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The Joint Clinic: Managing Excess Demand for Hip and Knee Osteoarthritis Referrals Using a New Physiotherapy-Led Outpatient Service

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ABSTRACT

Background: There are increasing problems with access to both outpatient assessment and joint replacement surgery for patients with hip or knee osteoarthritis.

Methods: Data were collected on all patients seen at the Joint Clinic over a 2-year period with minimum 12-month follow-up. Patients were assessed by a nurse and a physiotherapist, baseline scores and demographic details collected, and an individualized personal care plan developed. Patients could be referred for a first specialist assessment (FSA) if their severity justified surgical assessment.

Results: Three hundred fifty-eight patients were seen at Joint Clinic, of whom 150 (44%) had hip and 189 (56%) had knee OA. The mean age was 67.4 years and there were 152 men (45%) and 187 women (55%). The mean baseline Oxford score was 19.8 (standard deviation 8.2). Fifty-four patients were referred directly to FSA (mean Oxford score 13.0, standard deviation 6.7) and 89 after a subsequent review. The scores of patients referred for FSA were significantly worse than those managed in the Joint Clinic ($P < .001$). Of the 143 referred for FSA, 115 underwent or were awaiting surgery, 18 were recommended surgery but scored below prioritization threshold, and 10 were not recommended surgery. The Oxford scores of the 194 patients managed non-operatively improved from 22.0 to 25.0 ($P = .0013$).

Conclusion: This study shows that the Joint Clinic was effective as a triage tool with 93% of those referred for FSA being recommended surgery. This has freed up surgeon time to see only those patients most in need of surgical assessment.

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With an ageing population there has been an increase in the incidence of hip and knee osteoarthritis (OA). Effective non-operative treatment may be an option for some patients especially those with less severe disease [1–3]. Total hip and knee replacements are very effective interventions for the management of end-stage OA [4]. An ageing population, confidence in the

outcomes, and increasing demands from younger patients are leading to an increase in demand for these procedures [5–7]. As a consequence, public health services are struggling to cope [8,9].

In New Zealand, policy measures intended to balance demand with supply include financial penalties to District Health Boards (DHBs) if a patient is not seen for a first specialist assessment (FSA) within 4 months of the referral being accepted or if surgery is not provided within 4 months of offer to the patient. Prioritization scoring systems have been developed for patients recommended surgery at FSA with up to 40% of patients not qualifying for surgery in some DHBs and being returned to their general practitioner (GP) for further care and monitoring [10–12]. In order to achieve compliance referrals are also being returned to GP without the patient being seen due to capacity constraints. In this environment it is important that those patients seen at FSA are the most appropriate in terms of disease severity and potential to benefit. In

The program was funded as part of a wider program on improving patient flows in orthopedic surgery by the National Health Board (New Zealand).

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response to this, we developed a physiotherapy-led outpatient service for the assessment and management of OA of hip and knee [13].

The objectives of this study were to assess the effectiveness of the Joint Clinic in prioritizing those patients deemed most in need of FSA and optimizing non-operative management for those who may not need surgical assessment.

Methods

Our institution is the main hospital for a population of 200,000 covering one city of 125,000 and a sparsely populated area of 32,000 km². There are 10 orthopedic surgeons and 1 arthroplasty fellow who perform approximately 400 primary hip and knee arthroplasties per year.

The design and implementation of the clinic has been previously described [13]. It is staffed by a 0.5 full time equivalent (FTE) physiotherapist and 0.2 FTE orthopedic nurse. This nurse is also involved in the prioritization of patients wait-listed for hip or knee replacement [12]. An additional 0.5 FTE physiotherapist was appointed in outpatients to manage the increased load of outgoing referrals from Joint Clinic. Clinical oversight was provided by a senior orthopedic surgeon with an interest in arthroplasty. The program was funded as part of a wider program on improving patient flows in orthopedic surgery by the National Health Board.

The study reports on 358 patients seen in Joint Clinic for the initial 2-year period from June 1, 2012 until May 31, 2014. Patients referred by GP with hip or knee OA were triaged by an orthopedic consultant to Joint Clinic based on the details in the referral letter and radiographs. A full assessment including history and relevant physical examination was performed and further radiological investigations organized as required. Advice and counseling was given to the patients on their disease including optimization of analgesia. Referrals could be made for outpatient physiotherapy, dietitian advice, orthotic care, and occupational therapy. Patients could be fast tracked after discussion with the supervising orthopedic consultant to an FSA if they had severe symptoms. Patients with a very mild presentation could be discharged back to their GP. Patients referred with problems that were not OA of hip or knee were excluded from further analysis. Patients were offered a follow-up appointment at 6 months. At this stage, they could continue under Joint Clinic review, be discharged back to GP, or be referred for FSA if there had been a significant deterioration.

Details of initial demographics including age, gender, and diagnosis were noted. Baseline Oxford hip (OHS) and knee (OKS) scores were also collected. The OHS and OKS are widely used patient reported outcome measures, designed to assess joint-specific impairment of the hip and knee. In this study, the modified Oxford score was used, which contained 12 questions scored between 0 and 4, with 4 being the best outcome, thus yielding a total from 0 (worst outcome) to 48 (best outcome) [14].

The final outcomes including OHS and OKS completed at the patients' final Joint Clinic visit were collected until May 31, 2015 to give a minimum 12-month follow-up.

Statistical analysis was performed using Stata version 13 (College Station, TX). Analysis of variance and paired 2 tailed t-tests were used to compare continuous variables and chi-squared test was used for categorical data.

Results

Three hundred fifty-eight new patients referred with hip and knee joint OA were seen in the Joint Clinic. The median time to Joint Clinic appointment from referral was 18 days. Nineteen

patients triaged to the Joint Clinic were found to not have OA of hip or knee and were excluded from subsequent analysis. Six of these patients had a spinal problem, of which 4 were referred for an FSA, and 13 had hip or knee problems that were not OA, of which only 1 had an FSA and subsequently underwent a knee arthroscopy. This left 339 patients with hip or knee OA (Fig. 1).

One hundred fifty patients (44%) had hip OA including 14 patients with bilateral disease and 2 with concomitant knee OA. One hundred eighty-nine patients (56%) had knee problems, of which 33 were bilateral. Details are given in Table 1.

Male patients presenting with knee OA were significantly older (69.2 years, standard deviation [SD 8.6]) than those men presenting with hip OA (65.0, SD 11.8) ($P = .012$). No further significant differences were observed in age, between genders, ratio of hips to knees, or initial Oxford score (Table 1).

Two hundred forty-six patients were seen on more than one occasion at Joint Clinic with a total of 401 follow-up visits. The average number of visits was 2.6 (range 2–4). Ninety-three patients only attended Joint Clinic on one occasion: 54 were referred directly for FSA, 23 self-discharged or failed to attend a follow-up appointment, 8 chose to go privately, 4 had died or had severe illness, and 4 were discharged directly to their GP.

The outcomes are summarized in Figure 1.

Fifty-four patients were referred to see a specialist after their first Joint Clinic visit. Their mean OHS and OKS of 13.0 were significantly worse than the remaining 285 patients ($P < .001$) (Table 2). A further 89 of these 285 patients (31%) were referred after subsequent Joint Clinic visits. The average wait for referral for this second group of patients was 309 days (SD 177) from their initial Joint Clinic appointment. Their Oxford scores at initial assessment were not significantly worse than those not referred for FSA ($P = .972$). However, by the time they were referred, they had deteriorated to the same level as the initial 54 and were significantly worse than those not referred for FSA ($P < .001$) (Table 2).

Of the 143 patients referred on for FSA (42% of all patients), 115 patients (80% of those referred for FSA and 34% of all patients) qualified for surgery, 18 (12.6%) were scored below threshold for surgery, and 10 were judged not to need surgery (7.4% of FSA). The conversion rate from Joint Clinic referral for FSA to recommendation for surgery was therefore 92.6%, with 80% of those referred from Joint Clinic qualifying for surgery after prioritization.

Patients with hip OA were significantly more likely to be referred for FSA than those with knee OA (81 of 150, 54% vs 62 of 189, 33%; chi-square 15.4, $P < .0001$). They were also significantly more likely to qualify for surgery than those with knee OA (70 of 150, 47% vs 45 of 189, 24%; chi-square 19.5, $P < .0001$).

Twenty-one patients (15 hips and 6 knees, 6% of all patients) had elected to go to the private sector either after initial Joint Clinic appointment or after an FSA and scoring below the threshold for surgery. Their initial scores were significantly better than those qualifying for public surgery ($P < .001$) (Table 2). A total of 136 patients (40% of whole group) had had surgery in either the public or private sector or were waiting for it with certainty of access to surgery within 4 months assured by the DHB.

At final follow-up, 194 of 339 (57%) patients seen at Joint Clinic with OA hip or knee were still being managed non-operatively. If the 54 patients who were referred for FSA at their initial appointment are excluded then 69% of the 285 patients who were treated and managed at Joint Clinic are still being managed non-operatively. The mean Oxford scores for these patients at last follow-up had improved by 3.1 points ($P = .0013$) (Table 2).

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