



Addendum

HYPERACUTE ASPIRIN TREATMENT: FINDINGS IN TABLE 32

A key message in the National Acute Stroke Services Audit 2009 was that 'The rate of use of aspirin within 48 hours is very surprisingly and unacceptably low' (2010:41). Of audited patients with ischaemic stroke eligible for treatment with hyperacute aspirin, we reported that 62% of Australian patients received aspirin within 48 hours, compared with 21% of New Zealand patients.

The audit question was referenced to the 2007 Australian *Clinical Guidelines for Acute Stroke Management*¹:

Aspirin (150-300mg) should be given as soon as possible after the onset of stroke symptoms (i.e. within 48 hrs) if CT/MRI scan excludes haemorrhage (Level I, Grade A).

We were prompted to investigate the calculation of New Zealand data for this indicator in the light of a couple of queries from New Zealand clinicians - not only because of the apparent trans-Tasman gap in performance - but also in relation to unexpectedly low rates for their own DHBs: 'The NZ results seem to be out of keeping with most people's perceived practice'.

We found that the timing of the administration of hyperacute aspirin for eligible patients with ischaemic stroke had been treated differently in the Australian and New Zealand analysis:

- The New Zealand analysis followed the same logic as for calculating timing of thrombolysis from stroke onset. In other words, the New Zealand figure in Table 32 (2010:41) gives the rate of administration of aspirin within 48 hours of **time of stroke onset**. Time of stroke onset was not known or was not entered by the auditor in just over half (52%) of all audited NZ patients with ischaemic stroke eligible for aspirin, and these patients were excluded from the analysis. Time of stroke onset was known in just under half (48%) of eligible patients – these patients were included in the analysis, of whom 21% received aspirin within 48 hours. The percentage (51%) for "Received aspirin [at any point]" is based on all audited NZ patients with ischaemic stroke eligible for aspirin.
- The Australian analysis calculated the rate of treatment with hyperacute aspirin by matching the time of administration against **time of arrival in ED** instead of time of stroke onset. Where time of arrival was not known, **date of arrival in ED** was used (Table 13, page 22)².

The different approach to time calculation for the administration of aspirin thus included a higher percentage of Australian patients in the figure for "Received aspirin within 48 hours". Therefore, a direct comparison on the administration of hyperacute aspirin between Australia and New Zealand cannot be made. Note that when time dependence is taken out of the calculation (whether eligible patients received aspirin at any point) a difference between Australia (71%) and New Zealand (57%) remains, but is reduced (Table 32, 2010:41).

However, all New Zealand DHBs had their data for thrombolysis and hyperacute aspirin calculated in the same way, meaning that comparisons within New Zealand are valid. We believe the message stands: 'The rate of use of aspirin within 48 hours is very surprisingly and unacceptably low' (2010:41).

COMMENT: DEFINING 'STROKE ONSET'

A significant proportion of patients or family may not be able to give a time of stroke onset – this particularly applies for nocturnal stroke or unwitnessed stroke associated with aphasia. In this situation, the accepted approach when considering acute treatments is generally to define the "stroke onset" as the "time last known well".

Errata

PAGE 52 The figures given for access to rehabilitation in the fourth paragraph (last sentence) are correct. In the corresponding 'Figure 4: Type of rehabilitation service accessed', segment labels have been placed incorrectly in the pie chart.

PAGE 53 There is an incorrect heading in 'Figure 5: Functional status pre-stroke and at discharge as per modified Rankin Scale' (page 53). The second bar should be titled 'Discharge mRS' instead of 'First mRS post-stroke (within 72 hours)'.

PAGE 63 'Appendix E: Sample page from reports prepared for individual DHBs' should appear as per the following page.

¹ National Stroke Foundation. *Clinical Guidelines for Acute Stroke Management*. 2007. Melbourne. Australia.

² National Stroke Foundation. *National Stroke Audit Acute Services Clinical Audit Report*. 2009. Melbourne. Australia.

Appendix E

Sample page from reports prepared for individual DHBs

Shows column for own DHB findings in data tables, and prompt for the team to consider implications of the key messages and findings for their DHB's stroke service.

KEY MESSAGES:

There is a marked discrepancy in the proportion of patients having carotid artery imaging between Australia (50%) and New Zealand (22%).

Early assessment and investigation

Diagnostic imaging

RATIONALE

Brain imaging is required to delineate cerebral ischaemia from haemorrhage in a patient presenting with stroke. Brain imaging also identify non-vascular causes of a 'stroke-like' syndrome i.e. stroke mimics. Although MRI is more sensitive to ischaemic changes and may be preferred by some clinicians, CT is more commonly available in New Zealand and Australia and has been described as the most cost-effective imaging modality for acute stroke (Wardlaw *et al* 2004).

FINDINGS

Auditors were asked to provide information about the type of imaging performed, and the time and date of imaging. Where imaging was not obtained, they were also asked to report the reasons why; for example, the patient refused or was unable to cooperate, patient was for palliative care only, or the patient had died before the scan could be performed. In patient records where times of stroke onset, arrival to the emergency department and brain imaging were not documented it was assumed that imaging did not occur within the defined timeframe. Patients with contraindications were excluded from analysis.

Auditors were also asked if cardiac and carotid imaging was undertaken during the hospital admission.

Patients in large DHBs were more likely to receive brain imaging during admission (Chi-square = 10.7, df = 2, p < 0.01) [Table 29]. Patients in large and small DHBs were more likely to receive brain imaging within twenty-four hours (Chi-square = 45.0, df = 2, p < 0.001) [Table 29].

The low rate of use of carotid imaging in New Zealand compared with Australia is an area of potential concern, but the appropriateness of use of this investigation has not been specifically addressed in this audit.

Table 29: Use of brain imaging (CT or MRI) by DHB category and stroke unit status

	Aust total (N=3,247)	NZ total (N=832)	A/large (N=277)	B/medium (N=273)	C/small (N=282)	SU (N=336)	No SU (N=496)	Your DHB
Brain imaging during admission	3,229 (99%)	791 (95%)	273 (99%)	255 (93%)	263 (93%)	322 (96%)	469 (95%)	
Brain imaging within 24 hours of hospital arrival*	2,946 (91%)	635 (88%)	232 (93%)	186 (76%)	217 (94%)	272 (90%)	363 (86%)	

(Australian data from NSF 2009a, p. 21, Table 10 – ASSF and stroke unit figures not available)

* Percentage of patients where time known.

Table 30: Use of ECG and carotid artery imaging while in hospital by DHB category and stroke unit status

	Aust total (N=3,307)	NZ total (N=832)	A/large (N=277)	B/medium (N=273)	C/small (N=282)	SU (N=336)	No SU (N=496)	Your DHB
ECG	3,068 (93%)	774 (93%)	261 (94%)	253 (93%)	260 (92%)	316 (94%)	458 (92%)	
Carotid artery imaging	1,654 (50%)	182 (22%)	58 (21%)	57 (21%)	67 (24%)	65 (19%)	117 (24%)	

(Australian data from NSF 2009a, p. 21, Table 11 – ASSF and stroke unit figures not available)

IMPLICATIONS:

What the key messages and/or findings on **early assessment and imaging** mean for our DHB's stroke service: