

# One-stop Orthopaedic Clinic:

## A Novel and Cost-effective Approach for Today's Austere NHS

### Abstract

The one-stop clinic is a novel and effective way for diagnosing and treating patients with minor orthopaedic problems requiring intervention on the same day. This programme is meant to reduce the cost of using the hospital resources, in terms of the operating theatres, staffing costs and the time lost in waiting lists. We have provided this service in our orthopaedic department since January 2009. A total of 348 patients have been seen in the one-stop clinic on the day surgery unit, of which 251 patients underwent surgical intervention under local anaesthetic on the same day.

These included 65 carpal tunnel decompressions, 49 ganglion excisions, 68 needle fasciotomies for Dupuytren contracture, 40 trigger finger releases, 27 excisions of nodules on fingers, and one ingrowing toenail treatment. Seven patients refused treatment, and six required further investigations. Nine patients refused to have treatment done on the same day. 18 patients did not attend clinic, and in 39 patients no intervention was required at the time of review.

Key words. One-stop clinic, minor procedures, waiting times, orthopaedic clinic.

### Introduction

The one-stop clinic concept is new and novel. Each year in the NHS there are 37 million follow-up appointments<sup>1</sup> where the patient's progress is checked, they undergo further tests and they get test results. 75% of patients who fail to attend clinic are the follow-up patients. The follow-up did not attend (DNA) rate varies between specialities and locations but a range of 10-40% is common. There are more than four million follow-up DNAs per annum, which cost the NHS more than £100 million a year<sup>1</sup>. The concept of the one-stop model was introduced in the NHS to reduce inconvenience and anxiety to patients and reduce the wastage of valuable resources. One-stop clinic models have been successfully implemented in urology<sup>2</sup>, pregnant mothers with substance misuse<sup>3</sup>, menstrual disorders clinic<sup>4</sup> and breast cancer screening<sup>5</sup>. Very little is however published in orthopaedic literature about the one-stop model, to the best of our knowledge. The aim of our service was to provide high-quality care to patients and at the same time reduce waiting times and save valuable resources in our trust. As part of a single surgeon series we have tested this model, and present the effectiveness of the single-stop model in an austere National Health Service.

### Methods

All GP referral letters were screened from January 2009 by the senior author (KS) and a surgical nurse practitioner (NB). The referrals which were deemed suitable for treatment under local anaesthetic were

sent an appointment letter explaining the possibility of offering treatment, in terms of surgical intervention, on the same day. The patients were seen on the day by a senior orthopaedic surgeon (KS) and an orthopaedic trainee (PSR). Patients who were fit and suitable were offered appropriate treatment. All patients who were deemed suitable were consented by KS or PSR on the day of the clinic. All procedures were carried out under local anaesthetic. Various surgical procedures were offered on the same day: carpal tunnel release, trigger finger release, moderate size ganglion excision, needle fasciotomy for Dupuytren contracture, DeQuervain's release, ingrowing toenail excision, finger/toe nodule/cyst/swelling excision etc.

### Demographics and Methods

348 patients (200 female, 148 male) were seen in the one-stop clinic, and 251 patients opted for the surgery on the same day (140 female and 111 male). The average age was 53.7 years (range 33-75) (Table 1).

Demographics	Total number (n)
Total number in one-stop clinic	348
Total males attending one-stop clinic	148
Total females attending one-stop clinic	200
Patients provided one-stop surgery	251
Total males attending undergoing surgery in one-stop clinic	111
Total females attending undergoing surgery in one-stop clinic	140
Average age	53.7 years (range 33-75 yrs.)

Table 1: Demographics of patients attending and undergoing procedure

The procedures were carried out in a clean treatment room in the Day Case Surgery Unit. Cardiopulmonary monitors, life support equipment (ECG monitoring, oxygen saturation monitoring, BP monitoring) were available but were not needed in any patient. IV access was gained preoperatively by NB, KS or PSR as required. A senior staff nurse trained in advanced life support was present throughout the procedure, but no scrubbed assistant was needed in any of the cases. For carpal tunnel release, local anaesthetic of 1% lignocaine (5mls) with adrenaline was injected in the subcutaneous tissue and flexor retinaculum with a 22 gauge needle. The hand was prepared and draped with water-impervious upper limb sterile disposable drapes (Kimberley-Clark<sup>R</sup>, Roswell GA). No tourniquet was used. The operating surgeon KS/PSR scrubbed their hands with alcohol-based foam solution (Cutan Gel<sup>R</sup>) for two

minutes and were gloved but not gowned. Strict asepsis was maintained throughout the procedure. Skin closure using 4 '0' continuous nylon was performed in all cases as standard. Patients were observed for 30 minutes after the operation. All patients were seen in the outpatient clinic at 10 days and stitches were removed and wounds reviewed. They were again reviewed at 6/52, if necessary. All patients who underwent needle fasciotomy for the Dupuytren's contracture have been kept under review for a longer time as the recurrence after needle fasciotomy is common.

**Results**

Since January 2009 a total of 348 patients have been seen in the one-stop clinic of the day surgery unit. As per Tables 2 and 3, 251 patients underwent surgical

did not attend clinic and in 39 patients no intervention was required at the time of review. The patients who underwent carpal tunnel decompression, trigger finger release and ganglion excision were all completely satisfied with the concept of the one-stop clinic and the outcome (Figs 1, 2).

Demographics	No. of patients
Total number	348
One-stop surgery	251
Not required	39
DNA	18
Patient refusal	7
Cons. decision	18
Further investigations needed	9
Not suitable	6

Table 2: Demographics of one-stop clinic and outcome in numbers.

Procedures	No. of Patients
Carpal tunnel decompression	65
Ganglion excision	49
Trigger finger/thumb release	40
Needle fasciotomy	68
Excision of nodule/swelling	27
Ingrowing toenail excision	1
Dequarvain's release	1

Table 3: Total procedures carried out and the total patient demographics

intervention under local anaesthetic on the same day, made up of 65 carpal tunnel decompressions, 49 ganglion excisions, 68 needle fasciotomies for Dupuytren's contracture, 40 trigger finger releases, 27 excisions of nodules on fingers, one ingrowing toenail treatment. Seven patients refused treatment, and six required further investigation. Nine patients refused to have treatment done on the same day. 18 patients

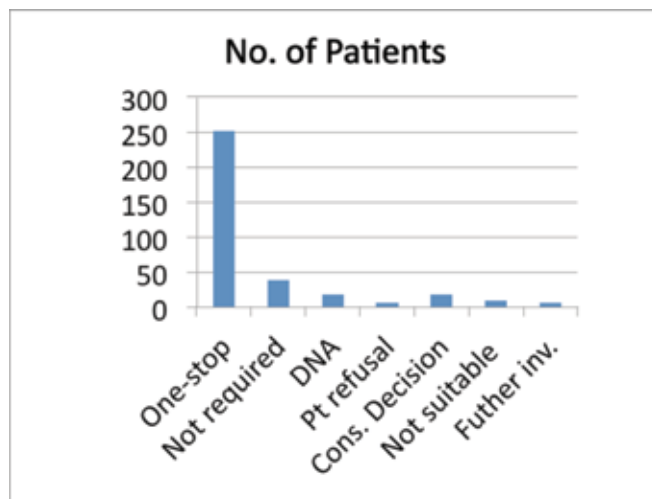


Fig 1: Histogram depicting breakdown of patient distribution in the one-stop clinic.

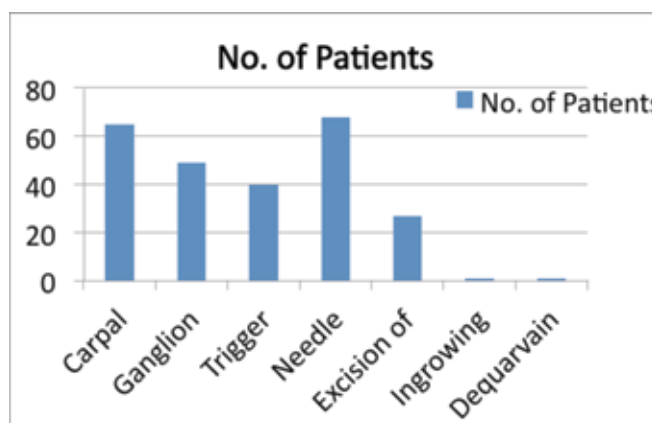


Fig 2: Histogram depicting individual procedures carried out on patients.

*Complications:*

One patient had a wound gaping after ganglion excision, which healed satisfactorily in two weeks after using steristrips on the wound. Two patients had scar tenderness following carpal tunnel decompression, which persisted for four months. Two patients had painful scars following ganglion excision on the dorsum of foot, which settled after padding the footwear. Two patients had superficial wound infection, one following ganglion excision and one following needle fasciotomy. Both settled with oral antibiotics. Out of 68 patients who underwent needle fasciotomy procedure, three patients had rapid recurrence within six months and required second definitive surgery, while the rest of the patients had useful lasting correction of the deformity to be able to perform their daily routine activities better and did not require further surgery at the last follow-up.



### Discussion

The success of the one-stop clinic model in different surgical and non-surgical specialities prompted us to improve our orthopaedics services in ABM University health board. Under the guidance of the senior author, this programme was initiated as a cost-effective and safe model of clinical care from January 2009. One-stop clinics in any orthopaedic setting have been rarely reported in literature. A Cochrane Database of Systematic Reviews; Cochrane Central Register of Controlled Studies, performed by Arthritis Research UK in October 2009, revealed that there were no controlled trials, one systematic review, and 14 case studies in orthopaedics for any one-stop shoulder clinic<sup>6</sup>. Kersten *et al.* in 2007<sup>7</sup> highlighted the supportive and extended scope of physiotherapists undertaking assessment and treatments traditionally carried out by medical

colleagues. It summarises that currently no firm conclusions regarding the effectiveness and safety of extended scope physiotherapists can be made. Alshryda *et al.*<sup>8</sup> in a retrospective review of 150 patients seen in one-stop shoulder clinics showed a reduction in hospital visits and waiting time to treatment, and improved accuracy of diagnosis compared to conventional care. A cost-benefit analysis against conventional care showed the one-stop clinic to be cost-effective. Miller *et al.* in 2008<sup>9</sup> reviewed 39 patients before, and 35 patients after, implementation of a one-stop protocol. They concluded that one-stop clinics resulted in a statistically significant reduction in time from GP referral to definitive management plan for patients and a reduction in the number of clinic appointments. Gwilym *et al.*<sup>10</sup> in 2005 compared the cost-effectiveness of 1022 new patients and 2848 follow-up patients from April 2003 to April

2004, and showed that >£420,000 was saved by their hospital. This was the first systematic study to evaluate the cost effect of the one-stop model as well as patient satisfaction. They had twice the follow-ups in their study, unfortunately making the one-stop clinic model not entirely one-stop in practice.

The cost per unit day case procedure in day case theatres performed in the NHS is around £650. This takes into account all the costs of setting up and staffing the theatre, nursing staff in the pre-operative and recovery areas and other establishment costs. The unaccounted costs are the pre-op work involved and waiting times for the patient. We performed 251 procedures on our patients, making a saving of >£160,000. The outcome of this prospective programme was not just saving valuable resources, but achieving patient satisfaction and safety. We had a total of seven patients with minor complications, making a 2.8% complication rate and 4.4% recurrence rate for Dupuytren's contracture at a six-month follow-up. This is much less as compared to the standard recurrence rate for Dupuytren's in a theatre setting<sup>11,12</sup> and better than Van Rijssen's study. Patient selection for needle fasciotomy for Dupuytren's contracture is very important. The procedure is considered particularly suitable for older patients who are unsuitable for more major surgery. It was also noted that Dupuytren's contracture tends to recur after all types of treatment, but that needle fasciotomy can be repeated. Recurrence rate is approximately 50% at 3-5 years<sup>11,12</sup> and seems to depend on the severity of the disease. Although the procedure was not as efficacious in the long term as open surgery, patients experienced less morbidity and had faster recovery. Carpal tunnel decompression and trigger finger release were the most successful, with complete resolution of symptoms at four months. Only two patients had superficial wound infections treated with antibiotics. And only one had wound gaping.

There are a few drawbacks to our study. This was a single surgeon prospective series. The pre-op scores, post-op DASH scores, and Canadian Satisfaction Scores (CSS) were tabulated only from August 2010, and patients were reviewed for full clinical evaluation by the orthopaedic trainee (PSR) only from Aug 2010. This makes it statistically difficult to measure the survival values and measure the changes in outcome scores.

### Conclusion

One-stop models are cheap, cost-effective and safe in the hands of experienced surgeons. However the basics of patient safety and care should be secondary to none. It should not be performed by those in training or those who are less experienced. A thorough clinical review of the patient prior to the procedure by the operating surgeon is as vital as in every other operation. Our experience highlights the novel idea of the one-stop clinic which we have found very effective and valuable in saving useful resources in the present day austere NHS. The complication rate is minimal, and no significant complications were encountered. The patients are able to have their consultation and surgery in the same visit, and in most cases can be followed up by their GPs. This reduces the number of hospital visits,

decreases the clinic numbers, and provides for better utilisation of scarce hospital resources. To make this model successful the whole process need to be carefully co-ordinated. GP letters need to be of good quality, enabling appropriate filtration of patients to the one-stop clinic; an experienced surgeon needs to be running the clinic; local anaesthetic surgery is preferable; and the GP surgery should be willing to see the patients for stitch removal.

This model has the potential of significant cost savings, and at the same time improving the service provided to the patients.

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