



Nurse-led management of carpal tunnel syndrome: an audit of outcomes and impact on waiting times

MARTYN NEWEY, MALCOLM CLARKE, TIM GREEN, CHRISTOPHER KERSHAW, PANKAJ PATHAK

Department of Orthopaedic Surgery, Leicester General Hospital, Leicester, UK

ABSTRACT

INTRODUCTION This article describes the outcome of a nurse-led service developed to manage patients referred with a presumptive diagnosis of carpal tunnel syndrome.

PATIENTS AND METHODS We developed a rapid-access service in response to unacceptable waiting times for patients with carpal tunnel syndrome. The service was developed around the role of a nurse practitioner providing a single practitioner pathway from first clinic appointment, through surgery to discharge.

RESULTS Waiting times improved considerably whilst the standard and quality of care was maintained.

CONCLUSIONS There is a role for nurses to perform certain surgical procedures within a well-defined environment.

KEYWORDS

Nurse operator – Carpal tunnel syndrome

CORRESPONDENCE TO

Martyn Newey, Consultant Orthopaedic Surgeon, Leicester General Hospital, Gwendolen Road, Leicester LE5 4PW, UK

E: martyn.newey@uhl-tr.nhs.uk

We became aware of a significant number of patients in the system with a presumptive diagnosis of carpal tunnel syndrome. Whilst being high in numbers, these patients were historically considered a low priority leading to a considerable wait from referral to operation and subsequent discharge. An analysis of our waiting times suggested that this was as much as 100 weeks. We, therefore, decided to address what appeared to be a significant problem through the development of a rapid-access carpal tunnel service.

Many of these problems had been identified by one of our senior nurses who was an experienced and highly motivated individual. We believed that he could be trained in the management of these patients and consequently the concept was developed as a nurse-led service. Whilst the extended role of nurses is recognised and accepted in the out-patient setting, there remains great resistance to developing their role as surgical operators although there is also support.¹ This article looks at the service we have developed, we have deliberately focusing on the role of the nurse-operator.

Patients and Methods

Prior to the development of the service, colleagues already performing carpal tunnel decompression within our unit

were consulted. The process was approved by the Hospital Risk Management Committee and, most importantly, views of patients were needed. This was addressed through open discussion in consultant-led clinics supplemented with printed information.

Three consultant orthopaedic surgeons supervised out-patient teaching and surgical training. Nurse-led clinics subsequently ran in parallel with other clinics enabling support or advice to be given by a consultant or associate specialist. Daily local anaesthetic lists ran on an out-patient basis, again in parallel with in-patient operating lists allowing a consultant to be available for advice at all times

A 2-year study took place between September 1999 and September 2001. Both a consultant and the nurse practitioner reviewed referral letters to determine whether the presumptive diagnosis of carpal tunnel syndrome was appropriate. This process also formed part of the nurse practitioner's training. At assessment in clinic, those patients whose carpal tunnel symptoms were mild or resolving were managed conservatively, whilst those who were found to have an alternative diagnosis were referred to the appropriate specialty for further assessment. There were 305 patients with a definitive diagnosis of carpal tunnel syndrome who were offered surgery based on their persisting clinical symptoms. Surgery was performed as a day-case procedure under local anaesthetic without a tourniquet.

Table 1 Measures used to assess key objectives

Subjective measures

Performance of the nurse practitioner in out-patients and in theatre
Patient satisfaction in the clinical pathway and outcome

Objective measures

Surgical outcome scores compared to published outcomes using a standard scoring system (Levine)²
Surgical complication rates compared to national outcomes
Change in waiting times for initial assessment and management of patients with carpal tunnel syndrome

Table 2 Pre- and postoperative Levine scores

	Symptom severity score	Functional score
Pre-operatively (<i>n</i> = 395)	3.3	2.9
2 weeks postoperatively (<i>n</i> = 395)	1.5	1.5
6 months postoperatively (<i>n</i> = 329)	1.5	1.4

Table 3 Complications and treatment

Superficial wound infection	2 (antibiotics)
Scar sensitivity	3 (physiotherapy)
Post-operative pain	1 (admitted for pain relief)
Wound dehiscence	3 (healed by secondary intent)
Hand stiffness	1 (physiotherapy)

Patients were encouraged to begin light hand exercises 24 hours post-surgery after reducing their dressing.

Our key objective for improvement was to reduce waiting times whilst maintaining quality of care. We used the measures summarised in Table 1.

Surgical outcome was assessed using pre- and postoperative Levine scores. Postoperative scores were measured at 2-week review and by postal survey at 6 months. We observed a 100% follow-up rate at the first follow-up appointment at 2 weeks, and an 83.2% response rate at 6 months.

Results

Of those patients initially assessed by the nurse-operator in clinic, no adverse events were recorded. A consultant opinion was required at least once in each clinic during the first year, but this reduced in frequency as the nurse practitioner's experience developed. No patient expressed any concerns about being assessed or treated by a nurse.

Overall, the nurse practitioner performed 395 procedures in 305 patients (90 patients undergoing bilateral decompressions). Outcome scores before and after surgery are shown in Table 2. These results are comparable to outcomes following both open and endoscopic procedures.^{2,5} Only five patients (1.3%) reported no improvement in their symptoms.

Table 4 Waiting times

	Before pilot study	After pilot study
Average wait for first appointment (weeks)	40	2
Nerve conduction studies	20	1
Waiting list	37	1
Follow-up to discharge	8	2
Total	105	6

An overall complication rate of 2.5% was recorded from the 395 procedures over the 2-year period (Table 3). This is also comparable to published figures.⁵⁻⁶ During surgery, the supervising consultant was required for advice in 9 cases (2.3%). On eight occasions, this was to help with the approach because of variations in anatomy and on one occasion because of failure to obtain an adequate local anaesthetic block.

At the start of the study, episode times from referral to discharge were over 100 weeks. At the end of the study, we had reduced this to 6 weeks (Table 4).

Discussion

We incorporated a single practitioner into the service who performed the initial assessment and, where necessary, the surgical procedure and follow-up. We observed that this single-person pathway allowed the development of an excellent relationship between the patient and care provider and we believe that this contributed towards patient satisfaction. We chose a nurse to be the practitioner, and we believe that the pilot study shows that a well-motivated nurse practitioner can safely perform carpal tunnel decompression, with outcomes comparable to published figures, whilst maintaining an acceptably low complication rate.

The role of the nurse as operator provoked considerable criticism, not from patients, but from various surgical and professional groups. This can perhaps be exemplified by the response we received when we first submitted a version of this article to the *British Journal of Bone and Joint Surgery*. The paper was rejected. Reasons given by the reviewers included 'surgery is for surgeons and nursing is for nurses' or 'if published, then it might be seen that the Journal was endorsing the use of nurses as surgeons'. It was agreed, however, that our article raised sensitive issues that needed exploring further. The service has also been the subject of reviews by both The Royal College of Surgeons of England and the Trent Regional Audit of Surgery for the Hand.

We have attempted to address all arguments as the service has developed. The basis of criticism levelled at us was broad, ranging from clinical considerations to economic arguments.

Why choose a nurse to operate when there are too few nurses and plenty of redundant doctors? We felt that the role envisaged in the development of this service would not be suitable for a consultant or rather we might have difficulty appointing a consultant to undertake such a service. Although it might have been suitable for a doctor at a staff grade level, our department historically has had great difficulty appointing doctors into staff grade posts.

Was it any cheaper to employ a nurse compared to a doctor? We have to admit that this was not a consideration when we decided to set up the service. However, some criticism tacitly implied that it probably was not cheaper and, therefore, we were compromising on quality (by employing a nurse to operate) at no less cost.

How can we ensure the quality of the service? We have always been sensitive to the issue of quality and clinical governance and have, therefore, prospectively audited surgical outcomes including using a recognised outcome measure. We now possess a considerable database of several thousand patients and have challenged others to produce comparable figures.

What is the medico-legal aspect? Throughout the development of the service, we have continued to stress that the nurse is not an independent practitioner, but works as part of a team structure. Each patient seen by the nurse comes into the system under the care of one of the three supervising consultants. As such, overall responsibility lies with the named consultant, and the service is, therefore, covered by Crown Indemnity.

We acknowledge that some improvement in waiting times would have occurred without the development of the service. For instance, the subsequent introduction of government targets regarding waiting times for first clinic appointments. We also reduced the follow-up time to discharge. Furthermore, the process we developed incorporated a service development in the way we were able to access nerve conduction studies, and this aspect itself would have improved our initial waiting times.

Conclusions

Our nurse practitioner now functions as an operating-nurse specialist, and over 3000 procedures have been performed. We would emphasise that the nurse is not an independent practitioner, but functions as part of a team. Ultimate responsibility lies with the three supervising consultants.

The concept of nurse operating is not new, yet it remains controversial. Increasing demands are being made on both doctors and nurses within the health service. It has previously been stated that there is scope for making better use of nursing staff in specialist roles.⁷ We believe that the service we have developed is a practical demonstration of how this can be achieved within a defined framework.

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