

Development of a Nurse Practitioner led Carpal Tunnel Syndrome clinic

AUTHORS

Dr Andrew Scanlon

DNP, MNS, NP (Australia), ANP (USA), FACN, FACNP
Department of Neurosurgery, Austin Health, 145
Studley Road, Heidelberg, Victoria, Australia
andrew.scanlon@austin.org.au

Dr Chandrashan Perera

BMedSci, MBBS
Royal Perth hospital, 197 Wellington Street, Perth,
Western Australia 6000
Chandrahshan@gmail.com

Mr Gus Gonzalvo

Director Neurosurgery, MBBS, FRACS
Department of Neurosurgery, Austin Health, 145
Studley Road, Heidelberg Victoria Australia
Augusto.gonzalvo@austin.org.au

Professor Gavin Fabinyi

Neurosurgeon, MBBS (Melb) FRACS
Department of Neurosurgery, Austin Health, 145
Studley Road, Heidelberg, Victoria, Australia
Gavin.fabinyi@austin.org.au

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KEY WORDS

Ambulatory care; neurosurgery; Nurse Practitioner; Carpal Tunnel Syndrome; outpatients

ABSTRACT

Objective

This paper aims to examine how the role of nurse practitioner was implemented within a public hospital Department of Neurosurgery carpal tunnel syndrome clinic.

Setting

Tertiary referral centre outpatient clinic.

Findings

The paper informs practice describing the process of developing, implementing and the requirements to become a nurse practitioner role within a public hospital's Department of Neurosurgery within Australia.

Conclusions

The introduction of a nurse practitioner role within the Department of Neurosurgery has resulted in more timely access and cost effective care for patients referred to this specialised service. Opportunities to further expand this and similar roles in the future should be considered as demand increases.

INTRODUCTION

Australia's public health networks have attempted to address the growing concern of timely access and more affordable specialised care with a variety of initiatives (Anonymous 2014; Health Professionals Workforce Plan Taskforce 2012; South Australian Government 2006). To meet the changing needs of health care nurse practitioner (NP) models of care have been introduced in practice in Australia since 2000 (Australian College of Nurse Practitioners 2014). These roles have been many and varied and practiced within both the public and private health care system. In late 2007, with increasing pressure for access to specialised care within the neurosurgical outpatient clinics, the Department of Neurosurgery at Austin Health a public health service in Victoria Australia, choose to pursue a NP role to tackle this problem. The following article describes the development of part of the overall NP role within the Department of Neurosurgery focusing on the NP led Carpal Tunnel Syndrome (CTS) clinic, and benefits to date.

IDENTIFYING THE PRACTICE

In 2005, to address the problem of increased acuity and activity a comprehensive independent review of the neurosurgery services at Austin Health was conducted. Recommendations from this review included the expansion of the current service, building on core strengths and establishing others as well as the need for the implementation of the Neurosurgery Nurse Practitioner (NP) role to assist in this expansion (Donnan et al 2005).

In April 2007, using the recommendations from the 2005 review on neurosurgical services, initial seed funding was found from within Austin Health's Specialty Clinical Service Unit's own budget to create a position Neurosurgery Nurse Practitioner candidate (NPc), an advanced nursing practice training role. During the training period, the NPc utilised the neurosurgical comprehensive review (Donnan et al 2005), developed and conducted a staff survey on the role, participated in clinical practice through direct observation, and supervised practice in most aspects of the neurosurgical care at Austin Health (Scanlon 2007). This role was formalised as an endorsed NP role in late 2011 with responsibilities in both inpatient as multiple areas of outpatient care.

Austin Health's Department of Neurosurgery treats over 3,000 outpatients per year (Gonzalvo 2014). The service referral base not only includes the north-eastern Melbourne but also rural Victoria and nationally, and continues to experience increasing growth in the delivery of ambulatory and acute care service. This exceeds its funding for through the capped Victorian Ambulatory Classification and Funding Systems (VACS) (Victorian Government Department of Human Services 2008c). Currently Victorian public hospital specialist outpatient services are block funded in keeping with previous VACS funding levels until the national Activity Based Funding (ABF) system is finalised (Department of Health 2014). Additional patients attract no further income for the department and in 2007 had extended the waiting times to be seen at these clinics in some cases to over six months, which was twice the national norm (Australian Institute of Health and Welfare 2007). This not only affected patients waiting for specialist neurosurgery assessment and treatment, but also the hospital through penalties imposed by not achieving the set Key Performance Indicator (KPI) of timely access to care (Victorian Government Department of Human Services 2008a). A clear need was identified to reduce the number of patients and their waiting times to be seen in the Department of Neurosurgery outpatient clinics whilst maximizing VACS funding for as many patients as possible.

A partial solution to this increasing problem was the development of an unfunded Carpal Tunnel Clinic by the Department of Neurosurgery. The NP model of care for the ambulatory care setting was considered to be appropriate and compliment the current funded outpatient services (including two general neurosurgery

outpatient clinics) as well as a means to gain funding for an additional clinic for CTS patients. CTS is one of the most common peripheral neuropathies (Scanlon and Maffei 2009) and the prevalence of CTS is approximately 3.8% of the general population; women are three to four times more likely to develop the condition (Uchiyama et al 2010). CTS is commonly seen in a variety of surgical units. Its diagnosis is well established, requiring both clinical assessment and neuro-diagnostics to determine its severity and treatment modality.

It was perceived that treating patients through the use of an autonomous practitioner from a nursing background with the ability to assess patients at an advanced level, order and interpret diagnostic tests (ie nerve conduction tests, magnetic resonance imaging tests and ultrasounds etc), formally diagnose, prescribe treatments (including medications and other conservative regimes) as well as refer to other speciality units and health professionals would enhance the entire Department of Neurosurgery outpatient service. This would be achieved through not only increased throughput and continuity of care, but also patient outcomes and satisfaction through improved education of medicines and alternate treatment options as well as self-management which is recognised as strengths of a NP model of care (Sarro et al 2010; Challenor et al 2006; Williams et al 2003; Faithfull et al 2001; Garfin et al 1988). Specifically the CTS clinic was put forward as a standalone NP run clinic for funding as a part of the overall NP role within the Department of Neurosurgery.

A submission was put forward to the hospital executive to support a proposal for a VACS funded Nurse Practitioner Carpal Tunnel Syndrome clinic. The purpose of this clinic had two primary aims:

1. Decrease overall waiting time for patients to be seen in all Department of Neurosurgery outpatient clinics.
2. Capture appropriate VACS funding for the Department of Neurosurgery and Austin Health.

Although it was a standalone clinic it only represents a small part of the overall role that the NP has developed in other areas of outpatients as well as inpatient care (Scanlon 2013; Scanlon and Cheshire 2012).

THE PROCESS

All patients referred to neurosurgery outpatient clinics have an associated referral from either their general practitioner or specialist service (acute care or ambulatory setting), outlining the presenting complaint and any treatment or diagnostic tests initiated. This information is triaged by the Director of Neurosurgery to determine the appropriate clinic and if it is considered to be CTS they are placed on the waiting list for the NP clinic.

Within the clinic the NP conducts a comprehensive advanced assessment through the utilisation of their defined scope of practice (Scanlon et al 2014). For the purposes of this clinic the patient's diagnosis is formally determined by the NP, who through the syntheses and interpretation of available historical information, focused physical assessment findings and diagnostic data (if available) is authorised provide appropriate treatment for patients. If further diagnostics tests need to be performed to confirm or rule out differential diagnosis then the NP orders and interprets them. This information is then used to formulate a person centred therapeutic intervention based on potential or actual response to treatment. All patients who require surgical intervention are discussed with and signed off by the Director of Neurosurgery.

If this thorough assessment suggests a diagnosis, which is not a peripheral nerve entrapment syndrome, for example cervical radiculopathy thoracic outlet syndrome or multiple sclerosis, then the patient is referred to the appropriate service for ongoing management.

BUDGET

There were very few startup costs associated with the NP led CTS. The outpatient clinic space at Austin Health in which the NP led CTS clinic presides was not utilised by any other clinic during this time. The related

infrastructure costs and operating costs (electricity, telephone, rent) associated with a running a public clinic, in a public hospital in Victoria are currently absorbed into the overall hospital operating budget.

Table 1: Cost for Nurse Practitioner led Carpal Tunnel Syndrome Clinic

Item	Expense per year	Income
NP time \$48.71 per hour X 3 (plus on costs ie long service leave, superannuation etc)	-\$4,556.00	
Consultant time \$118.90 x 0.3 hours a week x 46 weeks	-\$1,640.82	
Clerical time per year \$20 x 1 hour a week x 46 weeks	-\$920.00	
Outpatient space and utilities	N/A already existing	
2013-2014 financial year 470 VACs patients seen		+\$134,189.70
Neurosurgery VACS weight of 1.595 X \$179 or \$285.51 per patient.		
Total	\$7,716.82	\$134,189.70
		\$126,472.88

(Fair Work Australia 2012; Victorian Government Department of Human Services 2008b; Department of Human Resources 2006)

The cost estimates presented in table 1 was based on data provided by the Department of Human Services Victoria (Victorian Government Department of Human Services 2008b; 2008c; 2007), the Department of Human Resources at Austin Health (Department of Human Resources 2006), Nurses and Midwives (Victorian Public Sector) (Single Interest Employers) Enterprise Agreement 2012-2016 (Fair Work Australia 2012). These figures were verified by the manager of the Specialty Clinical Service Unit.

Gains made since the implementation of the NP role

A direct measure of the contribution the NP has made to the CTS Clinic can be seen when comparing the Neurosurgery Annual Audit data 2013-2014 (most recent data) to that of the period of 2008-2009 (which was the period prior to the endorsed NP taking over this clinic).

The CTS waiting time for assessment and intervention was more than 12 months at July 2009 and has decreased to currently eight weeks (as of July 2014). Also 2014 data shows an increase in numbers of patients seen in the CTS Clinic from 31 in 2008-2009 to 470 in the period 2013-2014 (table 2) with a projected increase again in forthcoming years.

Table 2

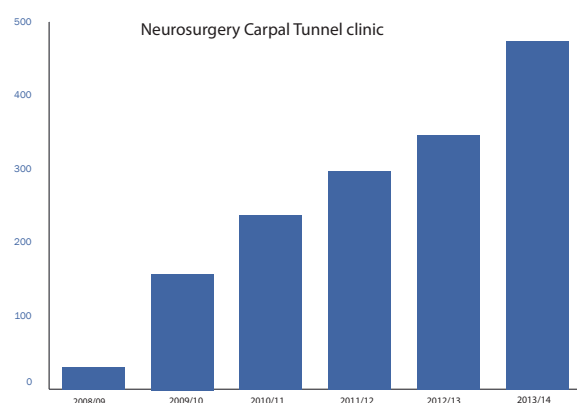
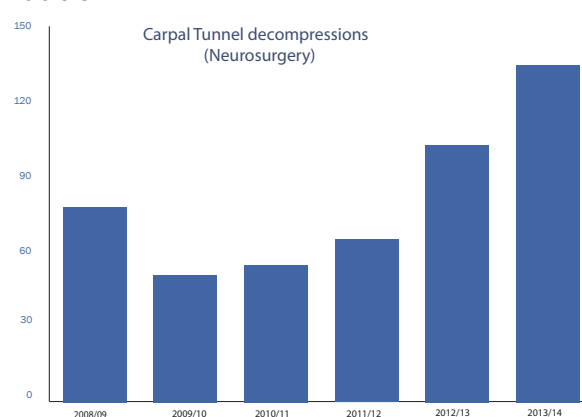


Table 3



To address increased numbers of patients diagnosed with CTS and awaiting Carpal Tunnel release (CTR) a dedicated surgical list was introduced. This surgical list was performed by a junior registrar at a low acuity surgery centre for one or two sessions per month, allowing 135 CTRs to be performed on these lists in 2013-2014, an increase from 78 in 2008-2009 (table 3). This has led to a reduction in waiting time to undergo CTR to an average of four weeks.

Although it is clear this increase in CTRs performed by the Department of Neurosurgery would also have associated increase in funding for the hospital it is difficult to calculate the exact remuneration in relation to efficiency costs and improved utilisation of theatre time and staff (medical, nursing and associated staff).

To date there have been no adverse events identified through the use of the NP led CTS clinic. These adverse events related to the NP led clinic maybe defined as patient complaints, misdiagnosis, inappropriate diagnostic utilisation, missed postoperative complications or delay in treatment related to this process as defined by the neurosurgery auditing process or other feedback processes in place at Austin Health.

DISCUSSION

The Neurosurgery NP will further develop and refine the role within the neurosurgical service at Austin Health. Supervision has continued to be provided by the extended neurosurgical team on a weekly basis and interdisciplinary and consumer focused review of the NP and the role will continue as to ensure the role is not only achieving what it was originally set out to do but also improve and expand the current service through the review of clinical data currently collected for auditing/safety/quality purposes.

As the number of patients seen in this clinic (table 2) is far more than the number treated with CTR (table 3) it would suggest that many patients are being effectively treated with conservative measures or some may not be referred correctly. This number of patients having been separated from the general neurosurgery outpatient clinic has effectively decreased the waiting time for other outpatient appointments which would otherwise clog up outpatient services.

Moreover the work performed within the NP clinic allows not only timely access to treatment and surgical workup but also frees up surgeons and surgical trainees from outpatient work providing them with available time to utilise their surgical skills to perform these and other surgeries. This additional indirect (or direct) benefit of NP led clinic can be seen in the accompanying revenue associated with the increased number of CTRs performed (an increase of 73%). The exact income is difficult to estimate given the complexity of public health funding arrangements whilst taking into account the associated expenditure to deliver the service.

Additionally projected increase in utilisation of the service and possible funding attached to it may allow the department to consider employing another NP or NP candidate in the future to allow for succession planning.

Previously Newey et al developed a NP led management service in an effort to increase access to treatment for CTS (Newey et al 2006). This was a single (nurse) practitioner pathway (diagnosis, surgery and follow-up), which was audited for the clinical outcomes and effect on waiting times. It also involved a clinic with Consultant supervision. It showed low complication rates of 2.5% and only 1.3% of patients complaining of no resolution of symptoms with waiting list times decreasing from 105 weeks to just six weeks (Newey et al 2006). However this would be a difficult model to implement within the current structure given the priority given to surgeon training and the already proven efficiencies of the current model.

Although no formal patient satisfaction surveys have been completed to date, patients seen and cared for by this service appear to be satisfied. Additionally there has been very few questioning the need for a medical doctor to be part of this outpatient process.

CONCLUSION

As more NPs are endorsed throughout Australia further opportunities for innovative models of acute and ambulatory care will be delivered. The implementation of a NP led CTS clinic at Austin Health has shown to be a successful means of reducing clinic waiting times, whilst maximising available funding and possibly increase patient satisfaction. An additional indirect benefit of the service included a 73% increase in surgical output for CTR and the associated income for the hospital. This study shows that NP led clinics are a valuable adjunct to the provision of medical care, and represent a feasible model to help ease the burden of busy hospital outpatient clinics.

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