Best Practice Pathways for Knee Osteoarthritis

Project Report – Executive Summary.

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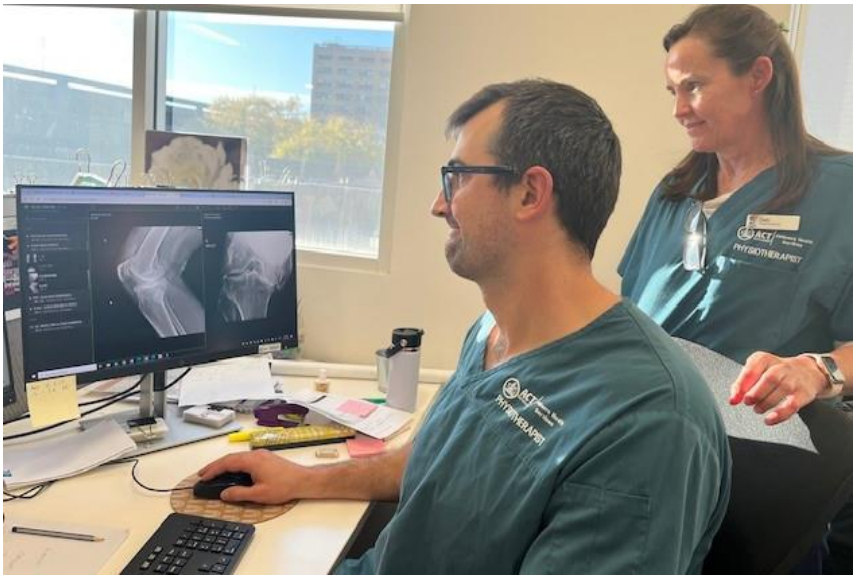

Best Practice Pathways for Knee Osteoarthritis Project Report. Executive Summary

The project, '*Best practice pathway for knee osteoarthritis –Implementing an advanced musculoskeletal pre-surgical triage and assessment clinic'* was instituted in response to Canberra Health Service (CHS) identifying delays to access consultants in orthopaedics and asking University of Canberra (UC) to develop and conduct a collaborative project to address the issues by implementing best practice solutions. A structured project was developed collaboratively to investigate factors contributing to extended waits for patients with knee osteoarthritis referred for orthopaedic consultation at Canberra Hospital, guide changes to care and evaluate outcomes. The project was funded by a Translation Grant from HCF Foundation for a 3-year period from July 2022 to June 2025.

The Problem

Patients can wait a long time from referral by their GP to see a specialist. A CHS internal review in 2020 'the reboot project' found 1590 patients awaiting orthopaedic consultation at the Canberra Hospital; after 2 years only 38% had been seen, with a mean wait time of 3.6 years. In this delay, patients deteriorate and miss an opportunity for evidence-based intervention. Even when patients have been seen by an orthopaedic consultant there is usually another long wait before a recommended treatment path is actioned, such as non-surgical or surgical intervention.

Knee osteoarthritis (OA) was chosen as a test-pilot to improve care pathways and wait times for patients referred to see an orthopaedic surgeon. The best pathway for OA knees involves maximal use of non-surgical treatment options before any surgery is considered [1-3]. Exercise and education programs for knee osteoarthritis are successful for 68-75% of people, and if people do progress to knee replacement, the exercise and education provides them better outcomes from surgery [4 5]. There is excellent evidence from ACT[6 7] and internationally, that Advanced Practice Physiotherapists (APP) can provide an efficient and accurate diagnostic and screening service in specialist clinics[8-10]. The use of APP expertise has been shown to reduce waiting times and improve care across many specialist areas but especially musculoskeletal and orthopaedic clinics[10].

Goal of the project

This project aimed to sustainably eradicate delays to consultation for people with knee osteoarthritis referred to Canberra Hospital orthopaedics, by implementing evidence-based strategies, as recommended by the Osteoarthritis of the Knee, Clinical Care Standard (2024)[1]. To achieve this, the team needed to:

1. Use a systems approach to implement expert review that was responsive, cost-effective and followed best practice interventions.
2. Establish strong collaboration between consumers, community care services, primary healthcare, public orthopaedic triage and surgeons, and across public and private sectors.
3. Develop pathways to ensure patients have knee replacement surgery at the right time, with non-surgical treatment being the default intervention unless surgical criteria are all met.

Method

The project took a knowledge translation approach [11 12]. We gathered evidence to determine best practice and used collaborative strategies for decision-making guided by deliberative democratic principles[13 14]. The governance model for this project included project executive, a research team (investigators, project manager and staff), and a steering committee which included stakeholders and

consumers. Working parties were established which variously included academic team members, CHS members, health professionals, stakeholders and consumers. Ethics approval: ACT 2022.LRE.00185.

In 2022 we gathered baseline data on waiting times and patient and stakeholder experiences to identify needs, issues, and barriers and enablers to implementation of best practice. Patients with a new referral for knee osteoarthritis and those already waiting for a consultation between 1 March and 30 September for each year cohort 2022, 2023 and 2024 were followed. Characteristics of the patient cohorts, wait times, and treatment pathways: either seen by an APP, a surgeon or both, and the outcomes of those visits were analysed, and examined for factors that predict delays.

Interviews of patients and stakeholders identified by purposive sampling, were conducted by UC academic members (AF, JS), recorded, transcribed and de-identified. Four investigators used thematic analysis, based in phenomenology, against a framework to organise the findings founded on the aims of the project:

- to understand what is working well,
- to identify what needs improvement,
- to describe what an ideal model of care would look like,
- to reveal the barriers and enablers to implementation of that ideal model of care.

Derived themes were reviewed and revised by participants. Participants included patients (n=6), general practitioners (GPs) (n=4), and other primary care providers (n=3), surgeons and registrars (n=6), physiotherapists (n=5) and CHS Executive (n=5).

Changes: The interventions during the period 2022 to 2024 included changes to the service decided by CHS team as part of the implementation working party discussions and those serendipitously occurring as part of ongoing digital technology improvements in CHS. The acute care physiotherapy service decided to increase resources to the APP orthopaedic clinic so that more patients with knee osteoarthritis could be seen (from 0.8 to 1.5 FTE). Connections with community osteoarthritis and obesity programs were streamlined. Community Care Physiotherapy had just launched the hip and knee osteoarthritis education and exercise program (GLA:D[4 15]) and were supported to expand this to two health centres and six classes. Community Care Nutrition gained temporary funding to supplement dietician staffing to support patients undertaking the GLA:D program and several stakeholder engagement activities were conducted. Meanwhile, the new digital health record (EPIC, DHR) commenced in Nov 2022, Health Link e-referral system was upgraded, and CHS Quality and Safety focused on compliance of CHS with all Clinical Care Standards. Each of these events and resources enhanced the implementation of the OA knee pathway.

Evaluation: Analysis incorporated all the changes that occurred to the health service during the period, since this is an ecological study. The primary outcome was wait time for the 2023 and 2024 cohorts of patients. To evaluate project impact, the research team held follow-up interviews and focus groups in 2023 and 2024. Participants were invited from patient (n=9), general practitioner (n=4), physiotherapy (n=5), surgeon and registrar (n=5) and health executive groups (n=5). Three researchers derived themes against the previous questions, with the addition of “what changes have you noticed?” Analysis was conducted as previously described.

For economic assessment of the impact of waiting, and to understand how policy decisions influence patient outcomes and experience, and inform future decisions, three pieces of work were conducted:

1) To calculate the costs to patients of living with osteoarthritis, 16 participants collected data for 6 or 12 months on out-of-pocket costs incurred using the Canadian Cost to Patients Questionnaire (CoPaQ)[16 17].
2) To model the costs of three different patient pathways the Independent Hospital Pricing Authority and outcomes from literature were input to a Markov chain. Patients could be seen in the APP clinic, be seen in APP clinic and then referred forward to see a surgeon or wait to see a surgeon. Patient-destinations could be 'discharged', 'referred to community programs' or 'listed for a total knee replacement'. Costs and likelihood of successful outcomes were built into the model.
3) To describe optimal pathways and decisions and to inform policy, a General Algebraic Model of optimising pathways and decisions was fed information from the Markov model and from GLA:D outcomes data. This aspect will be reported at the end of 2025.

Key Findings

- ✓ Wait times improved: wait times to clinician consultation in 2023 were 14%, and in 2024 10% of comparable 2022 wait times.
- ✓ The APPs saw more patients: from 20% in 2022, to 81% in 2023 and 76% in 2024.
- ✓ Patients seen first in the APP clinic risked less delays than those seen only in the surgical clinic (APP clinic IRR: 0.55; 95%CI: 0.43, 0.72); and if seen in both APP and surgical clinics incidence rate ratio (IRR): 0.54; 95%CI:0.41, 0.70).
- ✓ Risk of delays outside of clinical recommendations for patients reduced in 2023 and 2024 (AOR: 0.11; 95% CI: 0.04, 0.31; AOR: 0.02; 95% CI: 0.004, 0.09).
- ✓ Less patients referred to orthopaedics were listed for knee replacement: from 46% to 38% then 35%.
- ✓ As a measure of adverse response, people referred-back to see a surgeon by their GP after APP consultation were counted, but there was no difference between the years.
- ✓ The surgeons saw more patients ready for surgery: a patient examined by a surgeon in 2023-2024 was 1.9 times more likely to be listed for surgery than a patient in 2022 (Odds Ratio 1.9, Chi2 = 6.5, p = 0.011).

Table 1: Outcomes from baseline in 2022, through a range of changes in 2023 and 2024.

Outcomes	2022	2023	2024
Wait to see a clinician		86% ↓	90% ↓
50% of patients seen	114 days	45	46
90% patients seen	1248	91	84
Seen by APP	20%	81%	76%
Of all patients referred, those listed for knee replacement	46%	38%	35%
Patients not progressing to surgical clinics	15%	39%	41%
Of patients examined by a surgeon, **not** listed for surgery	46%	35%	42%

The initial interviews showed consistently that APP clinical assessment of patients was highly valued by consumers. Patients appreciated early advice and interventions. Surgeons appreciated filtering of patients and seeing a higher proportion of patients ready for surgery. The high quality of surgery was recognised by consumers, but all participants noted that waits were unacceptably long, especially for high-risk complex patients, at risk of deterioration, and unsuitable for elective surgery outsourced to the private hospital. The ideal model of care was a community-based program that provided assessment, advice and review. APP were acknowledged as skilled and appropriate to conduct this clinic, working at the top of their scope. Mechanisms to escalate deteriorating patients were needed. Several funding models were proposed, but success was felt to depend on access to imaging, ability to refer directly to the orthopaedic list, and access to surgeon advice quickly. Good communication between the hospital and the community care program to promote allied health interventions prior to considering surgery and for prehabilitation was essential. Facilitating the right patients to have responsive access to surgery was essential for an efficient system. Good communication and listening to stakeholder voices are essential effective drivers of practice change.

The interviews to evaluate the changes made, were synthesised into themes as follows. A responsive system had empowered confidence in self-management for patients. APP clinics were highly regarded by patients and health professional stakeholders. An imperative had arisen to expand this model of care to patients with other orthopaedic conditions and to other specialist clinics across the health service. There had been a major improvement for those patients with knee osteoarthritis, and other patients with other orthopaedic conditions now faced inequity in access to care.

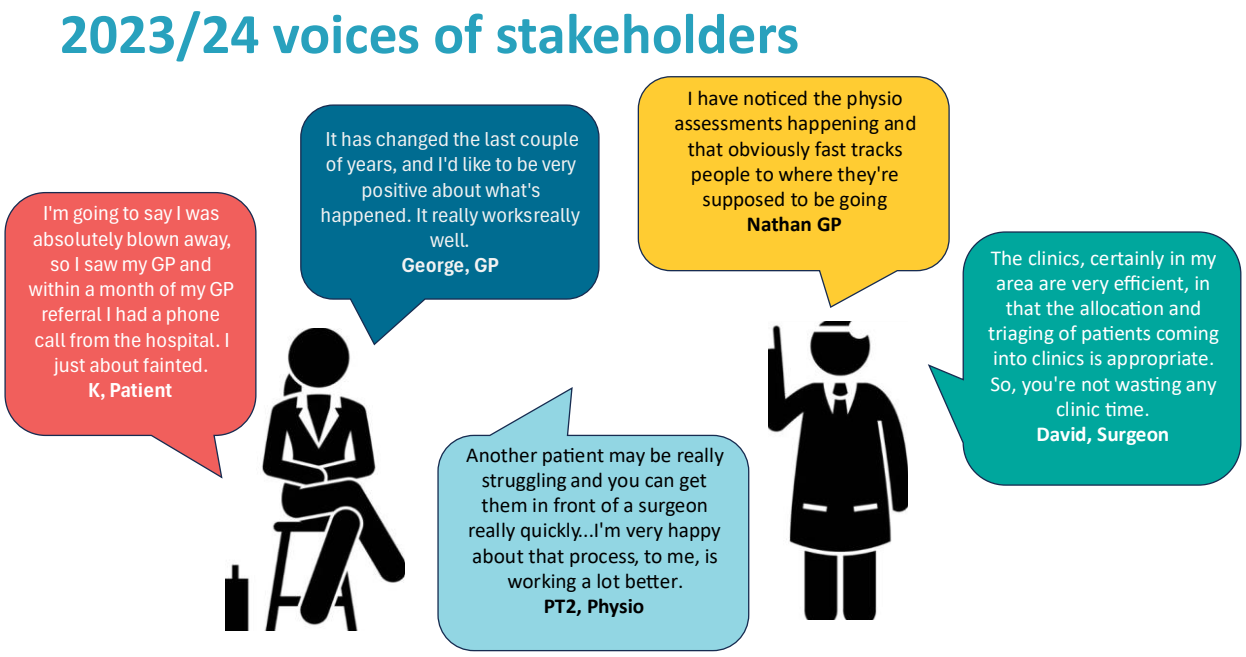

Figure 1: comments from follow up interviews, demonstrating changes to wait times, and system responsiveness.

Barriers to expanding the successful model include training sufficient APPs to resource more APP clinics. The program for knee osteoarthritis relied on strong community allied health programs available as a non-surgical pathway, but such programs do not exist for problematic foot or shoulder conditions with long delays to consultation. Participants told us that community health services need resourcing to meet demand, particularly in podiatry and dietetics, where demand is great. Some quick wins were identified as: utilising the digital health record to send notifications to patients on the progress of their referral, and for tracking referrals. There is a widespread request for education in

self-management for patients, particularly in pain management. Changes to the health system have improved patients' experiences due to quicker responsiveness. Stakeholder engagement has been essential to the success of the project and to stay grounded in patient-centred decision making while meeting demands within resource priorities and constraints.

Economic modelling of costs to the health sector and patients, found that Wait 2 was a key determinant in the costs and benefits of knee osteoarthritis care for public patients. Reduced Wait 2 and earlier direction to care pathways which facilitate the exhaustion of conservative care for public patients with knee osteoarthritis would decrease public healthcare costs by approximately 36% and indirect patient costs by 24%. It is reasonable to expect that such significant changes will affect the relative demand for, and supply of, knee osteoarthritis care in both the public and private sectors.

Costs to patients, including only out-of-pocket costs per day ranged from $ 0.45 to $ 16.09 (median $ 7.42), a cluster of people using home care or allied health had much higher costs. Total costs comprised direct costs $ 921 (median) and indirect costs $ 233 over 6-months. While no relationships were confirmed between financial stress and costs, income category, or quality of life metrics, small sample size limits analysis. An optimisation modelling platform (GAMS; general algebraic modelling system) was used to find (solve for) the optimal care solutions in response to a user-defined objective function. The objective function was set to maximise Knee Osteoarthritis Outcome Score for patients, reflecting outcomes important to patients and their function. Final modelling will be available for the next report and may be used to inform planning and policy decisions.

Conclusions

Positive changes can be attributed to:

- Significantly reduced wait to see a clinician,
- An increased proportion of people with knee osteoarthritis being seen by APP,
- Digital health records reducing the risk of lost referrals,
- Availability of community exercise and education programs (GLA:D),
- Efficient use of consultant time,
- Compliance with the clinical standards for management of knee osteoarthritis.

Care has improved for patients following these improved pathways.

There is now an urgent imperative to expand this model of care to patients with other conditions in Orthopaedics and to other specialist clinics across CHS where it has been identified that advanced clinical practitioners would benefit access to care. An example is patients with chronic shoulder pain where strong evidence supports non-surgical interventions, but at present community care does not have capacity to treat this number of patients, which would be essential.

Resourcing and planning are needed for APPs to provide these additional services. APP clinics can improve access to care and efficiency of the surgical clinics, in that the patients in surgical clinics are more likely to be ready for surgery. However, there are insufficient APPs trained, and it is very difficult to recruit them from elsewhere. The interviews showed that GPs referring a patient to orthopaedics are seeking a specialist consultation for their patient; they are not necessarily seeking surgery for this patient and the consultation with the APP met their needs. Surgeons, however, prefer to see patients ready for surgery, except where complex conditions require specialist expertise.

Key recommendations

These recommendations are founded in the qualitative and quantitative evaluation of the project. Sustainability of the demonstrated improvements is dependent on good data, and good collaboration across divisions in CHS. We recommend:

1. Monitor and report on both wait times and the impact of waiting for patients, by developing accurate reports in DHR. Report on all specialist waiting lists, not just knee and hip elective surgery.
2. Adopt the Clinically Recommended Timeframes for specialist clinics with the help of APPs.
3. Embed Patient reported outcomes measures (PROMS) in the DHR. Good planning is based in sound data, and to embed patient-centred principles, both consumer engagement and patient reported outcomes are required. Otherwise, the impact of changes is not measured.
4. Expand and resource the successful APP clinic model to see patients with other conditions in orthopaedic clinics. This includes liaison with local universities to train more Advanced Clinical Practitioners.
5. Support resourcing of APP to see all category 2 and 3 urgency patients.
6. Develop agreements with specialist consultants to mentor and communicate regularly with APPs and other allied health professionals to promote appropriate screening of patients.
7. Review the Central Health Network pathways for GPs to refer to Canberra Hospital Orthopaedic clinics and to Community Care Allied Health.
8. Provide simple phone text communication with patients about their waiting position.
9. Provide Community Care services with much needed staff and resourcing to match the increasing demand from an aging population, a growing population and increasing numbers of patients living with complex chronic conditions requiring allied health services. This will enable Community services to take the strain from specialist clinics for treatment of those chronic conditions where evidence shows allied health interventions can be most effective. This project has demonstrated how a Community Care team can offer patients effective non-surgical interventions, reducing the burden on specialist clinics.
10. Address barriers to GPs referring patients to Community Care; My Aged Care, Central Health Intake and long wait times.

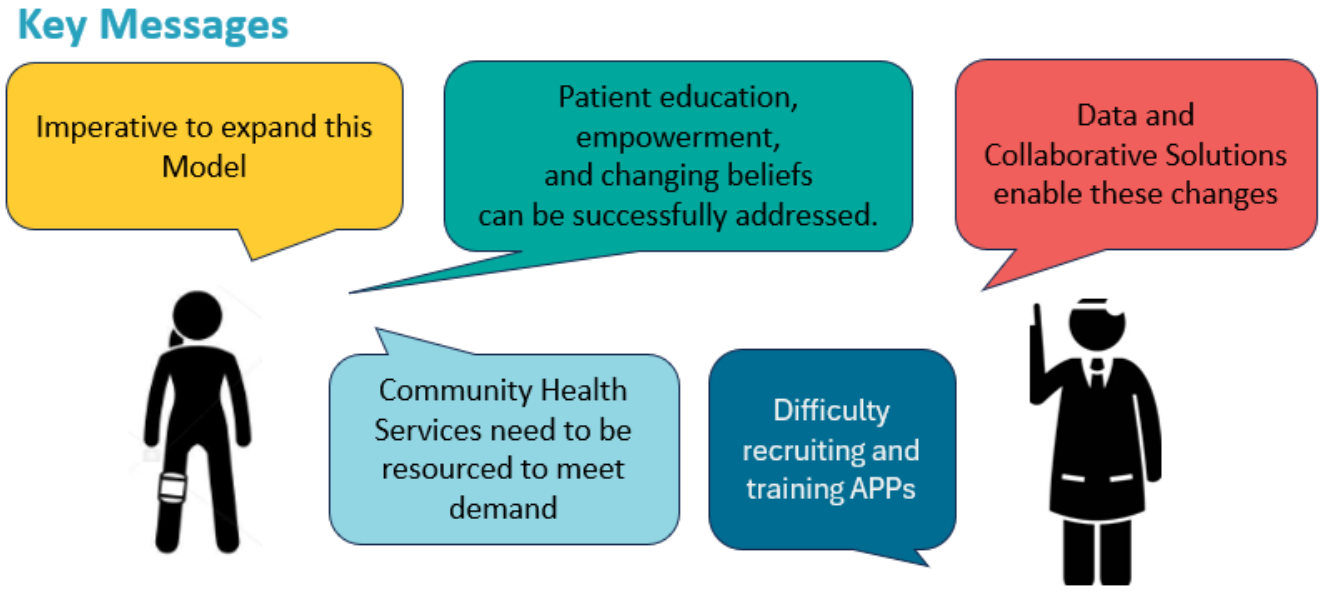

Figure 2: Key messages arising from follow up interviews and triangulation of the data.

The team acknowledges the work of the following people:
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