

Kicking Stroke Into Touch

A Clinical, Resource & Budgetary
Impact Assessment

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Cost of stroke

- Stroke is estimated cost NHS Scotland and the Scottish economy about £700 million a year:
 - £280 million in direct costs to the NHS
 - £240 million of informal care costs
 - £180 million in income lost to disability.
- National Audit Office, 2005, *Reducing Brain Damage: Faster access to better stroke care*

Baseline costing information

	Episodes	Patients	Bed Days	Total Cost (Millions)	Average Stay	Average Cost
Transient Ischaemic Attack						
As at March 2007	2,734	2,061	13,302	£2.5	6	£1,199
As at March 2008	2,774	2,069	13,798	£2.5	7	£1,215
Strokes as at March 2007						
Intracerebral Haemorrhage	1,749	1,035	28,519	£5.5	28	£5,347
Intracranial Haemorrhage	981	526	10,873	£3.0	21	£5,720
Cerebral Infarction	8,064	4,643	149,775	£21.9	32	£4,716
Inconclusive Stroke	5,618	3,555	99,796	£15.4	28	£4,321
	16,412	9,759	288,963	£45.8	27	£5,026
Strokes as at March 2008						
Intracerebral Haemorrhage	1,745	1,026	30,680	£5.6	30	£5,500
Intracranial Haemorrhage	1,074	522	12,821	£3.3	25	£6,377
Cerebral Infarction	7,596	4,297	124,384	£17.4	29	£4,055
Inconclusive Stroke	6,047	3,535	96,135	£15.0	27	£4,246
	16,462	9,380	264,020	£41.4	28	£5,045

Purpose: to support implementation

By providing for Scotland and each NHS board :

- Supportive epidemiological studies

- Changes from current practice in the following areas:
 - Clinical benefits
 - Key resource requirements
 - Costs

Evidence from the Audit Commission (Sept 2005) is NHS bodies find it difficult to assess the financial impact and affordability of guideline implementation.

Methodology

Identify key recommendations that are significant change to current practice

Themes were:

- Rapid access to therapy – to and in hospital
- Rapid imaging
- Thrombolysis within 4.5 hours – telemedicine
- Procedures in carotid territory
- Manage in a stroke unit with multi-disciplinary team
- Training

- Clinical benefits from epidemiological model
- Resource requirements by identifying changes in patient pathways and ask experts from SAS, MCNs and NHS Boards; verify with SIGN Group members
- Costs from national sources – mainly staff
- Sensitivity analyses
- Peer review

Epidemiological studies

- First Ever in a lifetime stroke that has resulted in either death or a hospital admission:
 - For the Years Ended 31st March 2006, 2007 & 2008
 - Age Groups 0-44 45-54 55-64 65-74 75-84 85+
 - Following protocol from Scottish Borders Stroke Study
- Classification and natural history or clinically identifiable subtypes of cerebral infarction:
 - Functional Outcome Predicted at 30 Days including disability
 - Functional Outcome Predicted at 90 Days including recurrence
 - Following protocol from Oxfordshire Community Stroke Project

Clinical benefits

- Thrombolysis & the importance of time of onset
 - Extension of timeframe to 4.5 hours
 - Modelling expected outcome
 - 10% of treated patients – ‘Lazarus Effect’
 - 40% of treated patients – improved mRS
 - 45% of treated patients – no overall improvement
 - 5% of treated patients – complications & mortality
- Procedures in carotid territory
 - Currently carotid endarterectomy is not timely and under utilised so does not reach full potential
 - Thrombolysis should increase the number of patients physically fit to undergo surgery

Predicted outcomes

➤ Thrombolysis

- 930 additional patients will have thrombolysis (13.6% of stroke population) –currently 250
 - 20 patients per week in Scotland
 - 2 patients per week in Ayrshire & Arran : 7 in GG&C
 - 1 patient every two weeks in the Borders
 - 6 patients per annum across all of the Island Boards
 - 930 additional CT scans will cost about £110,000

➤ Carotid endarterectomy

- Additional 165 from improvements (excluding thrombolysis) - currently around 525 procedures
- Rising to 250 post thrombolysis. About 775 in total
- Possible recurrent strokes avoided could be 140

Key resource requirements

- Radiography & ultrasound
 - Cross training of radiographers in CT head scanning
 - Recruitment & retention of ultrasonographers cross trained in carotid dopplar techniques
- Admistration of thrombolytic drugs
 - Appropriate senior level of staff required to delivery therapy including post delivery support
 - Out of hours service including the role of telemedicine
- Scottish Ambulance Service
 - Delivery of patients to the closest hospital with a CT scanner has no significant cost implications for SAS
 - Delivery of patients to another tertiary or 'super' centre will have significant cost implications

Next steps

- Draft report for internal review by SIGN Development Group by January 30th
- 4 week consultation
- Peer review draft by mid March
- Final report April 2009