Experienced physiotherapists as gatekeepers to hospital orthopaedic outpatient care

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ABSTRACT

Objective: To investigate the impact, quality and acceptability of a musculoskeletal screening clinic provided by physiotherapists for patients referred to the outpatient orthopaedic department at a major metropolitan hospital.

Design, setting and participants: Prospective observational trial undertaken between 29 November 2005 and 6 June 2006 at the Northern Hospital (a tertiary teaching hospital in outer Melbourne) of 52 patients with non-urgent musculoskeletal conditions who were assessed by one of two physiotherapists with postgraduate qualifications and subsequently by an orthopaedic surgeon.

Main outcome measures: Proportion of new patients referred who could have been managed without needing to see a surgeon; level of agreement between physiotherapists and orthopaedic surgeon on diagnoses and management decisions; and levels of satisfaction of patients, referring general practitioners and the orthopaedic surgeon with the physiotherapist-led screening initiative.

Results: 45 of 52 selected patients (31 women and 21 men; mean age, 53.3 years) attended their appointment with the physiotherapist; of these, 38 also attended a later appointment with the orthopaedic surgeon. Seven of the 38 patients were listed for surgery, and seven others needed management by the surgeon (injection for three, imaging for four). Almost two-thirds (63%) were appropriate for non-surgical management. The physiotherapists identified the same patient management plans as the surgeon for 74% of the group. Patients and doctors reported high levels of satisfaction with the physiotherapist-led service.

Conclusions: Nearly two-thirds of patients with non-urgent musculoskeletal conditions referred by their GPs to one public outpatient orthopaedic department did not need to see a surgeon at the time of referral, and were appropriately assessed and managed by experienced, qualified physiotherapists.

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General practitioners who need specialist opinion on the diagnosis and management of patients with musculoskeletal conditions usually refer them to public hospital orthopaedic outpatient clinics.[1] In recent years, this referral has been associated with long waiting periods for a first appointment.[2]

One successful strategy for reducing the backlog of patients, developed in the United Kingdom, is for physiotherapists to screen patients referred by GPs before a first consultation with an orthopaedic surgeon.[3,4] The scope of physiotherapists' practice includes ensuring that relevant tests are completed and alternative treatment options are explored before the patients see orthopaedic surgeons. This gatekeeper role for physiotherapists is supported by the growing body of evidence that it is effective,[5,6] and that physiotherapy is an appropriate treatment for many musculoskeletal conditions.[7-9] In the UK, the initiative has resulted in reduced and more appropriate referral to orthopaedic surgeons,[10] more timely interventions for those unlikely to benefit from surgery, and a shorter waiting time for appropriate care for all patients.[11]

In 2005, the Victorian Department of Human Services, through the "Better Skills, Best Care" (BSBC) initiative, provided funding for physiotherapists in several hospitals to trial similar "amended" roles.[12] One project was undertaken at the Northern Hospital, a tertiary teaching hospital in outer Melbourne. This hospital serves a population of 730 000 and receives an average of 150 new referrals each month to the orthopaedic outpatient department. Three orthopaedic surgeons and a registrar are available to screen 10 new and 18 review patients each week in one 3-hour clinic session. A designated monthly clinic sees an additional 20 new referrals. By 1 October 2005, the waiting list for non-urgent care (patients in categories 3 [government guidelines recommend first outpatient appointment within 90 days] and 4 [within 365 days]) had 1500 patients with an average waiting time of 164 weeks (over 3 years) until their first appointment.

Here, we report the findings of the BSBC initiative at the Northern Hospital. Its primary objectives were to investigate the impact of a physiotherapist-led screening clinic on waiting lists for first appointment, and the acceptability of this initiative to patients, GPs and an orthopaedic surgeon. A secondary objective was to investigate the quality of the service by comparing the levels of agreement between the diagnostic and management decisions of an orthopaedic surgeon and those of the physiotherapists.

METHODS

The prospective observational design, methods, sample size and timing were determined by the Department of Human Services. Ethical approval was provided by the Department of Human Services and the Northern Hospital, and informed consent was obtained from the patients. The physiotherapist-led screening trial commenced on 29 November 2005 and the last patient in the trial was assessed by the surgeon on 6 June 2006.

Two physiotherapists were employed in the new screening role. Each had postgraduate qualifications in musculoskeletal physiotherapy (Doctor of Physiotherapy, Masters of Manipulative Physiotherapy) and more than 10 years' experience. One orthopaedic surgeon (Fellow of the Royal Australasian College of Surgeons for 3 years) assessed the same patients at a subsequent session (median, 7 [range, 4–12] weeks later).

Referring letters from GPs (average 40 per week) were triaged by the orthopaedic sur-

1 Demographic details and management outcomes by site of pain

	Total	Knee	Shoulder	Back
Number of patients	52	29	11	12
Demographic details				
Median age in years (range)	58.6 (29–83)	55.3 (24–83)	61.8 (46–82)	48.5 (27–63)
Number of women	31	18	5	8
Number who did not attend	14	9	3	2
Management outcome				
Physiotherapy screening	45	25	10	10
Non-surgical	30	14	8	8
Surgical	15	11	2	2
Surgery	*5*	*5*	*0*	*0*
Opinion	*10*	*6*	*2*	*2*
Surgeon screening	38	20*	8†	10‡
Non-surgical	24	12	5	7
Surgical	14	8	3	3
Surgery	*7*	*6*	*1*§	*0*
Injection	*3*	*0*	*2*	*1*
Further investigation	*4*	*2*	*0*	*2*

* Arthritis, 10; anterior knee pain, 5; cartilage tear, 3; cruciate ligament rupture, 1; hip referred, 1.
† Rotator cuff tear, 6; cervical referred, 1; adhesive capsulitis, 1.
‡ Mechanical, 5; discogenic, 2; sciatica, 1; L4/5 stenosis, 1; L5 neuropathy, 1. § Patient declined surgery. ◆

geon and one of the physiotherapists, and eight of each 40 referrals meeting the inclusion criteria were selected. Conditions considered for inclusion were musculoskeletal-related knee, shoulder or back pain (with or without leg pain). Patients were excluded if their subjective history suggested any sinister disorder requiring urgent medical attention, or if they had psychosocial issues that contribute to symptom chronicity (such as depression, low self-efficacy or compensation issues). Also excluded were patients with neck pain, those aged less than 18 years, those with complex diagnostic or pain problems, and those referred by other consultants or the emergency department.

Patients who met the inclusion criteria were invited by letter to attend the physiotherapy screening appointment and informed of their right to wait to see an orthopaedic surgeon. A similar letter was sent to each patient's GP. The clinic was located in the ambulatory care outpatient department at the Northern Hospital, where the physiotherapists worked independently. Patients who attended for physiotherapy screening were scheduled for a later appointment with an orthopaedic surgeon.

The physiotherapy screening appointment involved a comprehensive assessment, a provisional diagnosis and the development of a management plan in consultation with the patient. These decisions were reported to the patient's GP by letter in the same week, and a copy of the letter was filed in the patient's medical record. If appropriate, physiotherapy care was provided at the Northern Hospital or in the community, at the patient's convenience.

The physiotherapists and the orthopaedic surgeon established clinical guidelines and pathways for each condition. An on-duty orthopaedic registrar was available by phone, if needed.

The physiotherapists developed and completed a standardised data collection form. The orthopaedic surgeon used the same form after his review and the form was kept in each patient's medical record and retrieved on completion of the trial. Progress notes were completed according to normal procedure at the Northern Hospital.

Data collected included demographic details (age, sex, site of pain, referrer), and clinical information (results of investigations, provisional diagnoses and management decisions). Management decisions were categorised into non-surgical (physiotherapy, weight management, hydrotherapy, self-exercise) or surgical (further investigation/opinion required, or need for surgery). Data on patients' level of satisfaction with care were obtained from patients by anonymous questionnaire after their physiotherapy consultation, from the orthopaedic surgeon after his consultation, and from the referring GP by telephone interview. Each was asked to rate their level of satisfaction with aspects of the physiotherapist-led initiative on a scale of one ("very satisfied") to five ("very unsatisfied").

Principal outcome measures for the preliminary study were:

- proportion of new referrals not needing to see a surgeon;
- the level of agreement between the physiotherapists and the orthopaedic surgeon on diagnoses and management decisions; and
- the patients', GPs' and surgeon's levels of satisfaction with the physiotherapist-led screening initiative.

Data analysis

Data were analysed with SPSS version 10.0 for Windows (SPSS Inc, Chicago, Ill, USA). We determined level of agreement by using percentage agreement and the κ statistic with a 95% confidence interval.

Joint or soft tissue steroid injections and ordering of radiological and blood investigations were classified as "surgical" decisions as these cannot be done by physiotherapists in Australia. Comparisons of diagnoses were based on the anatomical structure thought to be responsible for each patient's pain.

RESULTS

Fifty-two patients (mean age, 53.3 years) met the inclusion criteria; their demographic and clinical features are shown in Box 1. Between 29 November 2005 and 28 February 2006, the physiotherapists screened 45 of the 52 selected patients (Box 2); these were referred by 44 local GPs. Seven patients did not attend, of whom four reported that they "forgot", one had no pain (but wanted to stay on the waiting list), and one was unavailable; one appointment was a scheduling error.

Between 7 March 2006 and 6 June 2006, 38 of the 45 patients also attended their consultation with the orthopaedic surgeon (Box 2). For the seven who did not attend, follow-up phone calls found two had moved out of the area, two had no symptoms, two cited domestic reasons, and one had subsequently had a fracture in a fall.

Screening outcomes

Outcomes of the assessments by physiotherapists (45 patients) and the surgeon (38 patients) are shown in Box 1. Of the 38 assessed by the surgeon, 24 (63%) were appropriate for non-surgical management. Of these, 22 were discharged by the surgeon from the waiting list. Another seven were offered future elective surgery, and seven needed further work-up.

Levels of agreement

The orthopaedic surgeon agreed with 74% of the management decisions made by the physiotherapists ($\kappa = 0.38$; 95% CI, 0.13–0.63). Five patients for whom the physiotherapists requested a surgeon's opinion were referred back to them. Five patients considered by the physiotherapists to not need to see the surgeon were offered additional interventions by the surgeon (Box 3).

Provisional diagnoses assigned to each of the 38 patients seen by the surgeon are shown in the footnote to Box 1. There was good concurrence between the physiotherapists and the surgeon, with differences only in differentiating back pain of mechanical or nerve root origin, and knee pain of cartilage or articular origin.

Level of satisfaction

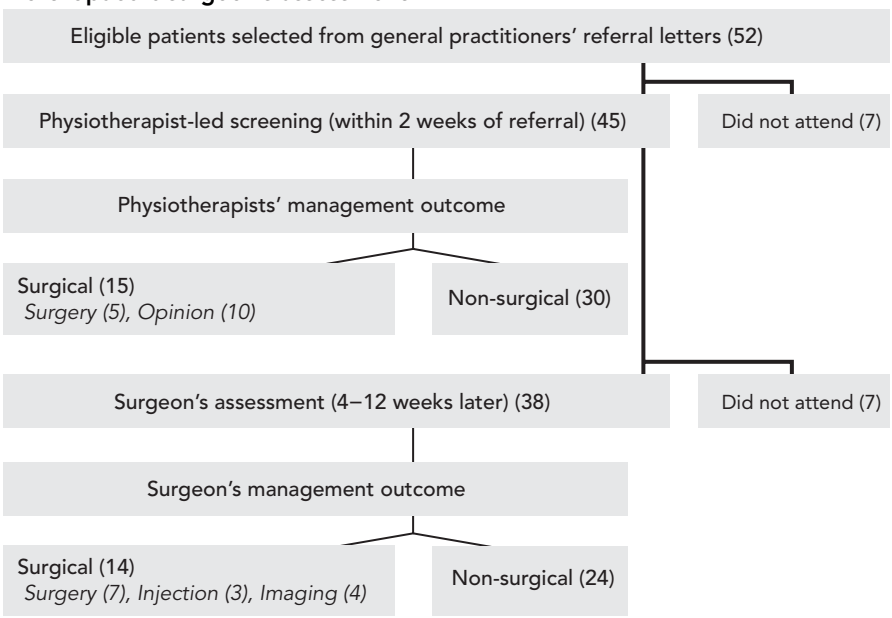
Thirty of 38 patients reported being "satisfied" (score, 2) or "very satisfied" (score, 1) with the care they received from the physiotherapy screening clinic (mean score, 1.4; range, 1–4). Five patients withheld an opinion while waiting to complete physiotherapy treatment and three were unsatisfied as they still had pain. The surgeon's satisfaction score with the physiotherapists' management was 1.9 (range, 1–3) and the mean score for the 22 GPs contacted was 1.8 (range, 1–3).

DISCUSSION

Our small preliminary study found that experienced, well qualified physiotherapists can competently and safely undertake screening of patients referred to public hospital orthopaedic outpatient clinics with non-urgent musculoskeletal pain.

The physiotherapists in the BSBC trial, while working within their legislated scope of practice, achieved a 74% level of agreement with an orthopaedic surgeon, and would have been able to manage 58% of the referrals on their own. To our knowledge, this is the first Australian study to investigate the decision-making competence of experienced, qualified physiotherapists by comparing their decisions with those of a surgeon. Research from the UK has compared the assessment skills of physiotherapists with surgeons-in-training and found they were equally effective.[13] However, UK physiotherapists work within an "extended scope of practice", which includes ordering and interpreting radiological and blood tests, giving injections and listing patients for surgery. In our trial, these tasks, and the responsibility for discharging the patient, remained with the surgeon. Whether extending the scope of practice for physio-

2 Patient recruitment and outcomes of the physiotherapist-led screening and orthopaedic surgeon's assessment



3 Agreement between the surgeon and physiotherapists on management for 38 patients

Surgeon's management opinions	No. of patients	Disagreement between physiotherapists' and surgeon's opinions
Knee	20	
Physiotherapy	12	3 unnecessary referrals to surgeon, returned to physiotherapists for management
Arthroscopy	3	1 missed need for arthroscopy
Total knee replacement	2	
Cruciate ligament reconstruction	1	
Further investigation	2	
Shoulder	8	
Physiotherapy	5	
Injection	2	
Surgery	1*	1 missed need for subacromial decompression
Back	10	
Physiotherapy	7	2 unnecessary referrals to surgeon, returned to physiotherapists for management
Injection	1	1 missed need for facet joint injection
Further imaging	2	2 missed need for further imaging to exclude surgical lesion

* Patient declined surgery. ◆

therapists in Australia could further decrease the demand for orthopaedic surgical outpatient care — and benefit patients — deserves further investigation.

In the current climate of health care workforce shortages, there is a growing interest in allied health professionals undertaking additional tasks in extended roles.[14,15] Two-thirds of the patients screened in this trial did not need to see a surgeon at the time of referral, but required non-surgical care, predominantly physiotherapy and exercise. This finding is similar to research from the UK, where rates of inappropriate referral to specialist orthopaedic outpatient clinics have been reported at over 70%.[10,11] Possible reasons for this may include a perception by GPs that early referral is necessary (because of long waiting lists for surgery), and the limited availability of non-surgical care (including physiotherapy) in the community.

We are currently considering redesigning our referral process to allow GPs to refer directly to the physiotherapist-led screening clinic. However, if redirecting these referrals results in similar waiting lists for physiotherapy, the effect will be counterproductive. Further studies are needed to investigate the uptake and cost of alternative management methods, and the outcomes achieved both in the short term and long term.

The physiotherapist-led screening service was well accepted by patients and doctors. We had expected that some patients would refuse to see a physiotherapist, preferring a doctor, but fail-to-attend rates were slightly lower for the physiotherapist-led clinic than the surgeon.

A weakness of our study was the small sample size. Only a sixth of the total number of patients referred to the Northern Hospital during the study period were able to be screened. However, over half of our sample could potentially have been managed by the physiotherapists alone. The future may lie in introducing and evaluating such a clinic on a much larger scale and over a longer period to determine the true impact of screening by physiotherapists on orthopaedic waiting lists.

The results of the BSBC trial suggest that preliminary screening by experienced physiotherapists of patients with non-urgent musculoskeletal conditions can contribute to priority-based waiting list management, while also delivering early alternative care when surgery is not indicated.

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COMPETING INTERESTS

None identified.

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REFERENCES

1 Kiff RS, Sykes PA. Who undertakes the consultations in the outpatient department? *BMJ* 1988; 296: 1511-1512.
2 Victorian Auditor-General's Office. Access to specialist medical outpatient services. Melbourne: Victorian Government, June 2006. http://www.audit.vic.gov.au/reports_par/agp11301.html (accessed May 2007).
3 Durrell S. Expanding the scope of physiotherapy: clinical physiotherapy specialist in consultants' clinics. *Man Ther* 1996; 1: 210-213.
4 Hockin J, Bannister G. The extended role of a physiotherapist in an outpatient orthopaedic clinic. *Physiotherapy* 1994; 80: 281-284.
5 Dickens V, Ali F, Gent H, Rees A. Assessment and diagnosis of knee injuries: the value of an experienced physiotherapist. *Physiotherapy* 2003; 89: 417-422.
6 Hattam P. The effectiveness of orthopaedic triage by extended scope physiotherapists. *Clin Governance* 2004; 9: 244-252.
7 Fransen M, McConnell J, Bell S. Exercise for osteoarthritis of the hip or knee. *Cochrane Database Syst Rev* 2003; (3): CD004286.
8 Green S, Buchbinder R, Hetrick S. Physiotherapy interventions for shoulder pain. *Cochrane Database Syst Rev* 2003; (2): CD004258.
9 Hinman R, Crossley K, McConnell J, Bennell K. Efficacy of knee tape in the management of osteoarthritis of the knee: blinded randomised controlled trial. *BMJ* 2003; 327: 135.
10 Hattam P, Smeatham A. Evaluation of an orthopaedic screening service in primary care. *Clin Perform Qual Health Care* 1999; 7: 121-124.
11 Hourigan P, Weatherley C. Initial assessment and follow-up by a physiotherapist of patients with back pain referred to a spinal clinic. *J R Soc Med* 1994; 87: 213-214.
12 Better skills, best care pilot projects handbook. Melbourne: Service and Workforce Planning Branch, Department of Human Services, 2006.
13 Daker-White G, Carr A, Harvey I, et al. A randomized controlled trial. Shifting boundaries of doctors and physiotherapists in orthopaedic outpatient departments. *J Epidemiol Community Health* 1999; 53: 643-650.
14 Collins J, Hillis D, Stitz R. Task transfer: the view of the Royal Australasian College of Surgeons. *Med J Aust* 2006; 185: 25-26.
15 McPherson K, Kersten P, George S, et al. A systematic review of evidence about extended roles for allied health professionals. *J Health Serv Res Policy* 2006; 11: 240-247.

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