



Stroke Improvement National Audit Programme (SINAP)

Combined Quarterly Report for the East Midlands

Based on stroke admissions across seven quarters in 2011 -
2012

Quarter 1: April – June 2011

Quarter 2: July – September 2011

Quarter 3: October – December 2011

Quarter 4: January – March 2012

Quarter 5: April – June 2012

Quarter 6: July – September 2012

Quarter 7: October – December 2012

Title	SINAP – Combined Quarterly Public Report (Quarters 1-7) for the East Midlands
Author	On behalf of the Intercollegiate Stroke Working Party
Publication	February 2013
Target audience	Acute hospitals, stroke improvement networks, Strategic Health Authorities (SHAs), SHA Clusters, commissioners, medical directors, public health specialists, stroke survivors and carers, members of the public.
Description	This report has been compiled for all those with an interest in acute stroke care in the East Midlands. It presents the results from 7 public quarterly reports, covering patients admitted to hospital every quarter from April 2011 to December 2012. It reports on the performance of individual hospitals against 12 key indicators for stroke. In section 1, hospital results across the 7 quarters are presented by region in tabular format. Results can be compared against national figures (annual and quarterly) and against other hospitals in the region, and changes over time can be clearly seen. Non-participating hospitals are named in the report.
Superseded	SINAP - Combined Quarterly Results (Quarters 1-7)
Related publications	<p><u>National Versions of SINAP Public Reports</u> First Quarterly SINAP Public Report – August 2011 (April – June 2011 admissions) Second Quarterly SINAP Public Report – November 2011 (July – September 2011 admissions) Third Quarterly SINAP Public Report – February 2012 (October – December 2011 admissions) Fourth Quarterly SINAP Public Report – May 2012 (January – March 2012 admissions) Fifth Quarterly SINAP Public Report – August 2012 (April – June 2012 admissions) Sixth Quarterly SINAP Public Report – September 2012 (July – September 2012 admissions) Seventh Quarterly SINAP Public Report – February 2013 (October – December 2013 admissions) SINAP Comprehensive Public Report – March 2012 All above available from: www.rcplondon.ac.uk/sinap</p> <p>Public Report of the SSNAP Acute Organisational Audit 2012 http://www.rcplondon.ac.uk/projects/ssnap-acute-organisational-audit National Clinical Guideline for Stroke 4th edition (Royal College of Physicians, 2012) http://www.rcplondon.ac.uk/resources/stroke-guidelines NICE Quality Standard for Stroke 2010 http://www.nice.org.uk/guidance/qualitystandards/stroke/strokequalitystandard.jsp National Stroke Strategy (Department of Health, 2007) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081062 Department of Health: Progress in improving stroke care (National Audit Office, 2010) http://www.nao.org.uk/publications/0910/stroke.aspx National clinical guidelines for diagnosis and initial management of acute stroke and transient ischaemic attack (NICE, 2008) www.nice.org.uk/CG68</p>
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Introduction to SINAP

The **Stroke Improvement National Audit Programme (SINAP)** was a national clinical audit which collected information from hospitals about the care provided to stroke patients in their first three days in hospital. SINAP aimed to collect data for all new stroke admissions across all eligible hospitals between May 2010 and December 2012 and to enable the information and results from the audit to be used to improve care for stroke patients. Results for 7 quarters from April 2011 to December 2012 were made public by named hospital.

SINAP was run by the RCP Stroke programme on behalf of the Intercollegiate Stroke Working Party (ICSWP) and commissioned by the Healthcare Quality Improvement Partnership (HQIP).

Aims of SINAP:

- To describe the pathway followed by patients with acute stroke (in the first three days) in hospitals
- To assess the quality of care provided to acute stroke patients during the first three days of care
- To identify the major areas where services need to be improved for acute stroke patients

Methods

Prospective data on the first 72 hours of acute care were collected via a web based tool and analysed at the Royal College of Physicians. Performance against evidence based standards of acute care is measured and benchmarked against all hospitals submitting a minimum number of complete records.

Eligibility and audit scope

Only hospitals which directly admit acute stroke patients were eligible to participate in SINAP. It is estimated that 147 hospitals in England were eligible in December 2012 although this number has changed since the audit began in May 2010 due to service reconfigurations.

All patients who elicited a response from the stroke team were included in SINAP i.e. patients with a diagnosis of stroke, TIA or those admitted with suspected stroke but whom subsequently turn out to have another diagnosis e.g. a seizure, tumour or migraine.

SINAP Participation

All eligible hospitals were invited to participate in the SINAP. Hospitals in Wales declined to take part as they have collected data for 'Intelligent Targets' since July 2010. Full details of hospitals participating in SINAP can be found on the RCP website. www.rcplondon.ac.uk/sinap.

SINAP is one of the national clinical audits for inclusion in Quality Accounts 2011-12 and in the National Clinical Audit and Patient Outcomes Programme (NCAPOP).

Participation in the audit in terms of number of locked records nationally on the web tool has steadily increased since the audit went live in May 2010 with over 85,000 locked stroke records by December 2012.

Inclusion in SINAP quarterly reports

Eligibility for inclusion in the quarterly reports was determined by the submission of a minimum number of 20 locked stroke records for patients admitted within that quarter.

A summary of the number of hospitals and records included nationally in each quarterly report is shown below.

Quarter	Cohort	Number of hospitals included in SINAP Quarterly Reports Nationally	Number of stroke records included in SINAP Quarterly Reports Nationally
1	April – June 2011 admissions	73	6089
2	July – September 2011 admissions	87	7446
3	October – December 2011 admissions	95	8111
4	January – March 2012 admissions	104	8973
5	April – June 2012 admissions	103	9324
6	July -September 2012 admissions	107	10069
7	October - December 2012 admissions	100	9010

SINAP Reporting Schedule

Reports and results were given back to hospitals regularly, to enable benchmarking of stroke services against other hospitals and use of information to identify areas for improvement. 7 quarterly reports covering April 2011 to December 2013 admissions were made public by named hospital.

SINAP to SSNAP

Data submission for SINAP has now ended. The new stroke audit, the Sentinel Stroke National Audit Programme (SSNAP), is now the single source of stroke data nationally. SSNAP collects a minimum dataset for every stroke patient since December 2012. For more information, please go to www.rcplondon.ac.uk/ssnap

Introduction to this Report

This is the final SINAP combined quarterly report. It presents national and hospital level data for hospitals in the East Midlands showing performance against important aspects of acute stroke care including 12 key stroke indicators for patients admitted across 7 quarters from April 2011 to December 2012. The 12 key indicators were selected by the ICSWP following analysis of the first year's data and are considered to be representative of the first 72 hours of care. Using the same indicators for each quarterly report enables comparisons over time as shown in this combined report. The evidence base behind these Key Indicators can be found in appendix 2. The total number of records and the number of records per hospital submitted in each quarter is also included in the report.

Section 1 – Standards of stroke care and key indicator results by region

This section presents the results for important aspects of acute stroke care for quarters 1 - 7 for the East Midlands region. The tables show the performance of individual hospitals against national quarterly figures (in red at the top of every table) based on patients admitted April - June 2011, July - September 2011, October - December 2011, January – March 2012, April – June 2012, July - September 2012 and October - December 2012.

The first table gives results for key in-hospital timings and thrombolysis provision. The second table presents the results for each of the 12 Key Indicators, the average of the 12 key indicators and the hospital's overall domain. Each hospital's results are spread across two pages. The total number of records and the total number of stroke records for each hospital appear on the left of every page to give context to each hospital's results.

The column headings have been abbreviated; please find the list of abbreviated column headings and their corresponding descriptions on page 7.

Key to the abbreviated column headings in the SINAP results tables

Abbreviated Column Heading		Description
Arr to scan median (mins)		Arrival at hospital to scan median time (minutes)
Arr to 1st contact ST median (m)		Arrival at hospital to first contact with stroke team median time (m)
Arr to contact with ST (Arr OoH) median (m)		Arrival at hospital to first contact with stroke team (when patient arrived out of hours) median time (m)
OoH Hosp arr - stroke bed arr median (m)		Arrival at hospital to arrival on stroke bed (when patient arrived out of hours) median time (m)
Total % thromb		Total number of patients thrombolysed
% eligible for thromb		Number of patients potentially eligible for thrombolysis
% eligible for thromb (Arr OoH)		Number of patients potentially eligible for thrombolysis who arrived out of hours
% thromb when eligible (Arr OoH)		Number of patients (who arrived out of hours) who were given thrombolysis when potentially eligible
% thromb within 1 hr of arr		Number of patients thrombolysed within 1 hour of arrival at hospital
Arr to thromb median (m)		Arrival at hospital to thrombolysis median time (m)
Key Indicator		
Indicator 1	% scanned within 1hr	Number of patients scanned within 1 hour of arrival at hospital
Indicator 2	% scanned within 24hr	Number of patients scanned within 24 hours of arrival at hospital
Indicator 3	% SU in 4h (OoH)	Number of patients who arrived on stroke bed within 4 hours of hospital arrival (when hospital arrival was out of hours)
Indicator 4	% stroke consultant	Number of patients seen by stroke consultant or associate specialist within 24h
Indicator 5	% known onset time	Number of patients with a known time of onset for stroke symptoms
Indicator 6	% prognosis discussed	Number of patients for whom their prognosis/diagnosis was discussed with relative/carer within 72h where applicable
Indicator 7	% cont plan	Number of patients who had continence plan drawn up within 72h where applicable
Indicator 8	% eligible thromb	Number of potentially eligible patients thrombolysed
Indicator 9	Bundle 1	Bundle 1: Seen by nurse and one therapist within 24h and all relevant therapists within 72h (proxy for NICE QS 5)
Indicator 10	Bundle 2	Bundle 2: Nutrition screening and formal swallow assessment within 72 hours where appropriate
Indicator 11	Bundle 3	Bundle 3: Patient's first ward of admission was stroke unit and they arrived there within four hours of hospital arrival
Indicator 12	Bundle 4	Bundle 4: Patient given antiplatelet within 72h where appropriate and had adequate fluid and nutrition in all 24h periods
	Ave 12	Average of 12 key indicators

SHA Cluster	SHA	Trust	Hospital	Patients Admitted Between (Quarter)	Total patients	Stroke patients	TIA patients	Other patients	Inpatient Stroke	Arr to scan median (mins)	Arr to 1st contact ST median (m)	Arr to contact with ST (Arr OoH) median (m)	OoH Hosp arr - stroke bed arr median (m)	% thromb for thromb	% eligible for thromb (Arr OoH)	% thromb when eligible (Arr OoH)	% thromb within 1 hr of arr	Arr to thromb median (m)
ALL SITES	ALL SITES	ALL SITES	ALL SITES	Apr-Jun 11	9583 (6089 (64%))	1371 (14%)	2123 (22%)	341 (4%)	125	87	122	219 (541 (9%))	698 (11%)	353 (11%)	191 (54%)	263 (50%)	59	
				Jul-Sep 11	11231 (7446 (66%))	1495 (13%)	2290 (20%)	485 (4%)	111	82	119	206 (666 (9%))	824 (11%)	405 (11%)	220 (54%)	319 (50%)	60	
				Oct-Dec 11	11716 (8111 (69%))	1372 (12%)	2233 (19%)	462 (4%)	112	89	121	205 (733 (9%))	793 (10%)	416 (11%)	251 (60%)	361 (51%)	59	
				Jan-Mar 12	13097 (8973 (69%))	1531 (12%)	2593 (20%)	517 (4%)	103	91	126	219 (878 (10%))	934 (10%)	454 (10%)	291 (64%)	414 (49%)	61	
				Apr-Jun 12	13491 (9324 (69%))	1483 (11%)	2684 (20%)	486 (4%)	92	79	103	201 (989 (11%))	935 (10%)	444 (10%)	294 (66%)	507 (53%)	57	
				Jul-Sep 12	14462 (10069 (70%))	1526 (11%)	2867 (20%)	519 (4%)	85	74	102	200 (1123 (11%))	1059 (11%)	563 (11%)	384 (68%)	559 (52%)	58	
				Oct-Dec 12	12950 (9010 (70%))	1397 (11%)	2543 (20%)	514 (4%)	85	74	103	203 (969 (11%))	858 (10%)	414 (10%)	298 (72%)	475 (51%)	59	
				1	123 (2) (67%)	41 (33%)	0 (0%)	1 (1%)	153	213	188	232 (3 (4%))	5 (6%)	2 (4%)	1 (50%)	1 (33%)	86	
				2	131 (83 (63%))	48 (37%)	0 (0%)	2 (2%)	102	128	152	175 (8 (10%))	9 (11%)	6 (14%)	3 (50%)	4 (50%)	59	
				3	131 (102 (78%))	29 (22%)	0 (0%)	2 (2%)	96	143	150	200 (6 (6%))	4 (4%)	2 (4%)	2 (100%)	4 (67%)	52	
				4	108 (79 (73%))	29 (27%)	0 (0%)	0 (0%)	84	77	126	188 (6 (8%))	2 (3%)	0 (0%)	0 (NA%)	1 (17%)	64	
				5	106 (84 (79%))	22 (21%)	0 (0%)	0 (0%)	82	47	44	163 (9 (11%))	5 (6%)	3 (7%)	3 (100%)	6 (67%)	54	
				6	89 (74 (83%))	15 (17%)	0 (0%)	1 (1%)	76	52	45	155 (4 (5%))	4 (5%)	3 (9%)	2 (67%)	3 (75%)	48	
7	111 (96 (86%))	15 (14%)	0 (0%)	3 (3%)	84	60	40	181 (10 (10%))	10 (10%)	6 (12%)	5 (83%)	4 (44%)	60					
1	Eligible but no records																	
2	Eligible but no records																	
3	Eligible but no records																	
4	Eligible but no records																	
5	Eligible but no records																	
6	Eligible but no records																	
7	Eligible but no records																	
Midlands and East	Midlands and East	Kettering General Hospital NHS Foundation Trust	Kettering General Hospital	1	28 (2) (72%)	4 (14%)	2 (7%)	0 (0%)	188	1430	1570	1233 (0 (0%))	4 (18%)	1 (13%)	0 (0%)	0 (NA%)	NA	
				2	101 (39 (39%))	23 (23%)	39 (39%)	7 (7%)	1080	1250	2940	1610 (0 (0%))	8 (21%)	4 (21%)	0 (0%)	0 (NA%)	NA	
				3	64 (26 (41%))	20 (31%)	18 (28%)	7 (11%)	673	1203	1007	2383 (0 (0%))	4 (15%)	0 (0%)	0 (NA%)	0 (NA%)	NA	
				4	94 (37 (39%))	27 (29%)	30 (32%)	11 (12%)	1104	1915	2200	2061 (0 (0%))	8 (22%)	2 (14%)	0 (0%)	0 (NA%)	NA	
				5	98 (40 (41%))	32 (33%)	26 (27%)	15 (15%)	629	1390	2253	1253 (0 (0%))	6 (15%)	2 (13%)	0 (0%)	0 (NA%)	NA	
				6	66 (28 (42%))	16 (24%)	22 (33%)	14 (21%)	478	1336	1612	3193 (0 (0%))	5 (18%)	0 (0%)	0 (NA%)	0 (NA%)	NA	
				7	51 (25 (49%))	9 (18%)	17 (33%)	7 (14%)	566	1143	1026	2448 (0 (0%))	2 (8%)	1 (9%)	0 (0%)	0 (NA%)	NA	
Midlands and East	Midlands and East	Northampton General Hospital NHS Trust	Northampton General Hospital	1	348 (171 (49%))	57 (16%)	120 (34%)	8 (2%)	80	193	593	225 (10 (6%))	10 (6%)	4 (5%)	3 (75%)	6 (60%)	55	
				2	338 (175 (52%))	59 (17%)	104 (31%)	5 (1%)	122	246	693	235 (11 (6%))	16 (9%)	8 (9%)	3 (38%)	3 (27%)	70	
				3	336 (164 (49%))	54 (16%)	118 (35%)	9 (3%)	95	111	314	251 (4 (2%))	2 (1%)	1 (1%)	1 (100%)	3 (75%)	46	
				4	311 (156 (50%))	48 (15%)	107 (34%)	9 (3%)	81	50	74	225 (4 (3%))	8 (5%)	6 (7%)	4 (67%)	1 (25%)	72	
				5	338 (148 (44%))	53 (16%)	137 (41%)	8 (2%)	78	27	90	168 (9 (6%))	10 (7%)	6 (8%)	4 (67%)	6 (67%)	45	
				6	403 (198 (49%))	52 (13%)	153 (38%)	9 (2%)	63	27	195	217 (15 (8%))	15 (8%)	7 (7%)	6 (86%)	5 (33%)	67	
				7	382 (199 (52%))	32 (8%)	151 (40%)	15 (4%)	63	13	35	218 (16 (8%))	14 (7%)	4 (4%)	2 (50%)	8 (50%)	59	
1	Eligible but no records																	
2	Eligible but no records																	
3	Eligible but no records																	
4	Eligible but no records																	
5	Eligible but no records																	
6	Eligible but no records																	
7	Eligible but no records																	

Trust	Hospital	Patients Admitted Between (Quarter)	Total patients	Stroke patients	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6	Indicator 7	Indicator 8	Indicator 9	Indicator 10	Indicator 11	Indicator 12		
					% scanned within 1hr	% scanned within 24hr (OOH)	% SU in 4h (OOH)	% stroke consultant	% known onset time	% prognosis discussed	% cont plan	% eligible thromb	Bundle 1	Bundle 2	Bundle 3	Bundle 4	Average of 12 Indicators	
ALL SITES		Apr-Jun 11	9583	6089 (64%)	1791 (33%)	5050 (92%)	1735 (54%)	4830 (79%)	3362 (54%)	5010 (87%)	1406 (62%)	362 (52%)	2734 (53%)	4502 (85%)	3187 (55%)	3275 (63%)	64	
		Jul-Sep 11	11231	7446 (66%)	2358 (32%)	6432 (86%)	2127 (58%)	6074 (82%)	4224 (57%)	5977 (86%)	1917 (68%)	447 (54%)	3523 (57%)	5762 (88%)	4294 (61%)	4219 (66%)	66.2	
		Oct-Dec 11	11716	8111 (69%)	2704 (33%)	7290 (90%)	2349 (60%)	6710 (83%)	5159 (64%)	6622 (87%)	2188 (70%)	474 (60%)	3980 (57%)	6284 (89%)	4761 (62%)	4603 (66%)	68.3	
		Jan-Mar 12	13097	8973 (69%)	3143 (35%)	8190 (91%)	2442 (56%)	7471 (83%)	5825 (65%)	7488 (90%)	2538 (74%)	571 (61%)	4467 (58%)	6853 (89%)	5022 (59%)	5251 (69%)	69.2	
		Apr-Jun 12	13491	9324 (69%)	3491 (37%)	8525 (91%)	2825 (63%)	7880 (85%)	6009 (64%)	7799 (90%)	2906 (78%)	631 (67%)	4828 (61%)	6966 (89%)	5785 (65%)	5794 (74%)	72.2	
		Jul-Sep 12	14662	10069 (70%)	3985 (40%)	9298 (92%)	3288 (66%)	8571 (85%)	6748 (67%)	8355 (89%)	3053 (81%)	730 (69%)	5696 (65%)	7334 (89%)	6544 (68%)	6336 (76%)	73.9	
		Oct-Dec 12	12950	9010 (70%)	3582 (40%)	8341 (93%)	2824 (65%)	7682 (85%)	5933 (66%)	7895 (93%)	2982 (84%)	597 (70%)	5279 (68%)	6370 (90%)	5686 (66%)	5774 (78%)	74.7	
		1	123	82 (67%)	12	(15%)	78 (99%)	24 (52%)	56 (68%)	24 (29%)	73 (93%)	77 (97%)	3 (60%)	48 (71%)	66 (96%)	37 (46%)	63 (82%)	67.5 2nd
		2	131	83 (63%)	22	(27%)	75 (90%)	35 (80%)	74 (89%)	31 (37%)	72 (96%)	76 (96%)	5 (56%)	60 (94%)	75 (99%)	71 (87%)	53 (65%)	76.3 1st
		3	131	102 (78%)	33	(32%)	98 (96%)	40 (82%)	87 (85%)	61 (60%)	83 (89%)	83 (97%)	4 (100%)	65 (84%)	86 (97%)	80 (80%)	56 (62%)	80.3 1st
		4	108	79 (73%)	32	(41%)	78 (99%)	24 (73%)	70 (89%)	51 (65%)	66 (88%)	62 (93%)	1 (50%)	59 (98%)	66 (97%)	59 (75%)	50 (77%)	78.6 1st
		5	106	84 (79%)	33	(39%)	80 (95%)	33 (80%)	82 (99%)	60 (71%)	69 (93%)	70 (93%)	5 (100%)	57 (93%)	72 (94%)	69 (82%)	51 (69%)	84.1 1st
6	89	74 (83%)	32	(43%)	69 (93%)	27 (79%)	74 (100%)	46 (62%)	68 (94%)	65 (94%)	3 (75%)	55 (95%)	65 (97%)	59 (81%)	41 (66%)	81.7 1st		
7	111	96 (86%)	40	(42%)	87 (91%)	36 (73%)	94 (98%)	56 (58%)	75 (83%)	81 (90%)	8 (80%)	70 (97%)	89 (93%)	72 (77%)	56 (65%)	79.3 2nd		
Derby Hospitals NHS Foundation Trust	Royal Derby Hospital	1	Eligible but no records															
		2	Eligible but no records															
		3	Eligible but no records															
		4	Eligible but no records															
		5	Eligible but no records															
		6	Eligible but no records															
		7	Eligible but no records															
Kettering General Hospital NHS Foundation Trust	Kettering General Hospital	1	28	22 (79%)	1 (5%)	19 (86%)	0 (0%)	7 (32%)	8 (36%)	22 (100%)	2 (67%)	0 (0%)	4 (25%)	4 (31%)	0 (0%)	19 (100%)	40.1 4th	
		2	101	39 (39%)	1 (3%)	25 (64%)	1 (5%)	11 (28%)	21 (54%)	38 (97%)	1 (100%)	0 (0%)	4 (20%)	19 (61%)	2 (6%)	32 (97%)	44.6 4th	
		3	64	26 (41%)	2 (8%)	20 (77%)	0 (0%)	11 (42%)	12 (46%)	24 (92%)	3 (50%)	0 (0%)	4 (27%)	19 (83%)	0 (0%)	20 (87%)	42.6 4th	
		4	94	37 (39%)	2 (5%)	22 (59%)	0 (0%)	16 (43%)	22 (59%)	36 (97%)	1 (50%)	0 (0%)	15 (63%)	29 (94%)	1 (3%)	34 (97%)	47.6 4th	
		5	98	40 (41%)	3 (8%)	25 (63%)	1 (6%)	7 (18%)	17 (43%)	37 (93%)	1 (100%)	0 (0%)	6 (21%)	29 (81%)	0 (0%)	38 (97%)	44 4th	
		6	66	28 (42%)	2 (7%)	19 (68%)	0 (0%)	3 (11%)	14 (50%)	27 (96%)	0 (NA%)	0 (0%)	4 (22%)	20 (83%)	0 (0%)	23 (96%)	39.4 4th	
		7	51	25 (49%)	2 (8%)	17 (68%)	0 (0%)	11 (44%)	11 (44%)	25 (100%)	1 (100%)	0 (0%)	4 (40%)	17 (85%)	1 (5%)	17 (94%)	49 4th	
Northampton General Hospital NHS Trust	Northampton General Hospital	1	348	171 (49%)	64 (44%)	138 (94%)	48 (55%)	157 (92%)	101 (59%)	87 (51%)	11 (17%)	8 (80%)	99 (66%)	88 (59%)	76 (46%)	111 (79%)	61.8 2nd	
		2	338	175 (52%)	52 (30%)	154 (85%)	42 (49%)	160 (91%)	115 (66%)	75 (43%)	17 (29%)	9 (56%)	111 (69%)	93 (58%)	91 (53%)	115 (80%)	59.3 3rd	
		3	336	164 (49%)	49 (30%)	143 (87%)	37 (46%)	150 (91%)	98 (60%)	78 (49%)	29 (44%)	2 (100%)	102 (70%)	110 (74%)	66 (42%)	114 (80%)	64.4 3rd	
		4	311	156 (50%)	56 (36%)	143 (92%)	47 (53%)	144 (92%)	101 (65%)	103 (73%)	31 (56%)	4 (50%)	92 (67%)	93 (89%)	73 (48%)	108 (81%)	66.8 3rd	
		5	338	148 (44%)	50 (34%)	131 (85%)	56 (79%)	144 (97%)	90 (61%)	89 (74%)	25 (81%)	8 (80%)	90 (70%)	24 (96%)	107 (73%)	111 (83%)	76.3 2nd	
		6	403	198 (49%)	87 (44%)	174 (88%)	67 (70%)	194 (98%)	128 (65%)	114 (70%)	35 (90%)	11 (73%)	123 (75%)	30 (83%)	125 (64%)	141 (81%)	75 2nd	
		7	382	199 (52%)	88 (44%)	181 (91%)	58 (61%)	191 (96%)	116 (58%)	143 (82%)	32 (78%)	11 (79%)	128 (74%)	43 (93%)	115 (59%)	147 (90%)	75.5 2nd	
Nottingham University Hospitals NHS Trust	Nottingham City Hospital	1	Eligible but no records															
		2	Eligible but no records															
		3	Eligible but no records															
		4	Eligible but no records															
		5	Eligible but no records															
		6	Eligible but no records															
		7	Eligible but no records															

SHA Cluster	SHA	Trust	Hospital	Patients Admitted Between (Quarter)	Total patients	Stroke patients	TIA patients	Other patients	Inpatient Stroke	Arr to scan median (mins)	Arr to 1st contact ST median (m)	Arr to contact with ST (Arr OoH) median (m)	OoH Hosp arr - stroke bed arr median (m)	% thromb for thromb (Arr OoH)	% eligible for thromb	% thromb when eligible (Arr OoH)	% thromb within 1 hr of arr	Arr to thromb median (m)						
ALL SITES	ALL SITES			Apr-Jun 11	9583 (6089 (64%))	1371 (14%)	2123 (22%)	341 (4%)	125	87	122	219 (541 (9%))	698 (11%)	353 (11%)	191 (54%)	263 (50%)	59							
				Jul-Sep 11	11231 (7446 (66%))	1495 (13%)	2290 (20%)	485 (4%)	111	82	119	206 (666 (9%))	824 (11%)	405 (11%)	220 (54%)	319 (50%)	60							
				Oct-Dec 11	11716 (8111 (69%))	1372 (12%)	2233 (19%)	462 (4%)	112	89	121	205 (733 (9%))	793 (10%)	416 (11%)	251 (60%)	361 (51%)	59							
				Jan-Mar 12	13097 (8973 (69%))	1531 (12%)	2593 (20%)	517 (4%)	103	91	126	219 (878 (10%))	934 (10%)	454 (10%)	291 (64%)	414 (49%)	61							
				Apr-Jun 12	13491 (9324 (69%))	1483 (11%)	2684 (20%)	486 (4%)	92	79	103	201 (989 (11%))	935 (10%)	444 (10%)	294 (66%)	507 (53%)	57							
				Jul-Sep 12	14462 (10069 (70%))	1526 (11%)	2867 (20%)	519 (4%)	85	74	102	200 (1123 (11%))	1059 (11%)	563 (11%)	384 (68%)	559 (52%)	58							
				Oct-Dec 12	12950 (9010 (70%))	1397 (11%)	2543 (20%)	514 (4%)	85	74	103	203 (969 (11%))	858 (10%)	414 (10%)	298 (72%)	475 (51%)	59							
				East Midlands and East	Sherwood Forest Hospitals NHS Foundation Trust	King's Mill Hospital	1	Eligible but no records																
							2	Eligible but no records																
							3	Eligible but no records																
							4	Eligible but no records																
							5	Eligible but no records																
6	47 (34 (72%))	13 (28%)	0 (0%)				13 (28%)	83	197	242	232 (3 (9%))	1 (3%)	0 (0%)	0 (NA%)	2 (67%)	40								
7	67 (58 (87%))	9 (13%)	0 (0%)				14 (21%)	89	91	198	198 (8 (14%))	7 (12%)	0 (0%)	5 (63%)	51									
East Midlands and East	United Lincolnshire Hospitals NHS Trust	Grantham and District Hospital	1	Eligible but no records																				
			2	Eligible but no records																				
			3	Eligible but no records																				
			4	Eligible but no records																				
			5	Eligible but no records																				
			6	Eligible but no records																				
			7	Not eligible																				
East Midlands and East	United Lincolnshire Hospitals NHS Trust	Lincoln County Hospital	1	Eligible but no records																				
			2	Eligible but no records																				
			3	Eligible but no records																				
			4	Eligible but no records																				
			5	Eligible but no records																				
			6	Eligible but no records																				
			7	Eligible but no records																				
East Midlands and East	United Lincolnshire Hospitals NHS Trust	Pilgrim Hospital	1	Eligible but no records																				
			2	Eligible but no records																				
			3	Eligible but no records																				
			4	Eligible but no records																				
			5	Eligible but no records																				
			6	Eligible but no records																				
			7	Eligible but no records																				
East Midlands and East	University Hospitals Of Leicester NHS Trust	Leicester Royal Infirmary	1	Eligible but no records																				
			2	Eligible but no records																				
			3	Eligible but no records																				
			4	Eligible but no records																				
			5	Eligible but no records																				
			6	Eligible but no records																				
			7	Eligible but no records																				

Trust	Hospital	Patients Admitted Between (Quarter)	Total patients	Stroke patients	Indicator 1	Indicator 2	Indicator 3	Indicator 4	Indicator 5	Indicator 6	Indicator 7	Indicator 8	Indicator 9	Indicator 10	Indicator 11	Indicator 12	Average of 12 Indicators			
					% scanned within 1hr	% scanned within 24hr	% SU in 4h (OOH)	% stroke consultant	% known onset time	% prognosis discussed	% cont plan	% eligible thromb	Bundle 1	Bundle 2	Bundle 3	Bundle 4				
ALL SITES		Apr-Jun 11	9583	6089 (64%)	1791 (33%)	5050 (92%)	1735 (54%)	4830 (79%)	3262 (54%)	5010 (87%)	1406 (62%)	362 (52%)	2734 (53%)	4502 (85%)	3187 (55%)	3275 (63%)	64			
		Jul-Sep 11	11231	7446 (66%)	2358 (32%)	6432 (86%)	2127 (58%)	6074 (82%)	4224 (57%)	5977 (86%)	1917 (68%)	447 (54%)	3523 (57%)	5762 (88%)	4294 (61%)	4219 (66%)	66.2			
		Oct-Dec 11	11716	8111 (69%)	2704 (33%)	7290 (90%)	2349 (60%)	6710 (83%)	5159 (64%)	6622 (87%)	2188 (70%)	474 (60%)	3980 (57%)	6284 (89%)	4761 (62%)	4603 (66%)	68.3			
		Jan-Mar 12	13097	8973 (69%)	3143 (35%)	8190 (91%)	2442 (56%)	7471 (83%)	5825 (65%)	7488 (90%)	2538 (74%)	571 (61%)	4467 (58%)	6852 (89%)	5022 (59%)	5251 (69%)	69.2			
		Apr-Jun 12	13491	9324 (69%)	3491 (37%)	8525 (91%)	2825 (63%)	7880 (85%)	6009 (64%)	7799 (90%)	2906 (78%)	631 (67%)	4828 (61%)	6966 (89%)	5785 (65%)	5794 (74%)	72.2			
		Jul-Sep 12	14462	10069 (70%)	3985 (40%)	9298 (92%)	3288 (66%)	8571 (85%)	6748 (67%)	8355 (89%)	3053 (81%)	730 (69%)	5696 (65%)	7334 (89%)	6544 (68%)	6336 (76%)	73.9			
		Oct-Dec 12	12950	9010 (70%)	3582 (40%)	8341 (93%)	2824 (65%)	7682 (85%)	5933 (66%)	7895 (93%)	2982 (84%)	597 (70%)	5279 (68%)	6370 (90%)	5686 (66%)	5774 (78%)	74.7			
	Sherwood Forest Hospitals NHS Foundation Trust	King's Mill Hospital	1	Eligible but no records																
			2	Eligible but no records																
			3	Eligible but no records																
			4	Eligible but no records																
			5	Eligible but no records																
6			47/34 (72%)																	
7			67/58 (87%)																	
United Lincolnshire Hospitals NHS Trust	Grantham and District Hospital	1	Eligible but no records																	
		2	Eligible but no records																	
		3	Eligible but no records																	
		4	Eligible but no records																	
		5	Eligible but no records																	
		6	Not eligible																	
		7	Not eligible																	
United Lincolnshire Hospitals NHS Trust	Lincoln County Hospital	1	Eligible but no records																	
		2	Eligible but no records																	
		3	Eligible but no records																	
		4	Eligible but no records																	
		5	Eligible but no records																	
		6	Eligible but no records																	
		7	Eligible but no records																	
United Lincolnshire Hospitals NHS Trust	Pilgrim Hospital	1	Eligible but no records																	
		2	Eligible but no records																	
		3	Eligible but no records																	
		4	Eligible but no records																	
		5	Eligible but no records																	
		6	Eligible but no records																	
		7	Eligible but no records																	
University Hospitals Of Leicester NHS Trust	Leicester Royal Infirmary	1	Eligible but no records																	
		2	Eligible but no records																	
		3	Eligible but no records																	
		4	Eligible but no records																	
		5	Eligible but no records																	
		6	Eligible but no records																	
		7	Eligible but no records																	

Guidance to Interpreting the SINAP Results

Items	Field name in results spreadsheet	Guidance notes
1	SHA Clusters	In 2011, the government arranged both primary care trusts and strategic health authorities in England into clusters, as an efficiency measure in advance of their planned abolition. SHAs have changed to become four “clusters”.
2	SHA	The Strategic Health Authority, which is a regional health authority, has been left in the report for consistency. The SHAs were in place until October 2011.
3	Trust name	An NHS trust is the organisation which a hospital or more than one hospital belongs to. Each trust is headed by a Board. There may be several hospitals participating in a single trust.
4	Hospital Name	In SINAP, only acute hospitals which admit stroke patients directly are eligible.

Items	Field name in results spreadsheet	Guidance notes
5	Total number of records in analysis after data cleaning	This is the number of records analysed and reported on. Only records for patients with hospital arrival dates from October - December 2012 are used in the named hospital results. Some records which were completed on the web tool for this time period have been removed as part of the data analysis process. Some hospitals do not have results and they are either categorised as "Eligible, but no records" or "Insufficient records". "No records" means that no records were submitted for patients in the time period October to December 2012. "Insufficient records submitted" means that some records were submitted for this time period, but fewer than 20 stroke records.
6	Number of stroke patients	Number of stroke patients (and proportion of total of all diagnostic groups). Many of the standards are based only on stroke patients; therefore, this is the denominator for many of the following columns.
7	Number of TIA patients	Number of TIA (Transient Ischaemic Attack) patients (and proportion of total of all diagnostic groups). TIA patients are only included some standards: in items 11, 12 and 13 of this guidance worksheet. This does not reflect the total number of TIA patients in a hospital; just those submitted to SINAP, which are predominantly those who are admitted.
8	Number of other patients	Number of Other patients (and proportion of total). As well as stroke patients, we also collect information on patients who were initially treated as having had suspected stroke but subsequently were found to have had a TIA or had another condition. Other patients are only included some standards: in items 11, 12 and 13 of this guidance worksheet.
9	Number of patients already in hospital at time of stroke	Number of patients already in hospital at time of stroke (and proportion of total). These patients are not included in some of the following standards. There is evidence from the Sentinel audit that patients who were already in hospital are less likely to receive some of the standards measured.

Items	Field name in results spreadsheet	Guidance notes
10	Arrival at hospital to scan median time (minutes)	This is the median time in minutes between the arrival of stroke patients and their first brain scan in the relevant site(s). This excludes patients already in hospital at time of stroke.
11	Arrival at hospital to first contact with stroke team median time (m)	This is the time in minutes from time of arrival. Includes stroke, TIA and other patients, but not those who were already in hospital at time of stroke symptoms.
12	Arrival at hospital to first contact with stroke team (when patient arrived out of hours) median time (m)	This is the time in minutes from the time of arrival. Includes stroke, TIA and other patients, but not those who were already in hospital at time of stroke symptoms. "Out of hours" means before 8am and after 6pm Monday to Friday and any time on weekends and public holidays
13	Arrival at hospital to arrival on stroke bed (when patient arrived out of hours) median time (m)	This is the time in minutes from the time of arrival. Includes stroke, TIA and other patients, but not those who were already in hospital at time of stroke symptoms. This is based on patients who arrived out of hours (after 6pm or before 8am Monday-Friday, or at the weekend or on public holidays).
14	Total number of patients thrombolysed	Total number of patients thrombolysed* (and proportion out of stroke patients). Patients already in hospital at time of stroke are included.
15	Number of patients potentially eligible for thrombolysis	Eligible patients are those with infarction; aged 80 and under; whose onset of stroke to arrival at hospital time was less than 3 hours or who had their stroke in hospital; who did not refuse treatment; and who were not contra-indicated due to co-morbidity*, medication or another reason. In some instances, hospitals can have higher numbers of patients thrombolysed* than the number considered eligible. This is because patients can be thrombolysed* outside of the eligibility criteria for a number of reasons, such as clinical trials.

Items	Field name in results spreadsheet	Guidance notes
16	Number of patients potentially eligible for thrombolysis who arrived out of hours	Number of stroke patients potentially eligible for thrombolysis (and proportion out of stroke patients). Eligible patients are those with infarction; aged 80 and under; whose onset of stroke to arrival at hospital time was less than 3 hours or who had their stroke in hospital; who did not refuse treatment; and who were not contra-indicated due to co-morbidity*, medication or another reason. This is based on patients who arrived out of hours (after 6pm or before 8am Monday-Friday, or at the weekend or on public holidays). Patients already in hospital at time of stroke are not included, as this standard uses arrival at hospital time.
17	Number of patients (who arrived out of hours) who were given thrombolysis when potentially eligible	Number of stroke patients (who arrived out of hours) who were given thrombolysis when potentially eligible (and proportion out of those eligible). Eligible patients are those with infarction; aged 80 and under; whose onset of stroke to arrival at hospital time was less than 3 hours or who had their stroke in hospital; who did not refuse treatment; and who were not contra-indicated due to co-morbidity*, medication or another reason. This is based on patients who arrived out of hours (after 6pm or before 8am Monday-Friday, or at the weekend or on public holidays). Patients already in hospital at time of stroke are not included, as this standard uses arrival at hospital time. The number of patients here may not be the total number of patients thrombolysed* out of those who arrived out of hours. This is because some patients can be thrombolysed* even though they are outside of the eligibility criteria, for reasons such as clinical trials.
18	Number of patients thrombolysed within 1 hour of arrival at hospital	Number of stroke patients thrombolysed* within 1 hour of arrival at hospital (and proportion out of those who were thrombolysed*). Patients already in hospital at time of stroke are not included. NA% means no patients were thrombolysed* whereas 0% means that there were patients who were thrombolysed* but none within 1 hour.

Items	Field name in results spreadsheet	Guidance notes
19	Arrival at hospital to thrombolysis median time (m)	This is the time in minutes from the time of arrival. Stroke patients only. Patients already in hospital at time of stroke are not included. NA means no patients were thrombolysed*.
Key Indicator 1	Number of patients scanned within 1 hour of arrival at hospital	Number (and proportion) of stroke patients who were brain scanned within 1 hour of arrival at hospital. The denominator includes all stroke patients. If illogical timings are entered for a patient the standard is not met. For inpatients the time between onset and scan is used (if onset time is unknown for inpatients, the standard is not met). This indicator is for Accelerating Stroke Improvement (ASI)* Metric 4 (and is also linked to NICE* Quality Standard 2)
Key Indicator 2	Number of patients scanned within 24 hours of arrival at hospital	Number (and proportion) of stroke patients who were brain scanned within 24 hours of arrival at hospital. The denominator includes all stroke patients. If illogical timings are entered for a patient the standard is not met. For inpatients the time between onset and scan is used (if onset time is unknown for inpatients, the standard is not met). This indicator is for ASI* Metric 4
Key Indicator 3	Number of patients who arrived on stroke bed within 4 hours of hospital arrival (when hospital arrival was out of hours)	Number (and proportion) of stroke patients who arrived on stroke bed within 4 hours of hospital arrival (when hospital arrival was out of hours). Out of hours means the patient arrived after 6pm or before 8am Monday-Friday, or at the weekend or on public holidays. Patients who were already in hospital at the time of stroke are not included as arrival time is irrelevant here. This indicator is used to distinguish hospitals which have well organised direct admission to stroke units 'out of hours'.
Key Indicator 4	Number of patients seen by stroke consultant or associate specialist within 24h	Number (and proportion) of stroke patients seen by stroke consultant or associate specialist within 24 hours of arrival at hospital. Patients already in hospital at the time of stroke are included, and in this case, the time of stroke is used instead of time.

Items	Field name in results spreadsheet	Guidance notes
Key Indicator 5	Number of patients with a known time of onset for stroke symptoms	Number (and proportion) of stroke patients with a known time of onset for stroke symptoms. It includes patients who were already in hospital at time of stroke. This is included as a key indicator to acknowledge those services which are putting effort into establishing the onset time for more of their patients. Also it contributes to higher data quality, and hence more standards can be measured according to onset time.
Key Indicator 6	Number of patients for whom their prognosis/diagnosis was discussed with relative/carer within 72h where applicable	Number (and proportion) of stroke patients for whom their prognosis/diagnosis was discussed with relative/carer within 72 hours of arrival where applicable. Patients already in hospital at the time of stroke are included. This is used as a key indicator as it is a measure which looks at whether hospitals are involving carers/relatives.
Key Indicator 7	Number of patients who had continence plan drawn up within 72h where applicable	Number (and proportion) of stroke patients who had a continence plan drawn up within 72 hours of arrival where applicable. This includes patients already in hospital at the time of stroke.
Key Indicator 8	Number of potentially eligible patients thrombolysed	Number of potentially eligible stroke patients thrombolysed* (and proportion out of those eligible). Eligible patients are those with infarction; aged 80 and under; whose onset of stroke to arrival at hospital time was less than 3 hours or who had their stroke in hospital; who did not refuse treatment; and who were not contra-indicated due to co-morbidity*, medication or another reason. This is linked to NICE* Quality Standard 3
Key Indicator 9	Bundle 1: Seen by nurse and one therapist within 24h and all relevant therapists within 72h (proxy for NICE QS 5)	Bundle 1: Number (and proportion) of stroke patients who were eligible and received the following standards: who were seen by a nurse AND one therapist within 24 hours of arrival AND all relevant therapists within 72 hours of arrival. This includes patients already in hospital at the time of stroke. This is linked to NICE* Quality Standard 5 but does not have 'documented multidisciplinary goals agreed within 5 days' which is part of the NICE* Quality Standard.

Key indicators

A document describing the evidence base of the 12 key indicators for SINAP

The audit compares 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 the guidelines. All relevant evidence for the standards applied in the audit is available in the third edition of the National Clinical Guidelines for Stroke (2008) published by the Intercollegiate Stroke Working Party (www.rcplondon.ac.uk), the NICE (National Institute for Health and Clinical Excellence) Clinical Guideline (www.nice.org.uk/CG68), the National Stroke Strategy 2007 and the NICE Quality Standard for stroke <http://www.nice.org.uk/aboutnice/qualitystandards/stroke/strokequalitystandard.jsp>. It is suggested that they are read in full for context. Some of the indicators are related to metrics from the Accelerating Stroke Improvement (ASI); these are detailed in the relevant sections.

The 12 key indicators were selected following analysis of the first year's data and are considered to be representative of the first 72 hours of care.

1. Number (and proportion) of stroke patients brain scanned within 1 hour of arrival at hospital
2. Number (and proportion) of stroke patients brain scanned within 24 hours of arrival at hospital
3. Number (and proportion) of stroke patients who arrived on a stroke bed within 4 hours of hospital arrival (when hospital arrival was out of hours)
4. Number (and proportion) of stroke patients seen by stroke consultant or associate specialist within 24 hours
5. Number (and proportion) of stroke patients with a known time of onset for stroke symptoms
6. Number (and proportion) of stroke patients for whom their prognosis/diagnosis was discussed with relative/carer within 72 hours where applicable
7. Number (and proportion) of stroke patients who had continence plan drawn up within 72 hours where applicable
8. Number of potentially eligible patients thrombolysed (and proportion out of those eligible)
9. Bundle 1: Number (and proportion) of stroke patients seen by a nurse and one therapist within 24 hours and all relevant therapists within 72 hours
10. Bundle 2: Number (and proportion) of stroke patients given nutrition screening and formal swallow assessment within 72 hours where appropriate
11. Bundle 3: Number (and proportion) of stroke patients whose first ward of admission was the stroke unit and who arrived there within four hours of hospital arrival
12. Bundle 4: Number (and proportion) of stroke patients who were given an antiplatelet within 72 hours where appropriate and who had adequate fluid and nutrition in all 24 hour periods

The third key indicator considers only of patients who arrived outside of the working hours of a hospital, as defined in the report; i.e. after 6pm in the evening, before 8am in the morning, at weekends and on bank holidays.

Key Indicator 1: Number (and proportion) of stroke patients brain scanned within 1 hour of arrival at hospital

NICE Guideline Recommendations

Brain imaging should be performed immediately (ideally the next slot and definitely within 1 hour, whichever is sooner) for people with acute stroke who have any one of the following apply:

- *indications for thrombolysis or early anticoagulation (see section 8 of guideline)*
- *on anticoagulant treatment*
- *a known bleeding tendency*
- *a depressed level of consciousness (Glasgow Coma Score(GCS below 13)*
- *unexplained progressive or fluctuating symptoms*
- *papilloedema, neck stiffness or fever*
- *severe headache at onset of stroke symptoms .*

For all people with acute stroke without indications for immediate brain imaging, scanning should be performed as soon as possible (within a maximum of 24 hours after onset of symptoms).

The denominator includes all stroke patients. If illogical timings are entered for a patient the standard is not met. For inpatients the time between onset and scan is used (if onset time is unknown for inpatients, the standard is not met). This indicator is for ASI Metric 4 (and is also linked to NICE Quality Standard 2).

Key Indicator 2: Number (and proportion) of stroke patients brain scanned within 24 hours of arrival at hospital

See information above for Key Indicator 1. This indicator is for ASI Metric 4.).

Key Indicator 3: Number (and proportion) of stroke patients who arrived on a stroke bed within 4 hours of hospital arrival (when hospital arrival was out of hours)

NICE Guideline Recommendation

All people with suspected stroke should be admitted directly to a specialist acute stroke unit following initial assessment either from the community or Accident & Emergency department.

Patients who were already in hospital at the time of stroke are not included as arrival time is irrelevant here. This indicator is used to distinguish hospitals which have well organised direct admission to stroke units 'out of hours'.

Key Indicator 4: Number (and proportion) of stroke patients seen by stroke consultant or associate specialist within 24 hours

See information above for Key Indicator 3.

ICSWP Recommendations

Each acute stroke unit should have immediate access to:

- *medical staff specially trained in the delivery of acute medical care to stroke patients, including the delivery of thrombolysis and the diagnostic and administration procedures needed for safe effective delivery of thrombolysis*
- *nursing staff specifically trained and competent in the management of acute stroke, covering both its neurological and its general medical aspects*
- *imaging and laboratory services*
- *rehabilitation specialist staff.*

Onset time for inpatients would be the '0' hour here, whereas for newly admitted patients the '0' hour is the time of arrival at hospital.

Key Indicator 5: Number (and proportion) of stroke patients with a known time of onset for stroke symptoms

This is a measure of data quality, and reflects the care of which case history is taken ascertaining the time of onset of symptoms as accurately as possible. This will determine whether patients are suitable candidates for thrombolysis. The audit to date has demonstrated wide variation of data completeness for this item, suggesting that some hospitals are able to obtain this information for a higher proportion of their patients than others.

Key Indicator 6: Number (and proportion) of stroke patients for whom their prognosis/diagnosis was discussed with relative/carer within 72 hours where applicable

This is used as a key indicator as it is a measure which looks at whether hospitals are involving carers/relatives.

ICSWP Recommendations

The carer(s) of every patient with a stroke should be involved with the management process from the outset.

Key Indicator 7: Number (and proportion) of stroke patients who had continence plan drawn up within 72 hours where applicable

The management of continence is consistently highlighted by patients as being one of the most important aspects of care.

ICSWP Recommendations

All wards and stroke units should have established assessment and management protocols for both urinary and faecal incontinence, and for constipation.

All patients with loss of control of the bladder at two weeks should:

- be reassessed for other causes of incontinence, which should be treated if identified*
- have an active plan of management documented.*
- be offered simple treatments such as bladder retraining, pelvic floor exercises and external equipment first.*
- only be given an indwelling urethral catheter after other methods of management have failed*

NICE Guideline Recommendations

Key Indicator 8: Number of potentially eligible patients thrombolysed (and proportion out of those eligible)

- 1. Alteplase is recommended for the treatment of acute ischaemic stroke when used by physicians trained and experienced in the management of acute stroke. It should only be administered in centres with facilities that enable it to be used in full accordance with its marketing authorisation. (Alteplase TA122 2007)**
- 2. Alteplase should only be administered within a well organised stroke service with:**
 - **staff trained in delivering thrombolysis and in monitoring for any associated complications**
 - **care up to level 1 and level 2 nursing staff trained in acute stroke and thrombolysis**
http://www.datadictionary.nhs.uk/data_dictionary
 - **immediate access to imaging and re-imaging, and staff appropriately trained to interpret the images.**
- 3. Staff in A&E departments, if appropriately trained and supported, can administer thrombolysis in acute stroke provided that patients can be managed within an acute stroke service with stroke service with appropriate neuroradiological and stroke physician support.**
- 4. Protocols should be in place for the delivery and management of thrombolysis, including post-thrombolysis complications.**

In SINAP, patients are considered eligible for thrombolysis if they have the following characteristics, a subset taken from the National Institute of Neurological Disorders and Stroke (NINDS):

- Diagnosis of Stroke
- Type of stroke is infarction
- Under 80 years old
- An onset to arrival time of less than 3 hours or were already in hospital at time of stroke
- Were not contra-indicated for thrombolysis (due to co-morbidity, medication or another reason (other reasons specified included: wake-up stroke; unclear onset time; too mild; rapidly recovering)
- Did not refuse treatment.

In the 2010 SENTINEL stroke audit, using a similar model, we estimated that approximately 14% of patients could have benefited from thrombolysis, but it is appreciated that there may have been other contra-indications.

The audit uses an onset to arrival time of less than 3 hours to allow time for assessment and scanning prior to the end of the 4.5 hour time window. Note that since the publication of the NICE Technology Appraisal (TA) on thrombolysis in stroke, data have been published to show that thrombolysis up to 4.5 hours post onset is no less safe than thrombolysis up to 3 hours, and international guidelines have been altered accordingly. Many clinicians now thrombolysed up to 4.5 hours post onset. However, outcomes are better the earlier the patient is treated.

There remains uncertainty about the benefits of thrombolysis in people over the age of 80, and data from the IST3 (The Third International Stroke Trial) are awaited, but clinicians may offer thrombolysis to people over 80 outside the ongoing clinical trial. We have taken the age criterion according to the NICE TA122 (2007 Alteplase for the treatment of acute ischaemic stroke) which may be considered by some clinicians to be conservative.

Key Indicator 9: Bundle 1: Number (and proportion) of stroke patients seen by a nurse and one therapist within 24 hours and all relevant therapists within 72 hours

This is linked to NICE Quality Standard 5 but does not have 'documented multidisciplinary goals agreed within 5 days' which is part of the NICE Quality Standard. (This is because this is outside of SINAP's 72 hour remit)

NICE Quality Standard for stroke

Patients with stroke are assessed and managed by stroke nursing staff and at least one other member of the specialist rehabilitation team within 24 hours of admission to hospital and by all relevant members of the specialist rehabilitation team within 72 hours of admission with documented multidisciplinary goals agreed within 5 days.

ICSWP Recommendation and NICE Quality Standard for stroke

Patients should undergo as much therapy appropriate to their needs as they are willing and able to tolerate and in the early stages they should receive a minimum of 45 minutes daily of each therapy that is required.

Key Indicator 10: Bundle 2: Number (and proportion) of stroke patients given nutrition screening and formal swallow assessment within 72 hours where appropriate

NICE Guideline Recommendations

On admission, people with acute stroke should have their swallowing screened by an appropriately trained healthcare professional before being given any oral food, fluid or medication.

If the admission screen indicates problems with swallowing, the person should have a specialist assessment of swallowing, preferably within 24 hours of admission and not more than 72 hours afterwards.

In people with dysphagia food and fluids should be given in a form that can be swallowed without aspiration following specialist assessment of swallowing

Extract from the National Clinical Guidelines for Stroke 2008 Recommendations

A *Every patient should have their ability to swallow screened and documented as soon as practical after stroke onset by a person with appropriate training using (if appropriate) a recognised, standard screening assessment (e.g. swallowing 50 mls of water).*

B *Until a safe swallowing method has been established, all patients with identified swallowing difficulties should*

- *receive hydration (and nutrition after 24 - 48 hours) by alternative means.*
- *be given their medication by the most appropriate route and in an appropriate form.*
- *have a comprehensive assessment of their swallowing function undertaken by a speech and language therapist or other appropriately trained professional with specialism in dysphagia.*
- *be considered for nasogastric tube feeding,*

- *be considered for the additional use of a nasal bridle if the nasogastric tube needs frequent replacement*
- *have written guidance for all staff / carers to use when feeding or providing liquid.*
- C** *Patients with difficulties in swallowing should be assessed by a speech and language therapist or other appropriately trained professional with specialism in dysphagia for active management of oral feeding by:*
 - *sensory modification, such as altering taste and temperature of foods or carbonation of fluids*
 - *texture modification of solids and / or liquids*
- D** *Every patient who requires food or fluid of a modified consistency should:*
 - *be referred to a dietician or multidisciplinary nutrition team*
 - *have texture of modified food or liquids described using national agreed descriptors*
 - *have both fluid balance and nutrition monitored*
- E** *Patients with difficulties in self-feeding should be assessed and provided with the appropriate equipment to enable them to feed independently and safely.*
- F** *Gastrostomy feeding should be considered for patients who:*
 - *need but are unable to tolerate nasogastric tube feeding within the first four weeks*
 - *are unable to swallow adequate amounts of food orally at four weeks*
 - *are at long term high risk of malnutrition.*

Key Indicator 11: Bundle 3: Number (and proportion) of stroke patients whose first ward of admission was the stroke unit and who arrived there within four hours of hospital arrival

Patients who were already in hospital at the time of stroke are not included as arrival at hospital time is irrelevant here. This is ASI Metric 2 (and is also linked to NICE Quality Standard 3).

NICE Quality Standard for stroke

Patients with suspected stroke are admitted directly to the specialised acute stroke unit and assessed for thrombolysis, receiving it if clinically indicated.

See also key indicators 3 and 4.

Key Indicator 12: Bundle 4: Number (and proportion) of stroke patients who were given an antiplatelet within 72 hours where appropriate and who had adequate fluid and nutrition in all 24 hour periods

NICE Guideline Recommendations

All people presenting with acute stroke who have had the diagnosis of primary in-tracerebral haemorrhage excluded by brain imaging should be given :

- *aspirin 150–300 mg orally if they are not dysphagic*
- *aspirin rectally or by enteral tube if they are dysphagic.*

Thereafter aspirin 150–300 mg should be continued until two weeks after the onset of stroke, at which time definitive long-term anti-thrombotic treatment should be initiated. People being discharged before two weeks can be started on long term treatments earlier.

See guidelines for key indicator 10.