes to indicate that these issues had been raised with them.

Standard	% cases standard applicable		% compliance with standard	
	All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q7.1i	Discussion with patient about diagnosis	65	69	
Q7.1ii	Discussion with patient about prognosis	64	59	
Q7.2	Carer needs for support assessed separately	50	68	
Q7.3	Skills taught to care for patient at home	23	71	
Q7.4	Home visit performed (visit with or with the patient)*	28	63	
Average for Communication: Patients and carers			66	

\* performing home visit with the patient was applicable for 17% and done for 78% of these.

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## 4.6 Risk Factor Management

This set of standards applies to the 10028 (74%) patients who were discharged at the time of data entry.

Standard	% cases standard applicable		% compliance with standard	
	All sites	<b>Your site</b>	All sites	<b>Your site</b>
Q6.1 Underlying causes for the stroke identified	74		73	

The full list of underlying causes identified by participants across the 7285 patients (73% of those who were discharged) was as follows:

- Hypertension 62% (4499)
- Atrial fibrillation 27% (1961)
- Current smoker 17% (1240)
- Carotid stenosis 9% (646)
- Alcohol abuse 6% (446)
- MI within last month 4% (286)
- Other 32% (2331)

The "other" causes were classified according to free-text information provided by the auditors. This information was not compulsory so it may under-estimate the prevalence. There is also a possible bias if the sites who provided this information were not representative of the service as a whole. The categories accounting for 1% or more of the 7285 patients were:

- Hyperlipidaemia (801, 11%)
- Diabetes (514, 7%)
- Previous stroke (259, 4%)
- Ischaemic heart disease (188, 3%)

The audit asked whether patients or their carers received advice on diet by the time of their discharge from hospital. This is a broader question than in previous rounds of audit, which focussed on those with hyperlipidaemia. Dietary advice is assessed here for all patients discharged alive. Advice on exercise is assessed for 5812 patients who were discharged alive during the audit and had Barthel mobility scores on discharge of 3 ("independent, may use stick"). Alcohol reduction is assessed for the 446 patients discharged alive for whom alcohol abuse was noted as a probable cause of stroke; smoking cessation similarly for 1240 patients.

- Only 9% of admitted patients were recorded as being current smokers the majority of whom did have evidence of being advised to stop.
- Exercise after stroke is valuable as a way of improving physical fitness and losing weight. Less than half of people who had regained the ability to walk (as judged by a mobility score on the Barthel Index of 3) were recorded as having been given advice about exercise

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- Nearly all stroke patients should receive dietary advice, particularly about salt intake, cholesterol and calories. However again only 42% had any documentation to show that this has been provided

Applicable to patient denominator:		10028 (74%)					
		% compliance with standard					
Q6.2	Risk factors discussed with patient and/or carer	Known	Applicable	All sites		Your site	
				N	%	N applicable	%
	Smoking cessation	1238	1177	927	79		
	Alcohol reduction	443	415	331	80		
	Exercise	5796	5009	2067	41		
	Diet	9993	7837	3310	42		

## Research

- Only 3% of stroke patients were entered into a research trial

If care for stroke patients is to improve more patients should be entered into research studies. The Stroke Research Network has been set up to address this issue and the evidence from his audit suggests that there is enormous capacity to increase participation in research.

**Your site:** %



## Section 5 Comparative Results for 2006: Medication and Secondary Prevention

### Introduction

This section analyses the prescription of drugs prior to admission (13625 patients) and at discharge (10028 patients), according to patient risk factors.

### 5.1 Class of drugs pre-admission

- 72% of patients (9831) were on an antihypertensive, an antithrombotic, an antiplatelet or a lipid lowering drug before admission. 22% (2966) were on all three.
- The fact that so many patients are on anti-platelet agents and antihypertensive drugs prior to admission highlights the urgent need for research to answer the questions as to whether these drugs should be stopped, continued or changed following an acute stroke
- The increased used of statins in primary care is confirmed in the audit. In 2004 22% of patients were admitted on a lipid lowering drug and this has now increased to 33%

Q2.3i	% All sites (13625 patients)	% <b>Your site</b>
% Receiving one or more of the following before admission:	72	
% Antihypertensive	57	
% Antiplatelet/antithrombotic	51	
% Lipid lowering	33	

### 5.2 Antihypertensive Medication

- 57% of patients were admitted already taking at least one antihypertensive drug. 82% of known hypertensives were taking antihypertensives.
- 17% of discharged patients had treatment with blood pressure lowering drugs initiated during their admission to hospital, and on discharge 70% of patients were on treatment. National Clinical Guidelines recommend not starting treatment until two weeks after acute ischaemic stroke so it is likely that the total percentage of stroke patients ending up on antihypertensive treatment will be even higher

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Q2.3 <i>Pre-admission medication</i>	Antihypertensive medication rates prior to admission for all patients			Antihypertensive medication rates prior to admission for patients with a history of hypertension (systolic >140 or diastolic >85)		
	All sites		%	All sites		%
	Patient denominator	13625	<b>Your site</b>	Patient denominator	7179	<b>Your site</b>
Drug:	Patients	%	Patients	%	Patients	%
ACE inhibitor or Angiotensin-II receptor antagonist	4055	30	3150	44		
Alpha blocker	535	4	463	6		
Beta blocker	2938	22	2231	31		
Calcium channel blocker	2165	16	1759	25		
Thiazide diuretic	2296	17	1867	26		
Other antihypertensive	518	4	360	5		
1 or more drugs	7802	57	5886	82		
None of the above	5823	43	1293	18		
1 drug	4302	32	2994	42		
2 drugs	2485	18	2012	28		
3 or more drugs	1015	7	880	12		

The National Clinical Guideline for Stroke recommends continuing with pre-existing medication in the immediate aftermath of stroke but not starting new treatment for raised blood pressure until 14 days after the acute event. The data collected for this round of the audit is able to examine compliance with this recommendation for the first time.

Of those discharged (10028):

	On anti-hypertensives prior to admission (5798)		Not on anti-hypertensives prior to admission* (4230)			
	No longer on anti-hypertensives at discharge	Still on anti-hypertensives at discharge	Still not on anti-hypertensives at discharge	New prescription by discharge		
				0-14 days after stroke	>14 days after stroke	Stroke to discharge not known
All sites (n=10028)	6% (558)	52% (5238)	25% (2461)	7% (739)	9% (920)	1% (110)

\* - this column includes those patients in whom hypertension was not diagnosed prior to admission. Some will have been diagnosed during their stroke care as an inpatient but we can only identify those in whom newly diagnosed hypertension was also considered a *probable underlying cause of stroke*.

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Q6.3 <i>Medication on discharge</i>	Antihypertensive medication rates for all patients at discharge		Antihypertensive medication rates at discharge for patients in whom <b>hypertension</b> has been identified as a probable cause of stroke			
	All sites 10028		% <b>Your site</b>	All sites 4499		% <b>Your site</b>
Patient denominator	Patients	%	Patients	%	Patients	%
Drug:						
ACE inhibitor or Angiotensin-II receptor antagonist	4745	47	2729	61		
Alpha blocker	356	4	221	5		
Beta blocker	2053	20	1190	26		
Calcium channel blocker	1824	18	1191	26		
Thiazide diuretic	1744	17	1097	24		
Other antihypertensive	345	3	166	4		
1 or more drugs	7009	70	3964	88		
1 drug	3975	40	2031	45		
2 drugs	2169	22	1350	30		
3 or more drugs	865	9	583	13		
None of the above	3019	30	537	12		
Reason for not prescribing:						
Not indicated	2444	81	319	59		
Patient refused	32	1	8	1		
Under review	360	12	160	30		
Contra-indications	185	6	49	9		

### 5.3 Anti-thrombotic treatment

- Of patients with a pre-stroke co-morbidity of atrial fibrillation, 25% (658/2671) were on warfarin before admission. Given the clear evidence that anticoagulation of patients in atrial fibrillation is the most effective way of preventing stroke, this is a much lower figure than one would have hoped.
- Only 79% of the 2721 patients with a previous history of ischaemic heart disease were admitted on any form of antithrombotic medication. This is an unacceptably large failure in provision of the most basic form of secondary prevention. Correcting this would probably reduce the stroke rate considerably, saving lives and reducing long term disability.
- Only 23% of patients were discharged on the combination of aspirin and dipyridamole MR. Since the collection of this data the ESPRIT trial has been published confirming the previous ESPS 2 study that the combination of aspirin and dipyridamole is superior to aspirin alone at preventing recurrent stroke. The expectation is that the use of the combination will increase between now and the next round of audit
- The combined use of aspirin and clopidogrel has reduced since the last audit from 4% to 2% overall in line with the evidence that the combination is inappropriate for stroke prevention.

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- 34% of patients with atrial fibrillation were discharged on an anticoagulant. While not all patients in atrial fibrillation will be appropriate for anticoagulation because of severe stroke, risk of falling and other contraindications this figure is lower than one would predict for ideal stroke management. Use of anticoagulation has risen since 2001 but is still an underused treatment.

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Q2.3 <i>Pre-admission medication</i>	Antithrombotic / antiplatelet prescribing rates for all patients prior to admission		Antithrombotic / antiplatelet prescribing rates prior to admission for patients with history of <b>hyperlipidaemia</b>		Antithrombotic / antiplatelet prescribing rates prior to admission for patients with history of <b>atrial fibrillation</b>		Antithrombotic / antiplatelet prescribing rates prior to admission for patients with history of <b>prior stroke or TIA</b>		Antithrombotic / antiplatelet prescribing rates prior to admission for patients with history of <b>myocardial infarction or angina</b>	
	All sites	<b>% Your site</b>	All sites	<b>% Your site</b>	All sites	<b>% Your site</b>	All sites	<b>% Your site</b>	All sites	<b>% Your Site</b>
	Patient denominator		2549		2671		3993		2721	
	N	%	N	%	N	%	N	%	N	%
Any antithrombotic /antiplatelet drug	6192	51	1688	66	1973	74	3092	77	2142	79
Aspirin	5430	40	1356	53	1220	46	2361	59	530	19
Clopidogrel	676	5	207	8	157	6	395	10	290	11
Dipyridamole MR	545	4	162	6	114	4	438	11	110	4
Warfarin/other anticoagulant	902	7	167	7	658	25	369	9	234	9
Other antiplatelet / antithrombotic	82	0.6	20	1	12	0.4	39	1	16	0.6
Both Aspirin & Clopidogrel	189	1	66	3	38	1	100	3	114	4
Both Aspirin & Dipyridamole MR	413	3	130	5	87	3	336	8	81	3

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Q6.3 <i>Medication on discharge</i>	Antithrombotic / antiplatelet prescribing rates for all patients at discharge			Antithrombotic / antiplatelet prescribing rates at discharge for patients in whom <b>carotid stenosis</b> has been identified as a probable cause of stroke			Antithrombotic / antiplatelet prescribing rates at discharge for patients in whom <b>atrial fibrillation</b> has been identified as a probable cause of stroke			Antithrombotic / antiplatelet prescribing rates at discharge for patients in whom <b>an MI within the past month</b> has been identified as a probable cause of stroke		
	N	%	% Your site	N	%	% Your site	N	%	% Your site	N	%	% Your site
Patients discharged	10028			646			1961			286		
Any antithrombotic / antiplatelet	8631	86		626	97		1811	92		253	88	
Aspirin	6891	69		506	78		1112	57		202	71	
Clopidogrel	828	8		95	15		121	6		52	18	
Dipyridamole MR	2469	25		236	37		329	17		60	21	
Warfarin/other anticoagulant	1072	11		66	10		670	34		39	14	
Other antiplatelet / antithrombotic	153	2		14	2		14	1		1	0.3	
Both Aspirin & Clopidogrel	232	2		46	7		36	2		35	12	
Both Aspirin & Dipyridamole MR	2301	23		225	35		301	15		55	19	
Reasons for not prescribing:												
Not indicated	400	29		7	35		39	26		8	24	
Patient refused	27	2		0	0		3	2		0	0	
Under review	100	7		4	20		18	12		1	3	
Haemorrhagic stroke	694	50		6	30		53	35		17	52	
Other contraindications	189	14		3	15		39	26		7	21	

All patients not prescribed one of these drugs by discharge had a reason recorded.

Of the 6757 patients who had ischaemic stroke revealed by brain scan and who went on to be discharged, 95% (6413) were prescribed an antiplatelet or antithrombotic by discharge. Corresponding figure for other stroke types were: haemorrhagic infarct 50% (114/230), haemorrhagic stroke 11% (95/891), no type recorded 95% (1825/1913).

- A key audit standard is commencement of aspirin by 48 hours after stroke. This is based upon two large randomised trials, IST and CAST which showed

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modest, but definite benefit for early use of aspirin after ischaemic stroke. It is of grave concern that only 71% of patients achieved this standard

Q3.3	Known	% Applicable	% Aspirin by 48 hours
All sites	13625	73	71
<b>Your site</b>			

### 5.4 Lipid regulating agents

- One third of patients are admitted already taking a statin and 78 % are taking one by discharge. This is a dramatic increase in the use of statins over the last 5 years
- Surprisingly large numbers of patients with a history of diabetes or ischaemic heart disease were not taking a statin on admission (44% and 47% respectively)

Q2.3 <i>Pre-admission medication</i>	Lipid-lowering agent prescribing rates for all patients prior to admission		Lipid-lowering agent prescribing rates prior to admission for patients with a history of <b>hyperlipidaemia</b>		Lipid-lowering agent prescribing rates prior to admission for patients with a history of <b>diabetes</b>		Lipid-lowering agent prescribing rates prior to admission for patients with a history of <b>myocardial infarction or angina</b>	
	N	%	N	%	N	%	N	%
Patient denominator	13625		2549		2227		2721	
		<b>% Your site</b>		<b>% Your site</b>		<b>% Your site</b>		<b>% Your site</b>
Any lipid-lowering agent	4478	33	1843	72	1274	57	1586	58
Statin	4411	32	1820	71	1250	56	1439	53
Other agent	89	0.7	33	1	30	1	34	1

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Q6.3 <i>Medication on discharge</i>	Lipid-lowering agents prescribing rates for all patients at discharge			Lipid-lowering agents prescribing rates at discharge for patients in whom <b>carotid stenosis</b> has been identified as a probable cause of stroke			Lipid-lowering agents prescribing rates at discharge for patients in whom <b>MI within the last month</b> has been identified as a probable cause of stroke		
	10028		% <b>Your Site</b>	646		% <b>Your Site</b>	286		% <b>Your Site</b>
Patients discharged	N	%	N	%	N	%	N	%	
Any lipid-lowering agent	7901	79	608	94	238	83			
Statin	7817	78	602	93	236	83			
Other agent	84	1	6	1	2	1			
Reasons for not prescribing:									
Not indicated	1421	67	25	66	29	60			
Patient refused	36	2	0	0	0	0			
Under review	224	11	6	16	7	15			
Life expectancy less than 2 years	325	15	4	11	8	17			
Other contraindications	129	6	3	8	4	8			
No reason given	0	0	0	0	0	0			



## Section 6. Comparative Results for 2006: A one-page summary

### 6.1 Key process indicators: site variation

Table gives % compliance with each indicator, for applicable patients			ALL 246 sites			Your site %
			25% sites score below	Median score	25% of sites score above	
1	Q1.7	Treated in a stroke unit during their stay	47	66	80	
2	Q1.9	More than 50% of stay on a stroke unit	39	58	71	
3	Q3.1	Screened for swallowing disorders within first 24 hours of admission	53	67	81	
4	Q1.12iii	Brain scan within 24 hours of stroke	30	40	57	
5	Q3.3	Commenced aspirin by 48 hours after stroke	59	73	87	
6	Q3.5	Physiotherapy assessment within first 72 hours of admission	59	73	87	
7	Q4.2	Assessment by an Occupational Therapist within 7 days of admission	47	70	88	
8	Q5.1	Weighed at least once during admission	34	58	75	
9	Q5.3	Mood assessed by discharge	33	56	76	
10	Q6.3	On antithrombotic therapy by discharge	All sites scored 100%			
11	Q5.5	Rehabilitation goals agreed by the multi-disciplinary team	65	82	93	
12	Q7.4	Home visit performed before discharge	47	67	84	
KEY 12	Average for 12 indicators for 2006		57	65	74	

### 6.2 Process domain and total scores: site variation

2004 Process of care Domain	SITE VARIATION	ALL sites			Your site score
		25% sites score below	Median score	25% of sites score above	
D1	Initial patient assessment (4 standards)	57	66	75	
D2	Multidisciplinary assessment (5)	54	66	79	
D3	Screening & Functional assessment (3)	48	61	73	
D4	Care planning (3)	64	74	86	
D5	Communication with patients & carers (5)	53	67	81	
Total	(D1+D2+D3+D4+D5)/5	58	67	76	
KEY 12	Items as described earlier	57	65	74	

# Section 7 The 12 key indicators for all hospitals grouped by Region

This section of the report describes the performance of each of the 224 participating hospitals for the 12 key indicators. The 12 indicators each represent an important aspect of care and together provide a summary of hospital performance. The national compliance rate for each standard and the percentage of patients for whom the standard applied can be found in Section 1.7

## **Interpretation of this section of the report**

This section of the report should be read in context as part of a full report on the clinical phase of the fourth round of the National Sentinel Stroke audit. In particular:

- The background to selection of the indicators appears in the introduction section
- The methods used to obtain the data (retrospective casenote review) are described on within the methods section
- The selection criteria (all patients admitted between 1<sup>st</sup> April and 30<sup>th</sup> June 2006) are outlined in further detail in the methods section
- The full wording of the questions is in Appendix 1

Table 1 presents the key indicator compliance results for each of the participating hospitals in alphabetical order by region. The actual number of cases analysed per hospital is shown in the first column (number in brackets). The Key 12 indicator score is stated for each hospital in 2006 and, where it is possible to directly compare the results for the key 12 in 2004. If there has been a change in configuration between this time, N/A is given. Please note the key indicator for majority of stay in a stroke unit includes patients who are still in hospital at the time of data submission for comparability with previous rounds. This differs from the denominator in the individual site report.

Table 2 presents the compliance for each key indicator by SHA or region.

If there are any queries please contact [alex.hoffman@rcplondon.ac.uk](mailto:alex.hoffman@rcplondon.ac.uk) Tel 0207 9351174 ext 378

The report is presented by country and then in alphabetical order of Strategic Health Authority (if applicable) and Trust name.

**TABLE ONE INDICATORS FOR ALL HOSPITALS REGIONALLY**

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
<b>ENGLAND</b>															
<b>EAST MIDLANDS SHA</b>															
Chesterfield Royal Hospital NHS Foundation Trust	62	56	55	81	44	57	67	43	34	14	100	63	30	54	58
Derby Hospitals NHS Foundation Trust	80	45	43	46	33	76	56	64	73	56	100	44	50	57	51
Kettering General Hospital NHS Trust	80	0	58	31	73	69	38	24	19	3	100	8	6	36	55
Northampton General Hospital NHS Trust	56	39	32	44	63	72	67	81	32	83	100	75	93	65	61
Nottingham University Hospital NHS Trust	146	70	68	72	28	84	69	77	74	62	100	88	38	69	N/A
Sherwood Forest Hospitals NHS Trust	76	51	30	58	36	66	48	25	23	83	100	55	53	52	65
United Lincolnshire Hospitals NHS Trust (Grantham and District Hospital)	28	39	29	54	39	43	95	83	55	70	100	100	100	67	25
United Lincolnshire Hospitals NHS Trust (Lincoln County)	40	60	58	50	25	28	68	76	69	59	100	95	45	61	58
United Lincolnshire Hospitals NHS Trust (Louth County Hospital)	20	80	80	89	11	86	94	100	32	29	100	93	100	74	65
United Lincolnshire Hospitals NHS Trust (Pilgrim Hospital)	69	46	36	47	22	69	50	47	66	56	100	63	22	52	42
University Hospitals of Leicester NHS Trust	68	78	76	68	57	64	85	66	79	39	100	96	64	73	60
<b>EAST MIDLANDS SHA overall % of 725 patients</b>	<b>725</b>	<b>51</b>	<b>52</b>	<b>57</b>	<b>40</b>	<b>69</b>	<b>62</b>	<b>59</b>	<b>53</b>	<b>51</b>	<b>100</b>	<b>66</b>	<b>45</b>	<b>59</b>	<b>56</b>
<b>EAST OF ENGLAND SHA</b>															
Basildon & Thurrock University Hospitals NHS Foundation Trust	66	35	32	42	30	42	56	39	60	78	100	51	60	52	63
Bedford Hospital NHS Trust	51	35	33	72	24	56	87	94	53	16	100	86	73	61	53
Cambridge University Hospitals NHS Foundation Trust	73	81	75	84	70	96	95	98	75	69	100	92	25	80	71
East & North Hertfordshire NHS Trust (Lister Hospital)	53	40	34	73	43	55	65	29	62	27	100	45	40	51	51

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
East and North Hertfordshire NHS Trust (Queen Elizabeth II Hospital)	50	24	14	61	42	60	43	8	53	16	100	50	60	44	44
Essex Rivers Healthcare NHS Trust	74	59	53	46	34	40	57	53	79	50	100	69	69	59	59
Hinchingbrooke Health Care NHS Trust	46	22	20	73	22	67	74	43	85	33	100	92	80	59	47
Ipswich Hospital NHS Trust	80	63	60	86	11	60	59	65	60	57	100	100	58	65	53
James Paget University Hospitals NHS Foundation Trust	80	55	48	23	15	41	63	63	71	77	100	63	72	58	48
Luton and Dunstable Hospital NHS Foundation Trust	78	59	50	69	47	56	65	52	96	15	100	69	75	63	59
Mid Essex Hospital Services NHS Trust	80	85	83	69	38	70	81	91	84	50	100	92	100	79	54
Norfolk & Norwich University Hospital NHS Trust	80	65	39	53	18	68	73	53	31	53	100	71	58	57	58
Peterborough and Stamford Hospitals NHS Foundation Trust	80	69	65	75	34	40	72	92	82	15	100	84	38	64	79
Princess Alexandra Hospital NHS Trust	66	76	71	67	53	51	76	69	86	67	100	94	63	73	75
Southend University Hospital NHS Foundation Trust	71	32	31	93	39	83	82	96	31	72	100	73	71	67	45
The Queen Elizabeth Hospital King's Lynn NHS Trust	58	74	69	57	29	59	74	86	71	64	100	73	70	69	48
West Hertfordshire Hospitals NHS Trust (Hemel Hempstead Hospital)	55	93	89	72	38	88	96	95	27	50	100	95	100	79	48
West Hertfordshire Hospitals NHS Trust (Watford General Hospital)	71	82	79	98	76	98	98	100	56	66	100	98	100	88	81
West Suffolk Hospitals NHS Trust	73	68	60	50	40	93	43	30	52	61	100	78	63	61	69
<b>EAST OF ENGLAND SHA overall % of 1285 patients</b>	<b>60</b>	<b>54</b>	<b>67</b>	<b>37</b>	<b>65</b>	<b>71</b>	<b>69</b>	<b>65</b>	<b>50</b>	<b>100</b>	<b>79</b>	<b>62</b>	<b>65</b>	<b>59</b>	
<b>LONDON SHA</b>															
Barking Havering and Redbridge Hospitals NHS Trust (King George)	45	16	16	95	60	83	77	69	58	50	100	58	47	61	52
Barking, Havering & Redbridge Hospitals NHS Trust (Oldchurch & Harold Wood hospitals in collaboration with Havering PCT)	81	27	26	87	65	86	72	78	55	55	100	68	59	65	N/A

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
Barnet and Chase Farm Hospitals NHS Trust (Barnet Hospital), Barnet PCT and Finchley Memorial Hospital	59	81	71	68	51	94	96	98	90	78	100	91	93	84	72
Barnet and Chase Farm Hospitals NHS Trust (Chase Farm Hospital)	62	73	68	74	81	91	88	87	68	54	100	96	79	80	59
Barts and The London NHS Trust jointly with Tower Hamlets PCT	51	96	88	88	65	95	78	100	86	81	100	100	100	90	78
Bromley Hospitals NHS Trust	76	37	34	47	25	89	28	22	48	56	100	85	36	51	56
Chelsea and Westminster Hospital NHS Foundation Trust	49	86	78	79	84	95	98	97	70	76	100	95	100	88	82
Ealing Hospital NHS Trust	62	69	58	92	52	91	83	42	100	15	100	4	91	66	67
Epsom and St Helier University Hospitals NHS Trust (Epsom Hospital)	62	58	53	51	20	64	17	10	72	20	100	35	40	45	41
Epsom and St Helier University Hospitals NHS Trust (St Helier Hospital)	59	73	69	78	22	96	49	68	69	76	100	72	86	71	69
Guy's & St Thomas' Hospital NHS Foundation Trust	79	95	92	94	82	95	97	87	74	90	100	98	87	91	86
Hammersmith Hospitals NHS Trust	79	59	44	55	54	86	76	68	96	56	100	69	75	70	N/A
Hillingdon Hospital NHS Trust	54	78	67	31	61	90	88	88	84	20	100	79	62	71	70
Homerton University Hospital NHS Foundation Trust	39	72	72	63	64	90	78	47	82	68	100	77	95	76	68
King's College Hospital NHS Trust	64	78	72	79	79	98	75	94	53	56	100	74	67	77	68
Kingston Hospital NHS Trust	40	58	55	55	43	81	64	87	44	35	100	75	45	62	38
Lewisham Hospital NHS Trust	79	82	82	73	63	89	91	55	60	27	100	98	81	75	56
Mayday Healthcare NHS Trust	46	46	41	40	30	82	53	68	34	64	100	86	78	60	67
Newham University Hospital NHS Trust	57	72	53	83	67	100	66	80	56	24	100	71	77	71	57
North Middlesex University Hospital NHS Trust - Jointly with Haringey PCT	47	53	47	69	70	94	67	84	76	31	100	81	42	68	47
North West London Hospitals NHS Trust (Central Middlesex Hospital including Willesden Community hospital (Brent PCT))	43	81	70	55	65	82	90	94	58	37	100	76	100	76	51

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<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
North West London Hospitals NHS Trust (Northwick Park Hospital)	64	50	82	36	91	85	91	55	20	100	63	93	68	72	
Queen Elizabeth Hospital NHS Trust	38	68	57	45	63	70	57	17	0	100	33	85	55	64	
Queen Mary's Sidcup NHS Trust	33	42	45	39	82	57	30	26	25	100	62	35	49	61	
Royal Free Hampstead NHS Trust	45	87	92	58	100	91	100	83	80	100	100	100	89	93	
St George's Healthcare NHS Trust	71	99	92	63	92	82	95	99	95	100	100	75	88	84	
St Mary's NHS Trust	51	82	86	80	97	93	78	96	86	100	100	54	86	89	
University College London Hospitals NHS Foundation Trust	30	87	59	83	100	85	100	69	80	100	96	50	83	83	
West Middlesex University Hospital NHS Trust	52	54	59	77	85	49	52	44	52	100	72	100	65	68	
Whipps Cross University Hospital NHS Trust	72	53	64	56	95	64	82	46	87	100	68	78	70	45	
Whittington Hospital NHS Trust	38	79	86	50	81	88	88	76	57	100	94	92	80	61	
<b>LONDON SHA overall % of 1727 patients</b>	<b>67</b>	<b>60</b>	<b>72</b>	<b>58</b>	<b>89</b>	<b>74</b>	<b>75</b>	<b>68</b>	<b>55</b>	<b>100</b>	<b>77</b>	<b>73</b>	<b>72</b>	<b>66</b>	
<b>NORTH EAST SHA</b>															
City Hospitals Sunderland NHS Foundation Trust	79	87	49	42	62	41	49	28	23	100	87	77	60	55	
County Durham and Darlington Acute Hospitals NHS Trust (Bishop Auckland)	49	80	77	39	93	79	85	90	83	100	94	94	82	68	
County Durham and Darlington Acute Hospitals NHS Trust (Darlington Memorial)	62	15	67	27	49	70	45	47	24	100	25	38	43	55	
County Durham and Darlington Acute Hospitals NHS Trust (University Hospital North Durham)	72	67	56	21	73	35	31	60	53	100	26	30	50	55	
Gateshead Health NHS Foundation Trust	69	68	47	22	50	44	34	30	20	100	63	43	48	64	
Newcastle upon Tyne Hospitals NHS Foundation Trust	76	93	81	65	76	84	54	46	43	100	87	71	74	77	
North Tees and Hartlepool NHS Trust (North Tees Hospital)	79	42	71	29	53	88	58	61	50	100	83	79	63	66	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
North Tees and Hartlepool NHS Trust (University Hospital of Hartlepool)	51	33	29	79	60	73	74	69	3	58	100	75	71	60	75
Northumbria Healthcare NHS Trust (Hexham General Hospital)	77	94	92	86	33	81	93	66	72	82	100	88	65	79	87
Northumbria Healthcare NHS Trust (North Tyneside District General Hospital)	80	90	90	84	51	77	91	92	78	78	100	95	78	84	67
Northumbria Healthcare NHS Trust (Wansbeck General Hospital)	76	87	84	71	32	56	89	45	44	51	100	83	50	66	67
South Tees Hospitals NHS Trust (The James Cook University Hospital)	73	89	85	82	68	83	86	98	38	81	100	100	95	84	73
South Tees Hospitals Trust in collaboration with Hambleton and Richmond PCT	24	83	67	56	54	80	57	46	67	86	100	93	86	73	48
South Tyneside NHS Foundation Trust	80	66	64	67	31	58	64	25	93	54	100	76	76	64	65
<b>NORTH EAST SHA overall % of 947 patients</b>	<b>72</b>	<b>67</b>	<b>70</b>	<b>40</b>	<b>67</b>	<b>72</b>	<b>58</b>	<b>54</b>	<b>53</b>	<b>100</b>	<b>78</b>	<b>67</b>	<b>67</b>	<b>66</b>	
<b>NORTH WEST SHA</b>															
Aintree Hospitals NHS Foundation Trust	80	94	56	97	48	98	99	85	9	77	100	98	20	73	77
Blackpool, Fylde & Wyre Hospitals NHS Trust (Blackpool Victoria Hospital)	80	59	41	28	32	64	36	3	52	16	100	17	54	42	55
Bolton Hospitals NHS Trust	67	51	51	59	46	63	65	45	65	63	100	60	56	60	47
Central Manchester and Manchester Children's University Hospital NHS Trust	58	79	64	84	50	87	77	91	85	63	100	93	70	79	73
Countess of Chester Hospital NHS Foundation Trust	78	71	59	78	40	56	74	98	70	57	100	90	53	70	55
East Cheshire NHS Trust	68	74	59	89	31	38	59	34	53	56	100	76	69	61	65
East Lancashire Hospitals NHS Trust (Blackburn Hyndburn & Ribble Valley)	67	30	25	74	34	67	56	78	67	43	100	87	55	60	51
East Lancashire Hospitals NHS Trust (Burnley Health Care NHS Trust)	74	58	54	38	30	35	45	24	48	33	100	72	44	48	40

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<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
Lancashire Teaching Hospitals NHS Foundation Trust (Royal Preston Hospital)	57	30	18	58	29	57	34	23	30	46	100	65	52	45	58
Lancashire Teaching Hospitals NHS Foundation Trust (Chorley and South Ribble)	57	2	0	31	33	41	31	35	2	10	100	18	67	31	48
Mid Cheshire Hospitals NHS Trust	64	66	64	93	56	92	98	93	88	88	100	100	100	87	65
Morecambe Bay Hospitals NHS Trust (Furness General Hospital)	33	91	52	69	50	83	89	83	75	25	100	81	60	71	56
Morecambe Bay Hospitals NHS Trust (Royal Lancaster Infirmary)	50	48	44	53	18	78	54	30	11	49	100	88	58	53	54
Morecambe Bay Hospitals NHS Trust (Westmorland General Hospital)	36	86	61	90	8	90	68	84	76	76	100	78	80	75	79
North Cheshire Hospitals NHS Trust	102	87	83	61	38	59	88	70	52	78	100	94	89	75	N/A
North Cumbria Acute Hospitals NHS Trust (Cumberland Infirmary)	66	53	14	87	66	70	73	85	70	68	100	100	67	71	62
North Cumbria Acute Hospitals NHS Trust (West Cumberland Hospital)	46	54	37	67	65	52	51	43	47	41	100	96	79	61	56
Pennine Acute Hospitals NHS Trust (Fairfield General Hospital)	50	96	88	88	69	100	93	97	93	98	100	100	94	93	49
Pennine Acute Hospitals NHS Trust (North Manchester General)	61	80	44	79	35	88	81	70	64	63	100	98	96	75	39
Pennine Acute Hospitals NHS Trust (Rochdale Infirmary)	32	69	66	84	81	86	18	81	70	70	100	93	65	73	38
Pennine Acute Hospitals NHS Trust (Royal Oldham Hospital)	57	74	70	59	40	35	80	16	62	41	100	73	29	57	27
Royal Liverpool & Broadgreen University Hospitals NHS Trust	79	76	59	60	34	56	73	85	55	42	100	82	75	66	59
Salford Royal NHS Foundation Trust	81	84	81	86	64	78	92	97	78	83	100	44	85	81	63
South Manchester University Hospitals NHS Trust	80	98	90	77	66	72	67	46	88	99	100	94	100	83	90
Southport and Ormskirk Hospital NHS Trust	80	53	48	60	28	68	90	96	31	83	100	96	90	70	75
St Helens & Knowsley Hospitals NHS Trust	80	75	73	53	33	74	64	88	24	63	100	100	69	68	65



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<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
Stockport NHS Foundation Trust	79	61	58	47	35	61	69	89	38	38	100	89	95	65	64
Tameside and Glossop Acute Services	52	40	37	32	25	22	8	22	71	55	100	62	26	42	52
Trafford Healthcare NHS Trust	32	0	0	52	38	42	21	70	59	12	100	43	77	43	48
Wirral Hospital NHS Trust	80	56	50	80	41	44	64	68	64	58	100	90	57	64	63
Wrightington, Wigan and Leigh NHS Trust	73	53	44	62	22	68	78	42	38	63	100	79	71	60	56
<b>NORTH WEST SHA overall % of 1999 patients</b>	<b>64</b>	<b>53</b>	<b>67</b>	<b>41</b>	<b>65</b>	<b>67</b>	<b>66</b>	<b>55</b>	<b>59</b>	<b>100</b>	<b>80</b>	<b>68</b>	<b>66</b>	<b>58</b>	
<b>SOUTH CENTRAL SHA</b>															
Buckinghamshire Hospitals NHS Trust (Amersham & Wycombe Hospitals)	66	68	59	55	32	56	82	60	82	30	100	48	55	61	53
Buckinghamshire Hospitals NHS Trust (Stoke Mandeville Hospital)	36	58	47	86	39	58	41	67	58	59	100	35	56	59	41
East Hampshire Primary Care Trust jointly with Portsmouth Hospitals NHS Trust	78	64	54	60	31	47	81	42	39	57	100	84	68	61	71
Heatherwood & Wexham Park Hospitals	50	90	86	68	43	90	88	93	2	37	100	37	65	67	74
Isle of Wight Healthcare NHS Trust	77	45	44	77	55	53	94	67	71	78	100	93	88	72	56
Milton Keynes General NHS Trust	44	66	61	84	70	95	86	94	79	30	100	70	70	75	64
North Hampshire Hospitals NHS Trust	35	80	60	61	29	80	72	45	76	16	100	95	88	67	80
Oxford Radcliffe Hospitals NHS Trust (Oxford Radcliffe Hospitals NHS Trust)	80	44	39	52	63	92	62	81	22	67	100	93	29	62	N/A
Royal Berkshire NHS Foundation Trust	80	74	51	95	44	67	91	95	87	32	100	89	100	77	78
Southampton University Hospitals NHS Trust (Southampton General Hospital)	80	54	50	41	39	74	62	51	73	64	100	79	61	62	45
Winchester and Eastleigh Healthcare NHS Trust	60	85	75	96	42	94	96	97	81	84	100	100	100	88	74
<b>SOUTH CENTRAL SHA overall % of 686 patients</b>	<b>64</b>	<b>55</b>	<b>71</b>	<b>44</b>	<b>73</b>	<b>79</b>	<b>74</b>	<b>61</b>	<b>51</b>	<b>100</b>	<b>78</b>	<b>66</b>	<b>68</b>	<b>63</b>	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
<b>SOUTH EAST COAST SHA</b>															
Ashford and St Peter's Hospital NHS Trust	73	44	33	31	70	87	75	45	31	16	100	37	58	52	N/A
Brighton & Sussex University Hospitals NHS Trust (Brighton)	77	100	100	96	77	98	95	98	84	90	100	85	40	89	78
Brighton & Sussex University Hospitals NHS Trust (Mid Sussex)	40	80	75	58	60	66	75	58	70	37	100	78	36	66	73
Dartford & Gravesham NHS Trust	79	67	59	51	28	33	81	46	67	32	100	72	48	57	57
East Kent Hospitals NHS Trust (William Harvey Hospital Ashford)	68	65	62	48	24	69	72	66	59	26	100	73	40	59	56
East Kent Hospitals NHS Trust (Kent & Canterbury Hospital)	62	50	47	44	48	66	75	88	25	20	100	80	29	56	43
East Kent Hospitals NHS Trust (Queen Elizabeth Queen Mother Hospital, Margate)	65	60	54	58	59	52	66	81	29	26	100	62	57	59	44
East Sussex Hospitals NHS Trust (Conquest Hospital)	79	62	53	70	20	39	78	86	91	80	100	94	70	70	48
East Sussex Hospitals NHS Trust (Eastbourne Hospital)	53	85	77	45	51	61	79	22	96	38	100	3	80	61	57
Frimley Park Hospitals NHS Foundation Trust	69	61	51	77	58	67	89	68	53	73	100	82	100	73	68
Maidstone and Tunbridge Wells NHS Trust (Kent and Sussex)	58	24	2	41	54	63	57	9	35	21	100	18	0	35	45
Maidstone and Tunbridge Wells NHS Trust (Maidstone Hospital)	35	3	3	57	31	62	54	65	28	59	100	20	43	44	62
Medway Maritime Hospital, Medway PCT & Swale PCT	80	50	45	51	20	21	66	36	61	35	100	91	64	53	61
Royal Surrey County Hospital NHS Trust	75	79	68	73	58	86	86	83	22	72	100	94	63	74	71
Royal West Sussex Trust	78	77	73	68	60	63	47	95	87	82	100	100	25	73	74
Surrey & Sussex Healthcare NHS Trust	79	51	49	78	19	47	63	62	27	34	100	52	69	54	51
Worthing & Southlands Hospitals NHS Trust	80	83	69	87	15	82	82	31	88	26	100	100	100	72	55
<b>SOUTH EAST COAST SHA overall % for 1150 patients</b>	<b>63</b>	<b>56</b>	<b>61</b>	<b>43</b>	<b>62</b>	<b>74</b>	<b>64</b>	<b>57</b>	<b>46</b>	<b>100</b>	<b>72</b>	<b>46</b>	<b>62</b>	<b>58</b>	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
<b>SOUTH WEST SHA</b>															
Gloucestershire Hospitals NHS Foundation Trust (Cheltenham General Hospital)	80	65	41	88	20	87	71	98	56	90	100	95	100	76	76
Gloucestershire Hospitals NHS Foundation Trust (Gloucestershire Royal Hospital)	80	44	36	82	23	89	65	86	40	97	100	80	100	70	72
North Bristol NHS Trust	38	84	84	59	81	94	80	65	59	41	100	96	78	77	N/A
Northern Devon Healthcare NHS Trust	4	INSUFFICIENT CASES TO REPORT													
Plymouth Hospitals NHS Trust	26	77	73	48	62	95	83	62	0	17	100	32	9	55	50
Plymouth Primary Care Trust	32	81	0	71	N/A	89	94	44	97	100	100	100	100	80	84
Poole Hospital NHS Trust	68	75	71	76	31	81	87	61	54	46	100	78	79	70	58
Royal Bournemouth & Christchurch Hospitals NHS Foundation Trust	78	68	42	81	29	98	96	100	28	98	100	100	35	73	74
Royal Cornwall Hospitals Trust	80	34	21	49	16	65	38	49	28	18	100	76	55	46	60
Royal Devon & Exeter NHS Foundation Trust	80	63	56	78	30	59	54	70	65	76	100	87	47	65	N/A
Royal United Hospital Bath NHS Trust	28	50	39	59	50	100	68	68	27	59	100	74	57	63	51
Salisbury Health Care NHS Trust	59	54	51	93	39	97	93	100	41	72	100	93	100	78	84
South Devon (including South Devon Healthcare NHS Trust & Teignbridge, Torbay and South Hams & W.Devon PCTs)	79	81	78	88	61	89	85	97	65	83	100	90	100	85	88
Swindon & Marlborough NHS Trust (with Swindon PCT)	80	19	16	61	34	66	29	35	18	42	100	25	56	42	48
Taunton & Somerset NHS Trust	80	66	59	58	49	71	71	88	65	72	100	83	29	67	48
United Bristol Healthcare NHS Trust	77	83	75	80	64	71	73	67	77	67	100	84	68	76	63
West Dorset General Hospitals NHS Trust	73	75	71	82	27	74	88	89	48	45	100	73	65	70	75
Weston Area Health Trust	80	70	59	59	40	58	68	61	75	98	100	80	50	68	53
Yeovil District Hospital NHS Foundation Trust	68	90	81	64	60	83	97	93	34	88	100	81	58	77	43
<b>SOUTH WEST SHA overall % of 1190 patients</b>	<b>64</b>	<b>53</b>	<b>72</b>	<b>39</b>	<b>79</b>	<b>73</b>	<b>77</b>	<b>50</b>	<b>70</b>	<b>100</b>	<b>80</b>	<b>66</b>	<b>69</b>	<b>65</b>	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
<b>WEST MIDLANDS SHA</b>															
Burton Hospitals NHS Trust	80	45	38	45	30	81	80	94	13	76	100	80	61	62	51
Dudley Group of Hospitals NHS Trust	77	86	66	74	24	81	77	79	57	69	100	66	39	68	53
George Eliot Hospital NHS Trust	72	64	63	93	44	77	96	88	72	74	100	82	44	75	44
Good Hope Hospital NHS Trust	76	70	58	48	51	61	80	49	4	25	100	84	29	55	63
Heart of England NHS Foundation Trust	79	65	61	83	38	65	90	76	74	63	100	87	75	73	59
Hereford Hospitals NHS Trust	60	38	33	57	38	44	85	24	22	17	100	73	15	45	46
Mid Staffordshire General Hospitals NHS Trust	70	66	34	65	37	76	54	50	25	26	100	53	80	55	39
Royal Wolverhampton Hospitals NHS Trust jointly with Wolverhampton Health Care NHS Trust	80	69	66	89	58	80	72	78	79	75	100	84	100	79	70
Sandwell and West Birmingham Hospitals NHS Trust (City Hospital)	67	70	45	46	34	48	74	55	13	55	100	88	75	59	68
Sandwell and West Birmingham Hospitals NHS Trust (Sandwell District Hospital)	71	86	83	69	26	73	90	96	76	54	100	89	74	76	59
Shrewsbury & Telford Hospital NHS Trust	80	74	63	23	33	61	41	77	37	16	100	53	75	54	N/A
South Birmingham PCT with University Birmingham NHS Foundation Trust	70	77	67	52	28	71	76	79	70	16	100	15	42	58	N/A
South Warwickshire General Hospitals NHS Trust	51	73	67	65	47	90	91	89	29	41	100	76	46	68	62
South Worcestershire PCT	8	100	88	14	N/A	57	71	71	100	25	100	100	88	74	62
University Hospital of North Staffordshire NHS Trust & North Staffordshire Combined Healthcare NHS Trust Combined	80	91	73	81	40	32	76	90	75	68	100	90	100	76	N/A
University Hospitals Coventry and Warwickshire (St Cross Hospital Rugby)	21	67	67	86	5	38	71	67	38	44	100	62	60	59	70
University Hospitals Coventry and Warwickshire (Walsgrave Hospital)	80	58	48	52	35	67	27	36	25	43	100	75	25	49	46
Walsall Hospitals NHS Trust	79	73	67	55	33	69	65	50	61	44	100	78	69	64	35

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<b>All Hospitals (sites) overall % of 13625 patients</b>		<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>
Worcestershire Acute Hospitals NHS Trust (Alexandra Hospital Redditch)	48	31	25	67	54	65	50	85	5	17	100	91	--	54	61
Worcestershire Acute Hospitals NHS Trust (Worcester Royal Hospital)	79	70	32	38	56	60	76	53	6	32	100	94	43	55	62
<b>WEST MIDLANDS SHA overall % of 1328 patients</b>		<b>68</b>	<b>56</b>	<b>62</b>	<b>39</b>	<b>66</b>	<b>72</b>	<b>69</b>	<b>42</b>	<b>46</b>	<b>100</b>	<b>76</b>	<b>60</b>	<b>63</b>	<b>62</b>
<b>YORKSHIRE AND THE HUMBER</b>															
Airedale NHS Trust	47	45	40	59	40	69	26	26	63	20	100	36	50	48	52
Barnsley Hospital NHS Foundation Trust	59	58	37	88	22	26	88	35	30	43	100	43	80	54	65
Bradford Teaching Hospitals NHS Foundation Trust	60	90	77	91	51	87	94	19	31	54	100	87	86	72	76
Calderdale & Huddersfield NHS Foundation Trust	80	89	79	82	41	73	74	90	55	77	100	93	92	79	N/A
Doncaster & Bassetlaw Hospitals NHS Foundation Trust (Bassetlaw Hospital)	48	65	65	54	38	82	85	100	97	34	100	100	54	73	68
Doncaster & Bassetlaw Hospitals NHS Foundation Trust (Doncaster Royal Infirmary & Montagu Hospital)	80	73	71	82	19	97	93	91	95	68	100	75	81	79	N/A
Hambleton & Richmondshire PCT (Rutson Rehabilitation Unit)	20	100	95	100	N/A	94	90	100	90	80	100	100	100	95	71
Harrogate and District NHS Foundation Trust	56	0	0	65	52	88	92	100	63	42	100	100	13	59	54
Hull and East Yorkshire Hospitals NHS Trust	80	76	71	82	53	69	72	89	73	82	100	97	64	77	78
Mid Yorkshire Hospitals NHS Trust	178	25	23	67	25	65	70	74	52	55	100	56	58	56	N/A
Northern Lincolnshire and Goole Hospitals NHS Trust (Diana Princess of Wales Grimsby)	60	60	58	61	47	48	27	29	27	58	100	65	50	52	40
Northern Lincolnshire and Goole Hospitals NHS Trust (Scunthorpe General)	43	51	40	48	53	81	68	47	43	38	100	65	26	55	41
Scarborough and North East Yorks Health Care NHS Trust	77	44	29	52	32	56	65	43	27	58	100	71	42	52	65
Sheffield Teaching Hospitals NHS Foundation Trust	80	76	71	70	63	80	72	75	67	59	100	73	79	74	52
The Leeds Teaching Hospitals NHS Trust	71	73	72	80	68	77	70	54	73	46	100	70	85	72	73

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
The Rotherham NHS Foundation Trust	80	85	76	77	44	65	89	94	96	82	100	87	85	82	78
York Health Services NHS Trust	75	72	65	77	43	40	88	72	37	18	100	0	94	59	53
<b>YORKSHIRE &amp; THE HUMBER SHA overall % of 1194 patients</b>	<b>60</b>	<b>54</b>	<b>72</b>	<b>41</b>	<b>69</b>	<b>75</b>	<b>69</b>	<b>59</b>	<b>56</b>	<b>100</b>	<b>71</b>	<b>67</b>	<b>66</b>	<b>62</b>	
<b>NORTHERN IRELAND</b>															
Altnagelvin Hospitals Health & Social Services Trust	20	60	55	64	40	64	100	0	27	33	100	0	33	48	58
Belfast City Hospital Health & Social Services Trust	57	81	65	66	44	83	85	87	47	93	100	92	26	72	59
Causeway Health & Social Services Trust	23	0	0	62	41	88	86	85	53	60	100	90	63	61	62
Craigavon Area Hospital Group Trust	68	90	51	63	41	58	74	59	68	89	100	100	32	69	67
Down Lisburn Health and Social Services Trust	15	73	60	100	29	50	80	75	90	100	100	100	100	80	46
Mater Hospital Belfast Health & Social Services Trust	38	71	66	52	18	35	56	88	26	84	100	92	67	63	32
Newry & Mourne Health & Social Services Trust	40	95	85	57	58	83	82	85	32	94	100	92	46	76	60
Royal Group of Hospitals and Dental Health & Social Services Trust	23	65	61	60	13	69	88	60	53	50	100	71	29	60	81
Sperrin Lakeland Health and Social Care NHS Trust (Erne Hospital)	18	100	100	100	88	100	94	100	88	94	100	100	75	95	90
Sperrin Lakeland Health and Social Care NHS Trust (Tyrone County Hospital)	13	69	62	82	46	78	8	50	58	50	100	50	83	61	69
Ulster Community & Hospitals Trust	50	70	68	34	34	70	70	88	60	53	100	97	67	68	66
United Hospitals Health & Social Services Trust	37	54	49	64	35	41	63	85	23	69	100	80	100	64	50
<b>NORTHERN IRELAND overall % of 402 patients</b>	<b>73</b>	<b>60</b>	<b>62</b>	<b>40</b>	<b>68</b>	<b>74</b>	<b>73</b>	<b>50</b>	<b>77</b>	<b>100</b>	<b>88</b>	<b>50</b>	<b>68</b>	<b>62</b>	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>	<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>	
<b>WALES</b>															
Bro Morgannwg NHS Trust (Neath Port Talbot Hospital)	43	2	2	35	65	69	37	59	30	15	100	13	40	39	42
Bro Morgannwg NHS Trust (Princess of Wales Hospital )	45	0	0	63	47	50	42	73	49	35	100	84	24	47	47
Cardiff and Vale NHS Trust (Llandough Hospital)	64	50	42	35	23	76	39	30	52	37	100	43	60	49	54
Cardiff and Vale NHS Trust (University Hospital Wales)	76	29	25	38	37	75	39	17	52	33	100	46	55	46	53
Carmarthenshire NHS Trust (Prince Philip Hospital)	50	0	0	43	58	63	21	58	27	76	100	95	60	50	60
Carmarthenshire NHS Trust (West Wales General)	40	0	0	17	63	83	15	13	19	4	100	65	60	36	35
Ceredigion & Mid-Wales NHS Trust	20	0	0	88	30	83	63	57	41	29	100	29	0	43	47
Conwy & Denbighshire NHS Trust	54	63	43	60	33	82	53	89	45	22	100	57	33	57	71
Gwent Healthcare NHS Trust (Nevill Hall Hospital)	53	75	74	76	28	78	68	81	62	57	100	67	100	72	81
Gwent Healthcare NHS Trust (St Woolos, Royal Gwent and Caerphilly & District Miner's Hospitals)	69	87	61	26	33	72	44	70	44	77	100	83	71	64	N/A
North East Wales NHS Trust	48	50	48	72	54	86	77	67	82	77	100	89	32	69	72
North Glamorgan NHS Trust	49	0	0	24	27	39	20	13	13	0	100	3	8	20	37
North West Wales NHS Trust (Bangor Hospital)	76	0	0	81	24	97	100	71	52	93	100	100	60	65	59
North West Wales NHS Trust (Llandudno Hospital)	11	0	0	60	0	100	100	100	10	70	100	100	--	58	59
Pembrokeshire & Derwen NHS Trust	45	67	40	62	56	94	51	15	54	43	100	91	77	62	68
Pontypridd & Rhondda NHS Trust	78	15	13	80	27	88	50	42	93	65	100	88	93	63	43
Powys Local Health Board	29	17	0	70	0	88	67	70	79	92	100	84	79	62	73
Swansea NHS Trust (Morrison Hospital)	51	0	0	71	35	56	94	18	98	83	100	100	57	59	55
Swansea NHS Trust (Singleton Hospital)	24	0	0	47	42	86	59	78	32	38	100	42	67	49	57
<b>WALES overall % of 925 patients</b>	<b>28</b>	<b>22</b>	<b>55</b>	<b>38</b>	<b>76</b>	<b>54</b>	<b>50</b>	<b>54</b>	<b>53</b>	<b>100</b>	<b>70</b>	<b>53</b>	<b>54</b>	<b>56</b>	

Trust name (site name)	Number of cases in the audit	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
<b>All Hospitals (sites) overall % of 13625 patients</b>		<b>62</b>	<b>54</b>	<b>66</b>	<b>42</b>	<b>71</b>	<b>71</b>	<b>68</b>	<b>57</b>	<b>55</b>	<b>100</b>	<b>76</b>	<b>63</b>	<b>65</b>	<b>61</b>
<b>ISLANDS</b>															
Isle of Man Department of Health and Social Security	19	21	16	17	58	56	25	70	90	11	100	0	29	41	82
States of Guernsey Health & Social Services	20	0	0	67	55	82	83	69	88	50	100	36	67	58	74
States of Jersey Health & Social Services	28	0	0	88	64	75	59	47	48	74	100	72	58	57	58
<b>ISLANDS overall % of 67 patients</b>		<b>6</b>	<b>4</b>	<b>65</b>	<b>60</b>	<b>73</b>	<b>63</b>	<b>61</b>	<b>69</b>	<b>54</b>	<b>100</b>	<b>46</b>	<b>52</b>	<b>54</b>	<b>72</b>



TABLE TWO TOTAL KEY INDICATOR SCORE FOR ALL HOSPITALS IN EACH STRATEGIC HEALTH AUTHORITY AND REGION

Trust name (site name)	Patients treated in a Stroke Unit	Patients treated for >50% of stay in Stroke Unit	Screening for swallowing disorders < 24 hours after admission	Brain scan within 24 hours	Aspirin by 48 hours after stroke	Physiotherapist assessment within 72 hours of admission	OT assessment within 7 days of admission	Patient weighed during admission	Patient's mood assessed by discharge	Patient on antithrombotic therapy by discharge	Rehabilitation goals agreed by the multi-disciplinary team	Home visit performed before discharge	2006 key 12 indicator score	2004 key 12 indicator score
All Hospitals (sites)	62	54	66	42	71	71	68	57	55	100	76	63	65	61
EAST ENGLAND SHA	51	52	57	40	69	62	59	53	51	100	66	45	59	56
EAST OF ENGLAND SHA	60	54	67	37	65	71	69	65	50	100	79	62	65	59
LONDON SHA	67	60	72	58	89	74	75	68	55	100	77	73	72	66
NORTH EAST SHA	72	67	70	40	67	72	58	54	53	100	78	67	67	66
NORTH WEST SHA	64	53	67	41	65	67	66	55	59	100	80	68	66	58
SOUTH CENTRAL SHA	64	55	71	44	73	79	74	61	51	100	78	66	68	63
SOUTH EAST COAST SHA	63	56	61	43	62	74	64	57	46	100	72	46	62	58
SOUTH WEST SHA	64	53	72	39	79	73	77	50	70	100	80	66	69	65
WEST MIDLANDS SHA	68	56	62	39	66	72	69	42	46	100	76	60	63	62
YORKSHIRE & THE HUMBER SHA	60	54	72	41	69	75	69	59	56	100	71	67	66	62
NORTHERN IRELAND	73	60	62	40	68	74	73	50	77	100	88	50	68	62
WALES	28	22	55	38	76	54	50	54	53	100	70	53	54	56
ISLANDS	6	4	65	60	73	63	61	69	54	100	46	52	54	72

## Appendix 1 Intercollegiate Working Party for Stroke Membership 2007

Chair	Dr. Anthony Rudd, Consultant Physician St. Thomas Hospital London
Association of British Neurologists	Dr Gavin Young, Consultant Neurologist, James Cook University Hospital
Association of Chartered Physiotherapists Interested in Neurology (ACPIN)	Mrs Nicola Hancock, Superintendent Physiotherapist Queen Elizabeth Hospital King's Lynn NHS Trust
AGILE	Mrs Christine Fitzpatrick, Superintendent Physiotherapist, Conquest Hospital
British Association of Social Workers	Ms Bridget Penhale, Reader, Graduate Division of Nursing, University of Sheffield
British Association of Stroke Physicians	Professor Martin Brown, Professor of Stroke Medicine National Hospital for Neurology and Neurosurgery, Queen Square, London
British Dietetic Association	Ms Muriel Gall. Senior Dietitian, Community Stroke Rehabilitation Team, Gravesend & North Kent
British Geriatric Society	Dr Helen Rodgers, Reader in Stroke Medicine University of Newcastle
British Psychological Society	Dr Peter Knapp, Research Psychologist Stroke Outcomes Study, University of Leeds
British Psychological Society	Dr Audrey Bowen, Senior Lecturer in Psychology (Speech and Language Therapy) University of Manchester
Society for Research in Rehabilitation Medicine	Professor Derick Wade, Consultant Neurologist The Oxford Centre for Enablement, Oxford
Chartered Society of Physiotherapy	Dr Sheila Lennon, Senior Lecturer in Physiotherapy, University of Ulster
Cochrane Stroke Group	Professor Peter Langhorne, Professor of Stroke Care University of Glasgow
College of Occupational Therapists and SSNP (formerly NANOT)	Dr Avril Drummond, Principal Research Fellow, Queen's Medical Centre Nottingham
College of Occupational Therapists and SSNP (formerly NANOT)	Dr Judi Edmans, Research Occupational Therapist, Queen's Medical Centre Nottingham
Do Once and Share	Dr Helen Newton, Lead Consultant for Stroke The Great Western Hospital, Swindon
Faculty of Public Health	Professor Charles Wolfe, Dept Public Health Medicine, Kings College London
Health Economics	Professor Alistair McGuire, LSE Health and Social Care, London School of Economics

Primary Care Neurological Society	Dr Helen Hosker, GP with Special Interest in Older People's Service Development, Manchester
Qualitative Research Advisor	Dr Christopher McKeivitt, Senior Research Fellow King's College London
Royal College of General Practitioners	Professor David Fitzmaurice Dept of Primary Care and General Practice, University of Birmingham
Royal College of Nursing	Ms Amanda Jones, Stroke Nurse Consultant, Sheffield University Hospitals
Royal College of Nursing	Dr Lin Perry, Senior Research Fellow St Bartholomew School Nursing & Midwifery Whitechapel, London
Royal College of Nursing	Mr Stephen Cross, Stroke Nurse Specialist Stroke Unit, Hope Hospital, Salford
Royal College of Psychiatrists	Professor Allan House, Professor of Psychiatry, University of Leeds
Royal College of Radiologists & British Society of Neuroradiologists	Dr Philip White, Consultant Interventional Neuroradiologist, Western General Hospital, Edinburgh
Royal College of Speech & Language Therapists	Ms Kim Clarke, Head of Adult Speech & Language Therapy Services North West London Hospitals NHS Trust
Royal College of Speech & Language Therapists	Ms Rosemary Cunningham, Speech and Language Therapy Service Derbyshire Royal Infirmary
Royal Pharmaceutical Society	Derek Taylor, Chair of the Elderly Practice Interest Group, Clinical Pharmacy Association
Speakability	Ms Roz Rosenblatt, Information Services Manager, Speakability (previously Action for Dysphasic Adults)
Stroke Association	Mr Jon Barrick Chief Executive, Stroke Association
Stroke Association	Mr Joe Korner Director of Communications, Stroke Association
UK Swallowing Research Group	Dr Maxine Power, Senior Research Fellow, Hope Hospital, Salford
Welsh Stroke Physicians	Dr Anne Freeman, Consultant Physician, Royal Gwent Hospital



1.4 Date of discharge (If discharged alive): [    /    /    ] (dd/mm/yyyy)

Length of stay to discharge alive: [    ] days  
(will be calculated automatically when you enter dates online)

1.5 Date of death: [    /    /    ] (dd/mm/yyyy)

Or date of death not applicable

Time from stroke (or date of admission if not available) to death: [    ] days  
(will be calculated automatically when you enter dates online)

1.6 Was the patient alive at 30 days after stroke? Yes  No  Don't know

### ADMISSION/DISCHARGE

1.7 Was the patient treated in a Stroke Unit at any time during their stay? Yes  No

1.8 Was the patient admitted to a Stroke Unit within 4 hours of arrival at hospital? Yes  No

1.9 Where did the patient spend over 50% of their stay?

General/geriatric Ward   
Stroke Unit   
Rehabilitation Unit   
Other  Specify \_\_\_\_\_

1.10 Date of admission to stroke unit [    /    /    ] (dd/mm/yyyy)

1.11 Date of discharge from stroke unit [    /    /    ] (dd/mm/yyyy)

### SCAN

1.12 Did the patient have a brain scan after the stroke? Yes  No  Not known

If yes,

1.12i Date of first brain scan after the stroke [    /    /    ] (dd/mm/yyyy)

*\*Please make every effort to find the date and time of scan*

1.12ii Time of first brain scan after the stroke [    ] HH (24 hr Clock)

1.12iii Has a brain scan been carried out within 24 hours of stroke? Yes  No  Not known

1.12iv What did the scan show?

Infarct   
Haemorrhage   
Haemorrhagic Infarct   
No relevant abnormality

1.12v If no,  
Reason the patient did not have a scan:

- Patient refused/unable to co-operate
- Palliative care
- Scan not routinely available
- Other

If other specify \_\_\_\_\_

## SECTION 2 CASEMIX

### CO-MORBIDITIES

2.1 Any history of known co-morbidities prior to admission?  
(please select all that apply)

- Atrial Fibrillation
- Previous stroke or TIA
- Diabetes mellitus
- Hyperlipidaemia (total cholesterol >5 or LDL >3.0 mmol/L)
- Hypertension (systolic >140 or diastolic >85)
- Myocardial infarction or angina
- Valvular heart disease (aortic or mitral valves)
- Other serious illness that influences prognosis or management of stroke  
Please specify \_\_\_\_\_

None of the above apply

2.2 Was the patient newly institutionalised at discharge? Yes  No  Not Known

### PRE-ADMISSION MEDICATION

2.3 Was the patient on any of the following treatments before admission? Yes  No

2.3i If YES which classes of drugs were prescribed? (tick all that were prescribed):

Antihypertensives		Antiplatelet/thrombotic		Lipid lowering treatment	
ACE inhibitor or Angiotensin-II receptor antagonists	<input type="checkbox"/>	Aspirin	<input type="checkbox"/>	Statin	<input type="checkbox"/>
Alpha Blocker	<input type="checkbox"/>	Clopidogrel	<input type="checkbox"/>	Other	<input type="checkbox"/>
Beta Blocker	<input type="checkbox"/>	Dipyridamole MR	<input type="checkbox"/>	None	<input type="checkbox"/>
Calcium Channel blocker	<input type="checkbox"/>	Warfarin/other anticoagulant	<input type="checkbox"/>		
Thiazide diuretic	<input type="checkbox"/>	Other	<input type="checkbox"/>		
Other	<input type="checkbox"/>	None	<input type="checkbox"/>		
None	<input type="checkbox"/>		<input type="checkbox"/>		

2.4 Was the patient independent in everyday activities before the stroke? Yes  No  Don't know   
(e.g. Barthel 19-20 or Rankin <3)

**DEPENDENCY AT DISCHARGE**

## 2.5 Dependency at discharge (using the Barthel ADL Functional Assessment Scale)

<b>Bowels</b>	0 = Incontinent (or needs to be given enemata)	0	<input type="radio"/>
	1 = Occasional accident (once/week)	1	<input type="radio"/>
	2 = Continent	2	<input type="radio"/>
<b>Bladder</b>	0 = Incontinent, or catheterised	0	<input type="radio"/>
	1 = Occasional accident (max once per 24 hrs)	1	<input type="radio"/>
	2 = Continent (over 7 days)	2	<input type="radio"/>
<b>Grooming</b>	0 = Needs help with personal care	0	<input type="radio"/>
	1 = Independent face / hair / teeth / shaving (implements provided)	1	<input type="radio"/>
<b>Toilet Use</b>	0 = Dependent	0	<input type="radio"/>
	1 = Needs some help, can do something alone	1	<input type="radio"/>
	2 = Independent (on and off, dressing / wiping)	2	<input type="radio"/>
<b>Feeding</b>	0 = Unable	0	<input type="radio"/>
	1 = Needs help cutting, etc	1	<input type="radio"/>
	2 = Independent (food in reach)	2	<input type="radio"/>
<b>Mobility</b>	0 = Immobile	0	<input type="radio"/>
	1 = Wheelchair independent including corners etc.	1	<input type="radio"/>
	2 = Walks with help of one person (verbal or physical)	2	<input type="radio"/>
	3 = Independent (may use stick etc.)	3	<input type="radio"/>
<b>Transfer</b>	0 = Unable - no sitting balance	0	<input type="radio"/>
	1 = Major help (one / two people) can sit	1	<input type="radio"/>
	2 = Minor help (verbal or physical)	2	<input type="radio"/>
	3 = Independent	3	<input type="radio"/>
<b>Dressing</b>	0 = Dependent	0	<input type="radio"/>
	1 = Needs help, can do half unaided	1	<input type="radio"/>
	2 = Independent (including buttons, zips, laces etc)	2	<input type="radio"/>
<b>Stairs</b>	0 = Unable	0	<input type="radio"/>
	1 = Needs help (verbal/physical)	1	<input type="radio"/>
	2 = Independent	2	<input type="radio"/>
<b>Bathing</b>	0 = Dependent	0	<input type="radio"/>
	1 = Independent	1	<input type="radio"/>

**Total [            ] (will only be calculated on website if all sections completed)**

**MAXIMUM SEVERITY WITHIN FIRST WEEK**

2.6 What was the worst level of consciousness at the time of maximum severity within the first week after stroke?

- Fully conscious
- Drowsy
- Semi-conscious (not fully rousable)
- Unconscious (responds to pain only/no response)

**SECTION 3 STANDARDS WITHIN 72 HOURS**

Where the patient has been transferred from another hospital and data for the questions below is not available use the “No but..” option.

**PATIENT ASSESSMENT FIRST 24 HOURS**

3.1 Has screening for swallowing disorders (not gag reflex) been specifically recorded in the first 24 hours? Yes    No    No but  
     

Answer **No, but** if: impaired level of consciousness is documented.

3.2 If the patient is alert and able to communicate, is there a formal assessment of? Yes    No    No but

i) Visual fields      

ii) Sensory testing      

Answer **No, but...** if: impaired level of consciousness/communication is documented.

**PATIENT ASSESSMENT FIRST 48 HOURS**

3.3 Had the patient commenced aspirin by 48 hours after stroke? Yes    No    No but  
     

Answer **No, but...** if: patient died; patient has intra-cerebral haemorrhage; it is documented that aspirin was contra-indicated.

**PATIENT ASSESSMENT FIRST 72 HOURS**

3.4 Has swallowing been assessed within 72 hours of admission by a speech and language therapist (or of stroke if the stroke occurred in hospital)? Yes    No    No but  
     

Answer **No, but...** if: patient's swallowing is documented as normal: patient is still unconscious; patient died within 72 hours; patient is receiving palliative care.

3.5 Has the patient been assessed by a physiotherapist within 72 hours of admission (or of stroke if the stroke occurred in hospital)? Yes    No    No but  
     

Answer **No, but...** if: patient died within 72 hours; patient is receiving palliative care.

3.6 Was the patient receiving nutrition by 72 hours of admission? Yes    No    No but  
     

Answer **No, but...** if: patient refused or patient receiving palliative care

If yes,

3.6i Which of the following methods was in use?

- Oral
- Nasogastric/PEG
- Intravenous



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**SECTION 4 STANDARDS WITHIN 7 DAYS**


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**WITHIN SEVEN DAYS**

- |   | Yes                   | No                    | No but                |
|---|-----------------------|-----------------------|-----------------------|
| 4.1 Has there been an initial assessment of communication problems by the speech and language therapist within 7 days of admission (or of stroke if the stroke occurred in hospital)? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Answer **No, but...** if: patient died within 7 days; the patient was still unconscious; it is documented that the patient had no communication problems; patient is receiving palliative care.

- |   | Yes                   | No                    | No but                |
|---|-----------------------|-----------------------|-----------------------|
| 4.2 Was the patient assessed by an occupational therapist within 4 working days of admission (or of stroke if the stroke occurred in hospital)? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Answer **No, but...** if: patient died within 4 days; the patient was still unconscious; it is documented that the patient had no difficulties performing everyday activities; patient is receiving palliative care.

If no,

- |  | Yes                   | No                    | No but                |
|--|-----------------------|-----------------------|-----------------------|
| 4.2i Was the patient assessed by an occupational therapist within 7 days of admission (or of stroke if the stroke occurred in hospital)? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Answer **No, but...** if: patient died within 7 days; the patient was still unconscious; it is documented that the patient had no difficulties performing everyday activities; patient is receiving palliative care.

- |   | Yes                   | No                    |
|---|-----------------------|-----------------------|
| 4.3 Did the patient have an <i>indwelling</i> urinary catheter in the first week after admission? | <input type="radio"/> | <input type="radio"/> |

If yes which of the following have been documented as the reason for urinary catheterisation?

Please select all that apply

- a.  urinary retention
- b.  pre-existing catheter
- c.  urinary incontinence
- d.  need for accurate fluid balance monitoring
- e.  critical skin care
- f.  not documented
- g.  other  
please specify

- |  | Yes                   | No                    | No but                |
|--|-----------------------|-----------------------|-----------------------|
| 4.4 Is there a plan to promote urinary continence? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Answer **No, but...** if: patient is continent; patient died within 7 days; patient is unconscious; patient is receiving palliative care.

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**SECTION 5 BY DISCHARGE**


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- 5.1 Is there evidence that the patient was weighed at least once during admission? Yes No No but

Answer **No, but...** if patient died within 7 days; patient unconscious throughout.

- 5.2 Is there evidence in the multi-disciplinary notes of a social work assessment within 7 days of referral? Yes No No but

Answer **No, but...** if: patient not referred to Social Worker; patient died within 7 days; or patient refused.

- 5.3 Is there evidence that the patient's mood has been assessed? Yes No No but

Answer **No, but...** if: patient unconscious throughout; or patient died within 7 days.

- 5.4 Is there evidence that the patient's cognitive status has been assessed? Yes No No but

Answer **No, but...** if: patient unconscious throughout; or patient died within 7 days, or receiving palliative care.

**CARE PLANNING**

- 5.5 Is there written evidence of rehabilitation goals agreed by the multi-disciplinary team? Yes No No but

Answer **No, but...** if: patient died / discharged within 7 days; patient is receiving palliative care.

**SECTION 6 RISK FACTORS AND SECONDARY PREVENTION****STROKE RISK FACTORS DEFINED AT DISCHARGE**

6.1 Has(ve) the probable underlying cause(s) for the stroke been identified?      Yes      No      Not documented

○      ○      ○

If yes,

6.1i which of the following?

Carotid stenosis

Current smoker

Alcohol abuse no. of units per week (21 female 28 men)

Atrial Fibrillation

Myocardial Infarction within the past month

Hypertension

Other

If other specify \_\_\_\_\_

6.2 Have the following risk factors been discussed with the patient and/or carer?      Yes      No      No but

Smoking cessation            

Alcohol reduction            

Exercise            

Diet            

Answer **No, but...** if patient died; remained profoundly impaired

6.3 Which treatment was the patient on at discharge?

(Tick all that apply. If "none" select the reason)

Antihypertensives		Antiplatelet/thrombotic		Lipid lowering treatment	
ACE inhibitor or Angiotensin-II receptor antagonists	<input type="checkbox"/>	Aspirin	<input type="checkbox"/>	Statin	<input type="checkbox"/>
Alpha Blocker	<input type="checkbox"/>	Clopidogrel	<input type="checkbox"/>	Other	<input type="checkbox"/>
Beta Blocker	<input type="checkbox"/>	Dipyridamole MR	<input type="checkbox"/>	None	<input type="checkbox"/>
Calcium Channel blocker	<input type="checkbox"/>	Warfarin/other anticoagulant	<input type="checkbox"/>		
Thiazide diuretic	<input type="checkbox"/>	Other	<input type="checkbox"/>		
Other	<input type="checkbox"/>	None	<input type="checkbox"/>		
None	<input type="checkbox"/>		<input type="checkbox"/>		

If None, reasons for not prescribing

Antihypertensives		Antiplatelet/thrombotic		Lipid lowering treatment	
Not indicated	<input type="checkbox"/>	Not indicated	<input type="checkbox"/>	Not indicated	<input type="checkbox"/>
Patient refused	<input type="checkbox"/>	Patient refused	<input type="checkbox"/>	Patient refused	<input type="checkbox"/>
Under review	<input type="checkbox"/>	Under review	<input type="checkbox"/>	Under review	<input type="checkbox"/>
Contra-indications	<input type="checkbox"/>	Haemorrhagic stroke	<input type="checkbox"/>	Patient life expectancy <2 years	<input type="checkbox"/>
		Other Contra-indications	<input type="checkbox"/>	Other Contra-indications	<input type="checkbox"/>

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**SECTION 7 PATIENT COMMUNICATION AND RESEARCH**


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**COMMUNICATION**

7.1 Is there documented evidence that there has been discussion with the patient about:

- |               | Yes                   | No                    | No but                |
|---------------|-----------------------|-----------------------|-----------------------|
| i. Diagnosis  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ii. Prognosis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Answer **No, but...** if patient unconscious throughout or died or has severe receptive or cognitive difficulties.

	Yes	No	No but..
7.2 Were the carer's needs for support assessed separately?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer **No, but...** if it was documented that there was no carer.

	Yes	No	No but
7.3 Is there evidence that the skills required to care for the patient at home were taught?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Answer **No, but...** if: patient died; patient discharged to institutional care; it is documented that the carer is not participating in the patient's care; patient was self-caring by discharge.

	Yes	No	No but
7.4 Was a home visit performed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If yes,

7.4i was this:

by a professional with the patient?	<input type="radio"/>
by a professional without the patient?	<input type="radio"/>

Answer **No, but...** if: the patient was sent to another hospital/institution; or was functionally competent; or there was no change in functional ability from before stroke; patient died; or patient or carer refused.

**RESEARCH**

7.5 Is this patient in a research study where they (or a relative) have given written consent/assent?	Yes	No
	<input type="radio"/>	<input type="radio"/>

**Notes:**

**This section is for you to clarify your answers to any questions. Identify the question number (s) which apply to each comment. (Online version allows you to enter comments next to each individual question)**

## Appendix 3

### Reliability analyses: 2006 National Sentinel Stroke Audit

Reliability (agreement between auditors) is not the same as validity (accuracy of measure). However establishing good agreement between auditors is an important part of the process of validation as valid data by definition will have to be reliable.

For categorical data the kappa statistic was used to measure agreement. Kappa values of 0.41 to 0.60 are said to indicate moderate levels of agreement, values of 0.61 – 0.80 indicate good agreement whilst values of over 0.80 are very good.

In this round of audit, there are so few missing data that there is little or no difference to the kappa statistics after excluding cases with missing data. In some variables, two kappas are given, one overall for the whole sample and one after excluding cases with missing data or where the question was not relevant (“No answers”). Generally speaking, the overall kappa scores of each data item give an assessment of agreement which is an amalgamation of two separate components. One is the agreement between auditors as to whether or not they found the required information, and the other is the agreement in the codes/categories of auditors when both have found the information. This latter aspect is summarised separately by the second kappa shown in the tables below.

The advantage of kappa is that it measures the agreement in excess of the amount we would expect by chance. In practice any value of kappa much below 0.50 will indicate inadequate agreement. We are looking for kappa values of above 0.60 and preferably over 0.80.

The kappa statistic measures agreement but cannot indicate the nature of disagreement between auditors. This entails looking at the raw data tables and any future attempt to improve on the reliability of any audit item will bear most fruit if it focuses on the more frequent discrepancies in judgement and on reasons for any systematic bias between auditors.

#### Summary

Sites were asked to re-audit their first 5 cases, using a different auditor. 143 sites submitted 624 cases. Because this audit again used web-based data entry data completeness was again very high. Problems in finding data (typically one auditor found information about a batch of patients whilst the other did not) were low. The levels of agreement for categorical data were generally very good with the majority of questions having kappa values of 0.81 and higher (kappa median 0.82, Inter-Quartile range 0.73-0.90, n=125 questions).

- For questions unchanged from the previous audit reliability: kappa median 0.82, Inter-Quartile range 0.74-0.91, n=69 questions.
- For questions amended from the previous round of audit, reliability: kappa median 0.87, Inter-Quartile range 0.76-0.92, n=28 questions.
- For questions new to this round of audit: kappa median 0.78 Inter-Quartile range 0.66-0.85, n=28 questions.

Kappa levels were generally higher for patient characteristic and medication (sections 1, 2 and 6 of the proforma had the majority of kappa scores in the range 0.81-1.0) than for standards, which require a greater degree of scrutiny of case-notes (sections 3, 4, 5, 7 of the proforma had the majority of kappa scores in the range 0.61-0.80).

When data were available for both auditors the items with weakest reliability (kappa <0.60) were:

#### Standards:

Were the carer's needs for support assessed separately? (0.53)

#### Case-mix:

Was valvular heart disease an existing co-morbidity prior to admission? (0.55)

Was the probable underlying cause of stroke identified? (0.56)

Was carotid stenosis identified as a probable underlying cause of stroke? (0.59)

Was an MI within the past month identified as a probable underlying cause of stroke? (0.57)

Was hypertension identified as a probable underlying cause of stroke? (0.59)

#### Drugs & treatment:

All the drug questions had kappa statistics of 0.60 and over, where these could be calculated.

**Dates:**

Date of:	Date given by				Rate of agreement between auditors in dates given		Further details about nature of disagreement
	Both auditors	First auditor only	Second auditor only	Neither auditor	Overall	Specific	
Birth	624	0	0	0	95% (594/624)	99% ≤ 1 year	16 (≤ 1 month), 9 (1 month – 1 year), 5 (1-20 years)
Stroke	567	8	23	26	90% (510/567)	97% ≤ 1 day	40 (1 day), 6 (2 days), 2 (3-7 days), 5 (8-31 days), 4 (1 month - 3 years)
Admission	623	0	1	0	96% (596/623)	98% ≤ 1 day	16 (1 day), 2 (2-7 days), 5 (8-29 days), 4 (30-63 days)
Discharge	473	1	7	N/A	90% (427/473)	94% ≤ 1 day	19 (1 day), 10 (2 days), 3 (3-7 days), 6 (8-31 days), 7 (31-92 days)
Death	147	1	4	N/A	96% (141/147)	99% ≤ 1 day	5 (1 day), 1 (10 days)
Admission to stroke unit	370	5	11	N/A	84% (311/370)	92% ≤ 1 day	31 (1 day), 13 (2 days), 9 (3-7 days), 6 (8-61 days)
Discharge from stroke unit	365	7	12	N/A	88% (322/365)	91% ≤ 1 day	12 (1 day), 8 (2 days), 6 (3-7 days), 6 (8-31 days), 11 (32-97 days)
First brain scan	590	0	2	N/A	94% (554/590)	97% ≤ 1 day	16 (1 day), 6 (2-5 days), 4 (6-14 days), 10 (15-153 days)

**Times:**

Time of:	Time given by				Rate of agreement between auditors in times given		Further details about nature of disagreement
	Both auditors	First auditor only	Second auditor only	Neither auditor	Overall	Specific	
Stroke	342	8	23	251	78% (266/342)	87% ≤ 1 hour	31 (1 hour), 12 (2 hours), 8 (3-5 hours), 30 (6-22 hours)
Admission	582	18	15	9	67% (390/582)	99% ≤ 1 hour	76 (1 hour), 25 (2 hours), 58 (3-5 hours), 33 (6-23 hours)
First brain scan	472	28	28	N/A	81% (384/472)	90% ≤ 1 hour	42 (1 hour), 18 (2 hours), 13 (3-5 hours), 15 (6-22 hours)

**Patient characteristics:**

Categories as below ( plus 'Blank=No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
Gender (M,F)	0.99	624	0.99
Acute care performed elsewhere*	0.82	624	0.82
Did the patient have a brain scan after the stroke? ** (Yes, No, Not Known)	0.93	624	0.93
Brain scan within 24 hours? (Yes, No, Not Known)	0.73	591	0.71
Type of stroke as revealed by brain scan (Ischaemic / Infarct, Haemorrhage, Haemorrhagic infarct, unknown)	0.87	591	0.86
<b>Co-morbidities: ***</b>			
Atrial Fibillation	0.86	624	0.86
Previous stroke/TIA	0.85		0.85
Diabetes mellitus	0.95		0.95
Hyperlipidaemia	0.62		0.62
Hypertension	0.77		0.77
MI/angina	0.76		0.76
Valvular heart disease	0.55		0.55
None apply	0.77		0.77
On medication before admission (Yes, No)	0.91	624	0.91
Worst level of consciousness (fully conscious, drowsy, semi-consc, uncons)	0.70	624	0.70
Newly institutionalised at discharge? (Yes, No, Not Known)	0.80	473	0.73
Where was majority of care provided (Gen ward, Stroke unit, Rehab Unit, other)	Not calculable	543	0.87
Admitted to stroke unit at sometime during stay (Yes, No)	0.95	624	0.95

Categories as below ( plus 'Blank=No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
Admitted to stroke unit within 4 hours of arrival (Yes, No)	0.87	624	0.87
Died whilst inpatient (Yes, No)	0.99	624	0.99
If not, discharged or still in hospital?	0.97	479	Too few in hospital to calculate meaningfully
Alive at 30 days (Yes, No, Don't know)	0.90	624	0.90

\* - When asked to provide the site code of the collaborating hospital where acute care was performed, the primary auditor could provide this for 6/10 of the patients they said received acute care elsewhere, and the secondary auditor for 6/7. They both provided codes for the same 6 patients, but only agreed on the referring hospital's code in 5 of these.

\*\* - The auditors agreed on 18/19 cases when asked to provide the reason

\*\*\* - Of 206 patients where a co-morbidity was reported in free-text under "other", both auditors supplied information in 89/206 (43%) and agreed on the co-morbidity in 73/89 (82%).

Categories as below (plus 'No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
<b>Barthel scores:at Discharge</b>			
Bowels (0,1,2)	Only applicable to discharged patients	430	0.83
Bladder (0,1,2)		430	0.86
Grooming (0,1)		427	0.84
Toilet use (0,1,2)		423	0.86
Feeding (0,1,2)		421	0.83
Mobility (0,1,2,3)		430	0.82
Transfer (0,1,2,3)		428	0.78
Dressing (0,1,2)		421	0.84
Stairs (0,1,2)		401	0.83
Bathing (0,1)		417	0.82
Barthel score (0-4,5-9,10-14,15-19,20)		388	0.81
Independent before stroke (Yes, No, Don't know)		0.72	696

Categories as below (plus 'No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
Had indwelling catheter in first week (Yes, No)	0.83	621	0.83
Due to:			
Urinary retention (Yes, No)	0.79	150 patients	0.73
Pre-existing catheter (Yes, No)	0.83	where both	0.92
Urinary incontinence (Yes, No)	0.74	agreed had	0.55
Need for accurate fluid balance monitoring (Yes,No)	0.75	indwelling	0.57
Critical skin care (yes, No)	0.79	catheter	0.66
Reason not documented (Yes, No)	0.74		0.50

In 3 patients, the primary auditor noted another reason in free-text comments, and in a different 8 patients, the secondary auditor did so.

## Process of care domains

Categories: 'Yes', 'No', 'NoBut', (plus 'No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
<b>Initial patient assessment</b>			
Screen swallowing disorders	0.70	624	0.70
Visual fields	0.69	624	0.69
Sensory testing	Not calculable	623	0.72
Brain scan carried out within 24 hours of stroke	0.74	591	0.71
<b>Multi-disciplinary involvement</b>			
Swallowing assessed by Speech and Language Therapist within 72 hours of admission	0.68	624	0.68
Patient assessed by Physiotherapist within 72 hours of admission	0.76	624	0.76
Initial assessment of communication problems by speech and language therapist within 7 days of admission	0.67	624	0.67
Patient assessed by Occupational therapist within 4 days of admission	0.71	624	0.71
<i>If not, assessed within 7 days of admission?</i>	0.61	148	0.79
Social work assessment within 7 days of referral	Not calculable	623	0.63
<b>Screening and functional involvement</b>			
Patient weighed at least once during admission	0.77	624	0.77
Evidence patient's mood has been assessed	0.74	624	0.74
Cognitive status assessed	0.67	624	0.67
<b>Management/care planning</b>			
Rehabilitation goals agreed by multidisciplinary team	0.71	624	0.71
Plan to promote urinary continence	0.65	619	0.64
Receiving nutrition within 72 hours of admission*	0.72	624	0.72
<b>Communication with patients and carers</b>			
Discussion with patient about diagnosis	These questions were only asked for patients who were discharged alive	473	0.65
Discussion with patient about prognosis			0.62
Carer needs for support assessed separately			0.55
Skills taught to care for patient at home			0.59
Home visit performed**			0.58

\* - When asked which method of nutrition was in use (intravenous, nasogastric tube, oral, no answer for whole sample), the whole sample had a kappa score of 0.74. For the 487 patients where both auditors agreed that nutrition was being given, the kappa score was 0.72.

\*\* - When asked whether the home visit was with or without the patient (with, without, no answer for whole sample), all 624 patients taken together had a kappa score of 0.83. In the 96 patients for whom both auditors agreed a home visit had been performed, the kappa score was 0.83.

## Other standards

Categories: 'Yes', 'No', 'NoBut', (plus 'No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors	
		N of cases	Level of agreement (kappa)
Has the probable underlying cause of the stroke been identified?	0.56	624	0.56
Carotid stenosis	0.59	391 where both auditors agree the cause has been identified	0.58
Current smoker	0.65		0.80
Alcohol abuse	0.64		0.84
Atrial fibrillation	0.68		0.85
MI within past month *	0.57		0.31
Hypertension	0.59		0.63
Have the following risk factors been discussed with the patient:			
Smoking cessation	0.68	617	0.69
Alcohol reduction	0.67	617	0.68
Exercise	0.65	620	0.65
Diet	0.67	620	0.68
Has the patient been entered into a research study?	Not calculable	623	0.76

In 200 patients, one or more auditors noted some other underlying cause in free-text comments. Both auditors gave a reason in 90/200 (45%) and both agreed on the same reason in 78/90 (87%).

\* - there are very few "Yes" responses in this question, and therefore insufficient information in this sample to calculate an accurate kappa score



## Drugs

Categories 'Yes', 'No' (plus 'No answer' for whole sample)	Kappa for whole sample (624)	Data available for both auditors		
		N of cases	Level of agreement (kappa)	
<b>Medication prior to admission (YES, NO)</b>	0.91	624	0.91	
Antihypertensives		434 cases where both auditors considered the patient to have been on one or more of the relevant medications		
ACE inhibitor or Angiotensin-II receptor antagonist	0.88		0.87	
Alpha blocker	0.88		0.75	
Beta blocker	0.88		0.86	
Calcium channel blocker	0.88		0.86	
Thiazide diuretic	0.83		0.73	
Other*	0.83		0.49	
None	0.89		0.86	
Antiplatelet/thrombotic				
Aspirin	0.90		0.90	
Clopidogrel	0.91		0.91	
DipyridamoleMR	0.91		0.92	
Warfarin/other anticoagulant	0.90		0.89	
Other *	0.90		0.33	
None	0.89		0.89	
Lipid lowering				
Statin	0.90	433	0.92	
Other *	0.90	433	0.66	
None	0.90	433	0.91	
<b>Medication at discharge</b>				
ACE inhibitor or Angiotensin-II receptor antagonist		These questions were only asked for patients who were discharged alive	0.91	
Alpha blocker			0.78	
Beta blocker			0.88	
Calcium channel blocker			0.81	
Thiazide diuretic			0.83	
Other *			0.57	
None			0.93	
<i>Reasons for not prescribing:</i>				
Not indicated				0.82
Patient refused				Agreed on 464
Under review				0.84
Contra-indications				0.89
Antiplatelet/thrombotic				
Aspirin				0.90
Clopidogrel				0.94
DipyridamoleMR				0.88
Warfarin/other anticoagulant			0.90	
Other			0.66	
None			0.90	
<i>Reasons for not prescribing:</i>				
Not indicated			0.84	
Patient refused			Agreed on 466	
Under review			0.89	
Contra-indications			0.86	
Lipid lowering				
Statin			0.87	
Other			0.67	
None			0.88	
<i>Reasons for not prescribing:</i>				
Not indicated			0.79	
Patient refused			0.87	
Under review			0.81	
Life expectancy less than 2 years			0.83	
Contra-indications			0.84	
Had patient commenced aspirin by 48 hours of stroke (Yes, No, NoBut)	0.72	624	0.72	

\* - there are very few "Yes" responses in this question, and therefore insufficient information in this sample to calculate an accurate kappa score

## **APPENDIX 4 Fifth Round Pilot Trusts**

We thank the clinicians and auditors within the following trusts who generously gave their time in piloting the new questions for this round of the audit and tested the electronic data collection tool.

Aintree Hospitals NHS Trust  
Barking Havering and Redbridge Hospitals NHS Trust  
Blackpool, Fylde & Wyre Hospitals NHS Trust  
Brighton & Sussex University Hospitals NHS Trust  
Carmarthenshire NHS Trust  
Derby Hospitals NHS Foundation Trust  
East Hampshire Primary Care Trust and Portsmouth Hospitals NHS Trust combined  
East Kent Hospitals NHS Trust  
East Sussex Hospitals NHS Trust  
Guy's and St Thomas' Hospital NHS Foundation Trust  
Hambleton and Richmondshire Primary Care Trust  
Mid Cheshire Hospitals NHS Trust  
Mid Devon Primary Care Trust  
North Bristol NHS Trust  
North Tees and Hartlepool NHS Trust  
North West London Hospitals NHS Trust  
Oxford Radcliffe Hospitals NHS Trust  
Pembrokeshire & Derwen NHS Trust  
Powys Local Health Board  
Princess Alexandra Hospital NHS Trust  
Royal Wolverhampton Hospitals NHS Trust & Wolverhampton Health Care NHS Trust combined  
Salisbury Health Care NHS Trust  
Sheffield Teaching Hospitals NHS Foundation Trust  
South Devon Healthcare NHS Trust  
South Warwickshire General Hospitals NHS Trust  
St George's Healthcare NHS Trust  
St Mary's NHS Trust  
Stockport NHS Foundation Trust  
Tameside and Glossop Acute Services NHS Trust  
The Nottingham University Hospitals NHS Trust  
The Rotherham NHS Foundation Trust  
University Hospitals Coventry and Warwickshire NHS Trust  
Worcestershire Acute Hospitals NHS Trust

## APPENDIX 5

### Participating Trusts by Strategic Health Authority

<b>EAST MIDLANDS SHA</b>	North Middlesex University Hospital NHS Trust – (Jointly with Haringey PCT)
Chesterfield Royal Hospital NHS Foundation Trust	North West London Hospitals NHS Trust (2 sites)
Derby Hospitals NHS Foundation Trust	Collaborators: Willesden Community hospital (Brent PCT))
Kettering General Hospital NHS Trust	Queen Elizabeth Hospital NHS Trust
Northampton General Hospital NHS Trust	Queen Mary's Sidcup NHS Trust
Nottingham University Hospital NHS Trust	Royal Free Hampstead NHS Trust
Sherwood Forest Hospitals NHS Trust	St George's Healthcare NHS Trust
United Lincolnshire Hospitals NHS Trust (4 sites)	St Mary's NHS Trust
University Hospitals of Leicester NHS Trust	University College London Hospitals NHS Foundation Trust
	West Middlesex University Hospital NHS Trust
<b>EAST OF ENGLAND SHA</b>	Whipps Cross University Hospital NHS Trust
Basildon & Thurrock University Hospitals NHS Foundation Trust	Whittington Hospital NHS Trust
Bedford Hospital NHS Trust	
Cambridge University Hospitals NHS Foundation Trust	<b>NORTH EAST SHA</b>
East & North Hertfordshire NHS Trust (2 sites)	City Hospitals Sunderland NHS Foundation Trust
Essex Rivers Healthcare NHS Trust	County Durham and Darlington Acute Hospitals NHS Trust (3 sites)
Hinchingbrooke Health Care NHS Trust	Gateshead Health NHS Foundation Trust
Ipswich Hospital NHS Trust	Newcastle upon Tyne Hospitals NHS Foundation Trust
James Paget University Hospitals NHS Foundation Trust	North Tees and Hartlepool NHS Trust (2 sites)
Luton and Dunstable Hospital NHS Foundation Trust	Northumbria Healthcare NHS Trust (3 sites)
Mid Essex Hospital Services NHS Trust	South Tees Hospitals NHS Trust (2 sites)
Norfolk & Norwich University Hospital NHS Trust	Collaborator: Hambleton and Richmond PCT
Peterborough and Stamford Hospitals NHS Foundation Trust	South Tyneside NHS Foundation Trust
Princess Alexandra Hospital NHS Trust	
Southend University Hospital NHS Foundation Trust	<b>NORTH WEST SHA</b>
The Queen Elizabeth Hospital King's Lynn NHS Trust	Aintree Hospitals NHS Foundation Trust
West Hertfordshire Hospitals NHS Trust (2 sites)	Blackpool, Fylde & Wyre Hospitals NHS Trust
West Suffolk Hospitals NHS Trust	Bolton Hospitals NHS Trust
	Central Manchester and Manchester Children's University Hospital NHS Trust
<b>LONDON SHA</b>	Countess of Chester Hospital NHS Foundation Trust
Barking Havering and Redbridge Hospitals NHS Trust (2 sites)	East Cheshire NHS Trust
Collaborator: Havering PCT	East Lancashire Hospitals NHS Trust (2 sites)
Barnet and Chase Farm Hospitals NHS Trust (2 sites)	Lancashire Teaching Hospitals NHS Foundation Trust (2 sites)
Collaborators: Barnet PCT and Finchley Memorial Hospital	Mid Cheshire Hospitals NHS Trust
Barts and The London NHS Trust jointly with Tower Hamlets PCT	Morecambe Bay Hospitals NHS Trust (3 sites)
Bromley Hospitals NHS Trust	North Cheshire Hospitals NHS Trust
Chelsea and Westminster Hospital NHS Foundation Trust	North Cumbria Acute Hospitals NHS Trust (2 sites)
Ealing Hospital NHS Trust	Pennine Acute Hospitals NHS Trust (4 sites)
Epsom and St Helier University Hospitals NHS Trust	Royal Liverpool & Broadgreen University Hospitals NHS Trust
Guy's & St Thomas' Hospital NHS Foundation Trust	Salford Royal NHS Foundation Trust
Hammersmith Hospitals NHS Trust	South Manchester University Hospitals NHS Trust
Hillingdon Hospital NHS Trust	Southport and Ormskirk Hospital NHS Trust
Homerton University Hospital NHS Foundation Trust	St Helens & Knowsley Hospitals NHS Trust
King's College Hospital NHS Trust	Stockport NHS Foundation Trust
Kingston Hospital NHS Trust	Tameside and Glossop Acute Services
Lewisham Hospital NHS Trust	Trafford Healthcare NHS Trust
Mayday Healthcare NHS Trust	Wirral Hospital NHS Trust
Newham University Hospital NHS Trust	Wrightington, Wigan and Leigh NHS Trust

SOUTH CENTRAL SHA	WEST MIDLANDS SHA
Buckinghamshire Hospitals NHS Trust (2 sites)	Burton Hospitals NHS Trust
East Hampshire Primary Care Trust (jointly with Portsmouth Hospitals NHS Trust)	Dudley Group of Hospitals NHS Trust
Heatherwood & Wexham Park Hospitals	George Eliot Hospital NHS Trust
Isle of Wight Healthcare NHS Trust	Good Hope Hospital NHS Trust
Milton Keynes General NHS Trust	Heart of England NHS Foundation Trust
North Hampshire Hospitals NHS Trust	Hereford Hospitals NHS Trust
Oxford Radcliffe Hospitals NHS Trust	Mid Staffordshire General Hospitals NHS Trust
Royal Berkshire NHS Foundation Trust	Royal Wolverhampton Hospitals NHS Trust jointly with Wolverhampton Health Care NHS Trust
Southampton University Hospitals NHS Trust	Sandwell and West Birmingham Hospitals NHS Trust (2 sites)
Winchester and Eastleigh Healthcare NHS Trust	Shrewsbury & Telford Hospital NHS Trust
	South Birmingham PCT with University Birmingham NHS Foundation Trust
<b>SOUTH EAST COAST SHA</b>	South Warwickshire General Hospitals NHS Trust
Ashford and St Peter's Hospital NHS Trust	South Worcestershire PCT
Brighton & Sussex University Hospitals NHS Trust (2 sites)	University Hospital of North Staffordshire NHS Trust & North Staffordshire Combined Healthcare NHS Trust
Dartford & Gravesham NHS Trust	University Hospitals Coventry and Warwickshire (2 sites)
East Kent Hospitals NHS Trust (3 sites)	Walsall Hospitals NHS Trust
East Sussex Hospitals NHS Trust (2 sites)	Worcestershire Acute Hospitals NHS Trust (2 sites)
Frimley Park Hospitals NHS Foundation Trust	
Maidstone and Tunbridge Wells NHS Trust (2 sites)	<b>YORKSHIRE AND THE HUMBER SHA</b>
Medway Maritime Hospital, Medway PCT & Swale PCT	Airedale NHS Trust
Royal Surrey County Hospital NHS Trust	Barnsley Hospital NHS Foundation Trust
Royal West Sussex Trust	Bradford Teaching Hospitals NHS Foundation Trust
Surrey & Sussex Healthcare NHS Trust	Calderdale & Huddersfield NHS Foundation Trust
Worthing & Southlands Hospitals NHS Trust	Doncaster & Bassetlaw Hospitals NHS Foundation Trust (2 sites)
	Hambleton & Richmondshire PCT (Rutson Rehabilitation Unit)
<b>SOUTH WEST SHA</b>	Harrogate and District NHS Foundation Trust
Gloucestershire Hospitals NHS Foundation Trust (2 sites)	Hull and East Yorkshire Hospitals NHS Trust
North Bristol NHS Trust	Mid Yorkshire Hospitals NHS Trust
Northern Devon Healthcare NHS Trust	Northern Lincolnshire and Goole Hospitals NHS Trust (2 sites)
Plymouth Hospitals NHS Trust	Scarborough and North East Yorks Health Care NHS Trust
Plymouth Primary Care Trust	Sheffield Teaching Hospitals NHS Foundation Trust
Poole Hospital NHS Trust	The Leeds Teaching Hospitals NHS Trust
Royal Bournemouth & Christchurch Hospitals NHS Foundation Trust	The Rotherham NHS Foundation Trust
Royal Cornwall Hospitals Trust	York Health Services NHS Trust
Royal Devon & Exeter NHS Foundation Trust	
Royal United Hospital Bath NHS Trust	
Salisbury Health Care NHS Trust	
South Devon South Devon Healthcare NHS Trust Collaborators: Teignbridge, Torbay and South Hams and West Devon PCTs	
Swindon & Marlborough NHS Trust Collaborator: Swindon PCT)	
Taunton & Somerset NHS Trust	
United Bristol Healthcare NHS Trust	
West Dorset General Hospitals NHS Trust	
Weston Area Health Trust	
Yeovil District Hospital NHS Foundation Trust	

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#### NORTHERN IRELAND

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Altnagelvin Hospitals Health & Social Services Trust  
Belfast City Hospital Health & Social Services Trust  
Causeway Health & Social Services Trust  
Craigavon Area Hospital Group Trust  
Down Lisburn Health and Social Services Trust  
Mater Hospital Belfast Health & Social Services Trust  
Newry & Mourne Health & Social Services Trust  
Royal Group of Hospitals and Dental Health & Social Services Trust  
Sperrin Lakeland Health and Social Care NHS Trust (2 sites)  
Ulster Community & Hospitals Trust  
United Hospitals Health & Social Services Trust

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#### WALES

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Bro Morgannwg NHS Trust (2 sites)  
Cardiff and Vale NHS Trust (2 sites)  
Carmarthenshire NHS Trust (2 sites)  
Ceredigion & Mid-Wales NHS Trust  
Conwy & Denbighshire NHS Trust  
Gwent Healthcare NHS Trust (2 sites)  
North East Wales NHS Trust  
North Glamorgan NHS Trust  
North West Wales NHS Trust (2 sites)  
Pembrokeshire & Derwen NHS Trust  
Pontypridd & Rhondda NHS Trust  
Powys Local Health Board  
Swansea NHS Trust (2 sites)

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#### ISLANDS

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Isle of Man Department of Health and Social Security  
States of Guernsey Health & Social Services  
States of Jersey Health & Social Services