Implementing clinical guidelines for acute stroke management: do nurses have a lead role?

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KEY WORDS

stroke, clinical guidelines, implementation, nurses, stroke care team

ABSTRACT

Objective
Health professionals should be aware of, and implement, best practice clinical guidelines for stroke care. Using the latest National Stroke Foundation *Clinical Guidelines for Acute Stroke Management* this study aimed to determine which member of the multidisciplinary team would most likely be responsible for taking the lead role for implementing each recommendation.

Methods
Three nurses and one allied health professional independently classified each of the 148 recommendations according to whom they thought most likely to take the lead role in implementing each recommendation. A teleconference was held to discuss any differences of opinion and gain consensus.

Results
The multidisciplinary team was identified as responsible for taking the lead role most often (n=54, 36%), followed by medical practitioners (n=52, 35%) and nurses (n=13, 8%). Nurses were identified as being involved either as the lead initiator or as part of the multidisciplinary team in implementing 79 (53%) of recommendations. A significantly higher percentage of recommendations where implementation was determined to be led by medical practitioners were attributed a Grade A or B strength of evidence (ie higher strength) (49%) when compared with those recommendations determined to be led by nurses (6%) (p=0.04). There was no significant difference between the number of Level I or II based recommendations determined to be led by medical practitioners compared to those led by nurses (59%; 11% respectively; p=0.26).

Conclusions
Neuroscience nurses have a key role in the multidisciplinary stroke team and should contribute to the implementation of many of the evidence based guideline recommendations for acute stroke.

INTRODUCTION

Stroke is Australia's second single greatest cause of death and a leading cause of disability (AIHW 2004). Every year Australian's will suffer 53,000 new and recurrent strokes at a rate of one every 10 minutes (Cadilhac et al 2005). Clinical guidelines have become increasingly popular as one strategy for busy clinicians to keep up to date with the rapidly evolving research base in order to provide best practice care (Grol and Grimshaw 2003).

The *Clinical Guidelines for Acute Stroke Management*, initially developed by the National Stroke Foundation in 2003 and updated in late 2007 (NSF 2007a), include recommendations that encompass the management of acute stroke and transient ischaemic attack (TIA) (available at http://www.strokefoundation.com.au). The updated document was developed according to standards prescribed by the National Health and Medical Research Council (NHMRC) (NHMRC 1999) under the direction of a multidisciplinary Expert Working Group (EWG). Each recommendation was assigned an NHMRC Level of Evidence (Box 1) (NHMRC 2007) and a grading for the strength of evidence (Box 2). 'Consensus opinion' was ascribed to those recommendations where no appropriate level I, II, III or IV evidence was applicable but where there was sufficient consensus of the EWG.

The updated guidelines present clear evidence that stroke care requires a multidisciplinary team (MDT) approach. For example, one key recommendation involves the organisation of care in stroke units (organised, active, evidence-based care provided by dedicated staff within a defined geographic area) which significantly reduces death and disability after stroke (SUTC 2007). Currently only 21% of Australian acute hospitals surveyed in mid 2007 had a stroke unit and alarmingly, of the sites that admitted 200 or more stroke patients, 13 were not providing stroke unit care (NSF 2007b).

There is however a lack of information about role delineation in terms of the implementation of clinical guideline recommendations. Furthermore, clinical guidelines often fail to nominate the key clinician deemed to be primarily responsible for implementation of the guideline recommendations. This study examined the recommendations from the 2007 version of the NSF *Clinical Guidelines for Acute Stroke Management* (NSF 2007a) to determine which member of the MDT would most likely be responsible for taking the lead role for implementing each recommendation. Further we examined: firstly the designated level of evidence and, secondly the strength of evidence for each recommendation in relation to the different members of the MDT determined most likely to be responsible for implementation.

Box 1: NHMRC Levels of Evidence for Intervention Studies

Level	Intervention
I	A systematic review of Level II studies
II	A randomised controlled trial
III-1	A pseudorandomised controlled trial (ie alternate allocation or some other method)
III-2	A comparative study with concurrent controls: • Non-randomised, experimental trial • Cohort study • Case-control study • Interrupted time series with a control group
III-3	A comparative study without concurrent controls: • Historical control study • Two or more single arm study • Interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/ post-test outcomes

Box 2: NHMRC Grades for Strength of the Body of Evidence

Grade	Interpretation
A	The body of evidence **can be trusted to guide practice**
B	The body of evidence **can be trusted to guide practice in most situations**
C	The body of evidence provides **some support for recommendation(s)** but **care should be taken** in its application
D	The body of evidence is **weak and recommendation must be applied with caution**

METHOD

Three nurses and one physiotherapist independently classified each of the 148 recommendations from the NSF *Clinical Guidelines for Acute Stroke Management* (2007a) according to whom they thought most likely to take the lead role in implementing each recommendation. A teleconference was held to discuss any differences of opinion and a consensus was reached.

Data Analysis

Frequencies were calculated for each recommendation by category of health professional determined to be responsible for leading implementation (ie MDT; medical practitioners (alone); nurses (alone); joint medical practitioners and nurses; allied health practitioners; or other health professionals). Recommendations were grouped by their level of evidence as follows: high level of evidence (level I and level II) versus lower levels of evidence (level III, level IV and consensus opinion) to determine differences between categories of health professional responsible for leading implementation. Strength of evidence was grouped (Grades A and B versus the rest) to determine differences between category of health professionals determined to be responsible for leading implementation.

FINDINGS

The National Stroke Foundation *Clinical Guidelines for Acute Stroke Management* (2007) provided 148 recommendations to guide the clinical practice of health care professionals. The multidisciplinary team was identified as responsible for implementing the highest percentage of recommendations (n=54, 36%), closely followed by medical practitioners (n=52, 35%). Nurses were identified most likely to be responsible for taking the lead role for implementing 8% (n=13) of recommendations. Implementation for 11% (n=17) were deemed to be led by allied health staff and other health care professionals. Nurses were thus identified as being involved, either alone or in conjunction with other healthcare professionals, for the implementation of 79 recommendations (53%) (table 1).

Table 1: Member(s) of stroke team determined to be responsible for leading implementation of recommendation (n=148)^

Healthcare worker taking lead role	n	%
Multidisciplinary team (MDT)	54	36
Medical practitioners (alone)	52	35
Nurses (alone)	13	8
Joint medical practitioners and nurses	12	8
Speech pathologists	4	3
Occupational therapists	4	3
Ambulance service	2	1
Pharmacists	2	1
Ambulance service and MDT	1	1
Complimentary and alternate therapists	1	1
Physiotherapists	1	1
Neuropsychologists	1	1
Multiple	1	1
Total	**148**	

^ Bolded descriptors involve nurses

A total of 83 recommendations (56%) were based on level I or II evidence; with 50 (34%) of recommendations based on consensus opinion. For each of the different members of the multidisciplinary team identified most likely to be responsible for implementation of each recommendation, the level of evidence was determined (table 2). For the sub-set of recommendations determined to be led by medical practitioners or led by nurses (n=64), a higher percentage of recommendations determined to be led by medical practitioners were based on level I and II evidence (59%) (ie higher level of evidence) when compared with those recommendations determined to be led by nurses (11%), however this difference was not significant ($\chi^2 = 1.24$, df=1, p=0.26).

The highest strength of evidence (Grade A) was only attributable to recommendations where implementation was determined to be led by either medical practitioners (n=18, 37%) or the MDT (n=10, 18%). Thus there were no Grade A strength of evidence ratings for those recommendations where implementation was determined to be led by

nurses with or without medical practitioners (table 3). Furthermore, there were no Grade A strength of evidence ratings for recommendations where implementation was determined to be led by allied health practitioners or led by other health care professionals. For the sub-set of recommendations determined to be led by medical practitioners or led by nurses (n=63), a significantly higher percentage of recommendations determined to be led by medical practitioners were attributed a Grade A or B strength of evidence rating (ie higher level) (49%) when compared with those recommendations determined to be led by nurses (6%) (χ^2 = 4.08, df=1, p=0.04). A total of 50 (34%) recommendations across all multidisciplinary groups were unable to be assigned a level of evidence or a strength of evidence rating as they were based on 'consensus opinion' of the EWG (tables 2 and 3).

Table 2: Levels of evidence for recommendations by member(s) of stroke team determined to be responsible for leading implementation (n=147)#

	Level I or II		Level III or IV		Consensus Opinion	
	n	%	n	%	n	%
MDT (n=54)	24	44	8	15	22	41
Medical practitioners (alone) (n=51)#	38	75	2	4	11	21
Nurses (alone) (n=13)	7	54	0	0	6	46
Medical and nursing (n=12)	5	42	1	8	6	50
Others^ (n=17)	9	53	3	18	5	29
Total (n=147)	83	56	14	10	50	34

#One recommendation classified as led by medical practitioners alone stated there was insufficient evidence to provide a recommendation

^Speech pathologist(s), occupational therapist(s), ambulance service, ambulance service and MDT, complimentary therapist(s), physiotherapist(s), neuropsychologist(s), pharmacist(s), and combination of professional groups without the full MDT.

Table 3: Grades of evidence for recommendations by member(s) of stroke team determined to be responsible for leading implementation (n=146)#

	Grade A n (%)		Grade B n (%)		Grade C n (%)		Grade D n (%)		No grade/ consensus n (%)	
	n	%	n	%	n	%	n	%	n	%
MDT (n=54)	10	18	7	13	9	17	6	11	22	41
Medical practitioners (alone) (n=50)#	18	36	13	26	8	16	0	0	11	22
Nurses (alone) (n=13)	0	0	4	31	3	23	0	0	6	46
Medical and nursing (n=12)	0	0	3	25	3	25	0	0	6	50
Others (n=17)	0	0	4	24	7	41	1	6	5	29
Total	28	19	31	21	30	21	7	5	50	34

#Two recommendations were not graded

DISCUSSION

The updated guidelines present essential aspects of care for acute stroke management. While medical assessment and management is paramount during this phase it is clear that the MDT plays a critical role in implementing care. The fact that nurses were deemed to play a key role in implementing over half (53%) of the 148 recommendations is noteworthy.

Recommendations determined to be implemented by medical practitioners were based on higher levels of evidence, however this figure was not significant when compared with those recommendations determined to be led by nurses. This not significant finding may be due to the relatively low number of level I or II recommendations (n=7) determined to be led by nurses.

That there were no Grade A strength of evidence ratings for recommendations where implementation was determined to be led by nurses, led by allied health practitioners or led by other health professionals is not surprising given the lack of randomised controlled trials in acute stroke within these disciplines. More rigorous research is warranted into nursing and allied health stroke care practices to better understand optimum care for people with acute stroke.

Over a third of recommendations (n=50, 34%) across all multidisciplinary groups were unable to be assigned a level of evidence or strength of evidence rating as they were based on expert consensus opinion. It would be of interest to see how this figure alters over time as more research is undertaken into acute stroke care.

Although this analysis of the guidelines was undertaken by a limited number of participants (n=4) from only two professional backgrounds (nursing and physiotherapy) the authors consider the results are representative. The physiotherapist also coordinated the development of the guidelines and thus had detailed input from all professional groups.

Having highly skilled nurses to monitor and care for stroke patients is crucial. Analysis of the characteristics of stroke unit care highlight several areas where nursing care practices are clearly important (eg positioning and handling, early mobilisation, bladder and bowel management, fluid and food intake management) (Langhorne and Pollock 2002). Nurses have been found to be an integral part of the MDT with nursing practices closely coordinated with that of the MDT and ongoing staff education and training available to ensure nurses have expertise in stroke and rehabilitation principles (Langhorne and Pollock 2002). The current study reinforces the importance of nurses' role in the multidisciplinary team.

CONCLUSION

With an evolving evidence base it is crucial that health professionals are aware of, and implement, best practice clinical guidelines for stroke care. The current guidelines suggest timely, efficient and coordinated care from ambulance services, emergency services, and stroke services to maximise the potential of acute therapies and prevent costly complications and subsequent strokes. Furthermore, acute stroke patients should be admitted to hospital and managed in a dedicated stroke unit where evidence based care can be delivered by a MDT in an organised, coordinated fashion. Finally, accurate interpretation and implementation of recommendations will broaden the knowledge and skill base of the specialist neuroscience nurse. The results of this study clearly highlight the multidisciplinary nature of acute stroke care and the significant role neuroscience nurses play in implementing best practice stroke care.

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Acknowledgments

The Clinical *Guidelines for Acute Stroke Management 2007 was developed by a multidiscipline Expert Working Group. The National Stroke Foundation wish to acknowledge the significant contribution of the following people: Dr Alan Barber (Neurologist, Auckland City Hospital, New Zealand), Dr Christopher Beer (Senior Lecturer, University of Western Australia and Geriatrician/Clinical Pharmacologist Royal Perth and Mercy Hospitals and Swan Health Service, Western Australia), Professor Justin Beilby (Executive*

Dean, Faculty of Health Sciences and Professor of General Practice, University of Adelaide, South Australia), Associate Professor Julie Bernhardt (Physiotherapist, National Stroke Research Institute, Victoria, Australia), Professor Christopher Bladin, (Neurologist, Box Hill Hospital, Victoria, Australia), Ms Brenda Booth (Consumer, Working Aged Group with Stroke, NSW), Dr Julie Cichero (Speech Pathologist, private practice and University of Queensland, Australia), Ms Louise Corben (Occupational Therapy, Monash Medical Centre and Bruce Lefroy Centre Murdoch Children's Research Institute, Victoria, Australia), Dr Denis Crimmins (Chair of the Expert Working Group; Neurologist, Gosford Hospital, NSW, Australia), Associate Professor Richard Gerraty (Neurologist, Alfred Hospital and Monash University, Victoria, Australia), Mr Kelvin Hill (Manager, Guidelines Program, National Stroke Foundation, Victoria, Australia), Dr Erin Lalor (Chief Executive Officer, National Stroke Foundation, Victoria, Australia), Associate Professor Christopher Levi (Neurologist, John Hunter Hospital, NSW, Australia), Professor Richard Lindley (Professor of Geriatric Medicine, University of Sydney and Westmead Hospital, NSW, Australia), Professor Sandy Middleton (School of Nursing NSW and ACT, Australian Catholic University), Ms Fiona Simpson (Dietitian and Senior Research Fellow, Royal North Shore Hospital Sydney, Australia).