

AN ECONOMIC EVALUATION OF THE ORTHOPAEDIC PHYSIOTHERAPY SCREENING CLINIC AND MULTIDISCIPLINARY SERVICE

Executive Summary

October 2012

ABOUT THE CAHE

The Centre for Applied Health Economics (CAHE) is a research centre located within the School of Medicine, Griffith University.

The Centre is led by Professor Paul Scuffham and currently employs a team of health economists. In addition, associated with the Centre are Post-doctoral Fellows, PhD students, and an Associate Professor in Biostatistics.

Research and Key skill areas:

- High quality health research relating to improved quality of life for Australian and international populations
- Contract research for government and industry to have a direct impact on health policy in Australia and internationally
- Education and training, including higher degree research students and the workshops in Health Economics
- Methods of economic evaluation relating to health care interventions (pharmaceuticals, medical devices, health care programs)
- Health care financing including preferences and priority setting in health care
- Evaluation of health services and health policy

ABOUT THE OPSC AND MDS

The Orthopaedic Physiotherapy Screening Clinic and Multi-disciplinary Service (OPSC & MDS) is a Queensland Health initiative to expedite access to appropriate care and reduce waiting times for orthopaedic outpatients not likely to require surgery. Within this model, physiotherapists working in an advanced scope of practice provide a consultancy service to patients on specialist orthopaedic waiting lists, delivering early expert assessment and diagnosis along with a coordinated multidisciplinary non-surgical management approach to their condition.

The OPSC & MDS is now an integral part of service delivery for public patients with chronic musculoskeletal conditions and the service is currently established in 13 public hospitals in Queensland

PROJECT TEAM

Dr Tracy Comans, CAHE.

Dr Shaun O'Leary, OPSC & MDS.

Ms Maree Raymer, OPSC & MDS.

Mr David Smith, OPSC & MDS.

Prof Paul Scuffham, CAHE.

CONTACT DETAILS:

Dr Tracy Comans

t.comans@griffith.edu.au

EXECUTIVE SUMMARY

BACKGROUND

Chronic musculoskeletal conditions such as osteoarthritis (OA) are a universal health priority, affecting over 6 million Australians and are a major contributor to functional impairment and reduced independence in older individuals.[1-3] In Australia, arthritis and musculo-skeletal conditions are a major increasing cause of health care expenditure representing \$4.0 billion of direct health care costs in 2004-05.[4]

The implementation and evaluation of new models of care designed to improve the flow of patients through the health care system and ensure scarce resources are directed to those most in need are urgently required. Interest in innovative models of care in health service delivery is high due to health care costs in developed countries rising faster than inflation, something that is not sustainable in the long term.[5] The Orthopaedic Physiotherapy Screening Clinic and Multidisciplinary Service (OPSC & MDS) model of care is one such initiative offering comprehensive, coordinated, patient-centred care within a multidisciplinary framework.[6-9] Similar models of care have been successfully implemented in the UK,[10-12] and to a lesser extent in other Australian states.[13] The OPSC & MDS has now been rolled out to 13 public hospitals in Queensland delivering positive clinical outcomes, reduced waiting times, and widespread stakeholder support.[14-17], however has not been evaluated from an economic perspective.

The primary aim of this project was to develop an economic model to assess the costs, health outcomes, value for money and potential for cost-savings of OPSC & MDS compared with usual orthopaedic care using a cost-utility analysis from the perspective of the health care funder (Queensland Health).

METHODOLOGY

ECONOMIC MODEL

A Markov model was constructed to synthesise data on patient clinical pathways, outcomes and costs over time. Patients move between different health states in the model and accrue accompanying health benefits and costs which are then aggregated to provide the key results. The model had a five year time frame. Transitions in the model were informed by usual patient pathways through the OPSC & MDS service or Usual Care service. The primary data was obtained from a retrospective study across seven OPSC & MDS sites in Queensland, other data from hospital databases, published data and expert opinion provided by an expert working group of OPSC & MDS managers and clinicians convened for this project. The model incorporates data collected of relevance to the three most common chronic orthopaedic referrals (knee pain, low back pain, shoulder pain) managed by the OPSC & MDS at most sites.

DATA INFORMING THE MODEL

Retrospective chart and audit data were used and ethical approval was gained for this study (RBWH: HREC/10/QRBW/455 and Griffith University MED/26/11/HREC). A total of 980 patients seen by the OPSC & MDS service between July 2008 and June 2010 with a primary diagnosis involving the knee, shoulder or lumbar spine were included in the review. Data was obtained on service delivery such as number of appointments and referrals to other services, hospitalisations and surgery. Patient outcomes included Quality of Life, Oswestry Disability Index (ODI) for lumbar conditions, Shoulder Pain and Disability Index (SPADI) for shoulder conditions, and Knee Injury and Osteoarthritis Outcome Score (KOOS) for knee conditions.

Costs were calculated directly from data obtained in the retrospective review where possible or estimated using expert opinion and published data. Quality of Life was measured pre and post the OPSC & MDS service using the Assessment of Quality of Life, a generic health related quality of life instrument designed to calculate utility values for the purposes of economic evaluations. Utilities were used to derive Quality Adjusted Life Years (QALYs), a measure combining both quantity and quality of life and used in the denominator of the Incremental Cost-Effectiveness Ratio (ICER). Probabilities (for example the probability

of a person responding to treatment) were calculated where possible from the retrospective review or from internal audit data, other published evidence or expert opinion.

RESULTS

The Incremental Cost Effectiveness Ratio is presented in Table ES.1. Over five years, patients in the OPSC & MDS strategy accrue slightly more overall health care costs than the Usual Care arm however they also accrue slightly more quality adjusted life years (QALYs) over the same period. The results suggest that the OPSC&MDS service could be considered highly cost-effective based on commonly used criteria for willingness to pay for an additional QALY.

Base Case	Usual Care	OPSC	Increment	ICER
Cost	\$1,433	\$1,479	\$36	
QALYs gained	2.74	2.80	0.06	\$567
Sensitivity Analysis				
Discount rate 0%				
Cost	\$1,740	\$1,673	-\$67	
QALYs gained	3.09	3.16	0.07	Dominant

Notes: QALY = quality adjusted life year; ICER = incremental cost-effectiveness analysis.

SENSITIVITY ANALYSIS

One-way sensitivity analysis was conducted by varying a range of cost, utility and probabilities. The model was not sensitive to a range of cost estimates indicating that costs were not the major drivers of the model. The model was most sensitive to changes in the discount rate used and to changes in the outcomes – utilities and probabilities of moving from one state to another. These measurements were also the most uncertain in the analysis.

Probabilistic Sensitivity Analysis was conducted with a second order Monte Carlo simulation of the model using 10,000 iterations. The average results from this analysis were similar to the base case ICER however there was a wide range of variability in the results with the 95% credible interval ranging from a dominated scenario (where the OPSC costs more and is less effective) to a dominant scenario (where the OPSC is cost savings and is more effective) scenario.

CONCLUSIONS

This analysis compared OPSC & MDS to Usual Orthopaedic Care for treating non-surgical musculo-skeletal outpatients with back, knee and shoulder problems and found that the service is likely to be highly cost-effective. However, this analysis does not capture all benefits accruing to orthopaedic patients from more efficient use of Usual Care services. Therefore, a more appropriate comparison would be Usual Care + OPSC & MDS versus Usual Care only with all categories of patients. This would allow the collection of benefits accruing to the Usual Care service from having a complementary OPSC & MDS running in conjunction. These benefits include more timely treatment of urgent patients and those likely to require surgery either through reduced overall waiting times or through screening by the OPSC & MDS and more efficient use of specialist care by reducing the need to see patients who only require conservative management. These benefits may be substantial and the current analysis underestimates the true benefit to the overall health system of the OPSC & MDS service.

The economic model developed for this project used the best available retrospective data supplemented with literature sources and expert opinion. The variability in results of sensitivity analyses, however, demonstrates a need to prospectively collect accurate information on quality of life outcomes and probability of success of treatment, in particular in the Usual Care scenario, in order to comprehensively evaluate the cost-effectiveness of the OPSC & MDS service.

REFERENCES

1. World Health Organisation, *Preventing chronic diseases: A vital investment*. WHO global report, WHO, Editor. 2005: Geneva.
2. National Public Health Partnership, *Preventing Chronic Disease: A Strategic Framework*, in *Background Paper*, AHMA, Editor. 2001: Adelaide.
3. Peat, G., R. McCarney, and P. Croft, *Knee pain and osteoarthritis in older adults: a review of community burden and current use of primary health care*. Annals of the Rheumatic Diseases, 2001. **60**(2): p. 91-7.
4. Australian Institute of Health and Welfare, *Health expenditure for arthritis and musculoskeletal conditions, 2004–05*. 2009, AIHW: Canberra.
5. Armstrong, B.K., et al., *Challenges in health and health care for Australia*. Medical Journal of Australia, 2007. **187**(9): p. 485-9.
6. American Academy of Orthopaedic Surgeons. *Guideline on the Treatment of Osteoarthritis (OA) of the Knee*. 2008; Available from: <http://www.aaos.org/Research/guidelines/GuidelineOAKnee.asp>.
7. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines, *Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update*. Arthritis and Rheumatism, 2000. **43**(9): p. 1905-1915.
8. Jordan, K.M., et al., *EULAR Recommendations 2003: an evidence based approach to the management of knee osteoarthritis: Report of a Task Force of the Standing Committee for International Clinical Studies Including Therapeutic Trials (ESCISIT)*. Annals of the Rheumatic Diseases, 2003. **62**(12): p. 1145-55.
9. Royal Australian College of General Practitioners, *Guideline for the non-surgical management of hip and knee osteoarthritis*, RACGP, Editor. 2009.
10. Durrell, S., *Expanding the scope of physiotherapy: clinical physiotherapy specialists in consultants' clinics*. Man Ther, 1996. **1**(4): p. 210-213.
11. Hattam, P. and A. Smeatham, *Evaluation of an orthopaedic screening service in primary care*. Clinical Performance and Quality Health Care, 1999. **7**(3): p. 121-4.
12. Hockin J and B. G., *The extended role of a physiotherapist in an outpatient orthopaedic clinic*. Physiotherapy, 1994. **80**: p. 281-284.
13. Oldmeadow, L.B., et al., *Experienced physiotherapists as gatekeepers to hospital orthopaedic outpatient care*. Medical Journal of Australia, 2007. **186**(12): p. 625-8.
14. Smith D and R. M., *Orthopaedic Physiotherapy Screening Clinics - An approach to managing overburdened orthopaedic services*, in *15th International WCPT Congress*, Physiotherapy, Editor. 2007, World Physical Therapy Association,: Vancouver.
15. Raymer M, e.a., *Impact of Introducing Advanced Practice Physiotherapy Roles in Orthopaedic Outpatients in Queensland Health*, in *Musculoskeletal Physiotherapy Australia 2007*: Cairns.
16. Smith, D., *First Contact Physiotherapy – A Natural Evolution or a Dangerous Revolution?*, in *2nd Emirates Physiotherapy Conference*. 2008: Dubai.
17. Smith D, e.a., *Patient Flow Strategies in Outpatients – OPSC & MDS in Queensland Health Patient Flow Launch*. 2010: Brisbane.