Time to Move:
Osteoarthritis

A national strategy to reduce a costly burden

time to move ARTHRITIS

Arthritis Australia
March 2014

TIME TO MOVE: ARTHRITIS

The Time to Move strategy provides a road map for improving care across Australia for people with arthritis.

The strategy is supported by three additional documents which respectively address the care of people with osteoarthritis, rheumatoid arthritis and juvenile idiopathic arthritis:

Time to Move: Osteoarthritis;

Time to Move: Rheumatoid Arthritis; and

Time to Move: Juvenile Idiopathic Arthritis.

These documents are available at www.arthritisaustralia.com.au

What is arthritis?

Arthritis is an umbrella term for a range of conditions that affects the joints.

There are over 100 different types of arthritis affecting people of all ages including children. The most common types are osteoarthritis (OA), rheumatoid arthritis (RA) and, in children, juvenile idiopathic arthritis (JIA).

Osteoarthritis

OA is a degenerative joint disease that affects 1.9 million Australians. Although often referred to as "wear and tear" arthritis, OA is a disease and not an inevitable part of the ageing process.

Rheumatoid arthritis

RA is a serious, chronic, inflammatory autoimmune condition that can occur at any age. Early diagnosis and appropriate treatment can prevent much of the joint damage, deformity and disability associated with RA.

Juvenile idiopathic arthritis

JIA is an inflammatory autoimmune condition that affects around 5000 Australian children. If not treated quickly and appropriately, it can seriously affect the growth and development of a child, causing severe joint damage, growth abnormalities and permanent disability.

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Arthritis ACT

Arthritis New South Wales

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Arthritis South Australia

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Arthritis Western Australia

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Executive summary

Osteoarthritis (OA) is a highly prevalent, disabling and costly condition that affects 1.9 million or one in 12 Australians. OA is one of the leading causes of chronic pain, disability and lost productivity in Australia, costing the health system $3.75 billion and the economy around $22 billion annually.

The burden of OA is expected to increase exponentially in coming decades due to an ageing and increasingly obese population, with prevalence expected to reach three million Australians by 2032. Up to 70 per cent of OA is preventable by avoiding excess weight gain and joint injuries.

Yet current management of OA in Australia is yielding poor results. Two thirds of people with OA report they are faring badly with their condition,[1] 57 per cent do not receive appropriate care according to current guidelines[2] and most GPs report dissatisfaction with the care they are able to provide to people with OA.[3]

A key discrepancy between clinical practice guidelines and care for people with OA in Australia is the poor uptake of non-pharmacological conservative management options, especially exercise and weight loss, in primary health care.

At present there is no nationally adopted conservative management model for OA in primary health care, and evidence relating to optimal methods for delivering such care is scant.[4] Recent efforts in Australia to improve the management of people on specialist outpatient and elective surgery waiting lists have shown that substantial benefits can flow from increased access to conservative management for people with OA. Currently, these models are focused on people with advanced OA and are delivered mostly in hospital environments. Even greater benefits may accrue from adapting this model to improve the uptake of conservative management through community-based services earlier in the course of the disease.

There is substantial scope to improve the management of OA in Australia so as to alleviate the personal, social and economic burden of the condition. To achieve this, a paradigm shift is required in the design and delivery of health services for people with OA, from the current mainly palliative disease management approach to one that supports improved management at every stage of the patient journey.

This paper outlines a model of care for people with OA designed to improve patient outcomes and reduce the personal, social and economic burdens associated with the condition by addressing every stage of the patient journey, from prevention though to managing advanced disease.

Model of care

This model of care recommends a hierarchy of management for people with or at risk of OA that begins with primary prevention, supports conservative non-pharmacological modalities such as exercise and weight loss for mild disease, and progresses to pharmacological management with analgesics and non-steroidal anti-inflammatory drugs (NSAIDS), and surgery (joint replacements) for advanced disease when other therapies are no longer effective.

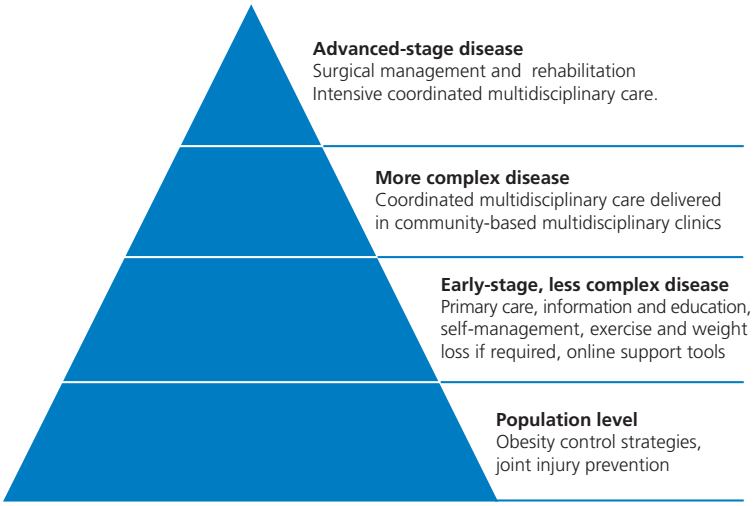

Figure 1: Model of care for OA (adapted from OACCP[4])

The objectives of the national model of care will be to deliver the following key elements of care for people with OA:

- primary prevention of OA through population-based strategies, to promote healthy lifestyles, reduce overweight and obesity, and prevent joint injury;
- early diagnosis and initiation of conservative management in primary care, including advice and access to programs to support exercise, weight loss and self-management;
- the provision of appropriate information, education and support for self-management at all stages of the condition;
- access to appropriate evidence-based non-pharmacological and pharmacological therapies in line with individual needs;
- access to integrated, coordinated multidisciplinary team care, delivered in community-based multidisciplinary arthritis clinics by appropriately skilled practitioners for more complex and advanced cases;
- timely and equitable access to appropriate surgery; and
- access to disability support services, in line with individual needs.

Recommendations

1. **Develop and implement strategies to increase awareness and understanding of OA, including opportunities for prevention and improved management of the condition, by the public, health professionals and policymakers**
2. **Develop and implement strategies to support the prevention of OA**
   - 2.1 Work with organisations active in the prevention of obesity and chronic disease and those delivering healthy lifestyle, physical activity and sporting programs to incorporate messaging and programs that relate to OA prevention and management
   - 2.2 Work with sporting organisations to implement a national sports injury prevention program
3. **Support improved management and continuity of care for people with OA in primary care**
   - 3.1 Develop and implement education, information and incentive strategies for GPs and other primary-care practitioners to promote conservative management (especially exercise and weight loss) for people with OA
   - 3.2 Increase the utilisation of nurses in general practice, physiotherapists and pharmacists to support ongoing management and continuity of care for people with OA, including education and support for self-management
   - 3.3 Work with Medicare Locals to build local workforce capacity and develop local referral pathways for access to effective community-based lifestyle counselling, exercise and weight loss programs
   - 3.4 Develop and/or promote existing tools (e.g. cdmNet, Health Pathways, Map of Medicine) to improve access for GPs and other health practitioners to information and resources that support appropriate diagnosis and management of OA, provide referral pathways and include guides to local services
   - 3.5 Prepare and promote a joint position statement from stakeholder organisations on the use of arthroscopies in the diagnosis and management of OA in both clinician and consumer versions
4. **Improve information, education and support for people with OA that assist them in self-managing their condition**
   - 4.1 Develop a comprehensive information package and tools to help people with OA better understand their condition and its treatment, navigate their way around available services and coordinate their own care
   - 4.2 Promote the referral of people with OA to MyJointPain.org.au and to state and territory arthritis organisations for access to information resources, self-management education and peer support groups
   - 4.3 Tailor and adapt existing information resources and self-management courses to cater for the needs of specific groups, such as those from CALD backgrounds, and promote these through relevant organisations and community groups
5. **Improve care and support for people at more advanced stages of disease and with more complex needs**
   - 5.1 In collaboration with Medicare Locals and other stakeholders, establish community-based multidisciplinary arthritis clinics and teams to provide public and private services that incorporate orthopaedic triage and offer conservative management strategies,
   - 5.2 Develop system incentives/funding models to support the delivery of multidisciplinary care to people with OA in the private sector, including increased access to Medicare-subsidised allied health visits under Chronic Disease Management items, in line with clinical requirements
   - 5.3 Provide services in rural/underserviced areas through multidisciplinary outreach clinics, with additional support offered via telehealth services
   - 5.4 Work with disability and aged care service providers and the NDIS to ensure appropriate access to programs and services that support independence and fuller participation in life for people with OA-related functional limitations
   - 5.5 Undertake research into optimising patient selection and timing for joint replacement surgery, interventions to address poor prognostic factors, and the most appropriate ways of managing the condition in people for whom surgery is unsuitable.

Priorities and implementation

The following priority areas for action have been identified by the Steering Committee as offering the greatest scope for reducing the burden of OA, and being the most feasible in the short term:

- implementation of a sports injury prevention program;
- strategies to improve continuity of care for people with OA in primary care, with an initial focus on increasing the utilisation of nurses in general practice;
- developing a joint position statement on arthroscopies for OA; and
- optimising patient selection and timing for joint replacement surgery.

Implementation of these recommendations will require collaboration between stakeholders across all sectors of the health system, as well as the aged care and disability sectors. Arthritis Australia will work with relevant stakeholders to encourage and support the implementation of the Time to Move strategy.

1. Introduction

The **Time to Move** strategy provides a road map for improving the care of people with osteoarthritis (OA), rheumatoid arthritis and juvenile idiopathic arthritis across Australia.

This document outlines an optimal model of care for the management of OA. The intention of the model of care is to identify key elements of best-practice treatment and support for people with OA, recognising that local delivery models will vary across Australia depending on existing systems and resources.

A 'patient journey' framework was used to develop the model. Examining the patient journey across the continuum of care, from wellness through to advanced disease, provides an accepted framework for considering how clinical and support services can be reorganised and improved to achieve high-quality patient-centred care. In this paper, consideration of the patient journey has been expanded to consider factors within the broader context of the Australian health care environment, so as to identify community, systemic and health workforce issues that affect the provision of care.

A number of local and international guidelines, recommendations, standards of care and models of care informed the development of this model; they included:

- National Service Improvement Framework for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis[5]
- Conservative OA management guidelines from international groups including the Osteoarthritis Research Society International
- Royal Australian College of General Practitioners (RACGP) Clinical guidelines for the non-surgical management of osteoarthritis 2009
- Osteoarthritis Chronic Care program Model of Care, NSW[4]
- Osteoarthritis Hip and Knee Service (OAHKS), Victoria
- Orthopaedic Physiotherapy Screening Clinic and Multidisciplinary Service (OPSC & MDS), Queensland
- Service model for community-based musculoskeletal health in Western Australia 2013, Department of Health Western Australia[6]
- Eumusc.net 2013 Standards of Care for people with Osteoarthritis

In addition, a series of stakeholder consultations was held around the country between August and November 2013 to inform the development of the model.

2. Background

2.1 About OA

OA is a degenerative disease that affects the whole joint – including bone, cartilage, ligaments and muscles – and leads to a gradual decline in health, physical function and wellbeing. It causes pain, stiffness, immobility and muscle wasting, and is a leading cause of disability worldwide. OA is more common in women than in men and although it can occur at any age, incidence increases with age.

There is currently no cure for OA so treatment and management focus on relieving pain and reducing symptoms.

2.2 Impact of OA in Australia

OA is highly prevalent, disabling and costly, and affects more than 1.9 million Australians.[7] Because many people with OA remain undiagnosed, the real figure may be up to three million people.[8] OA is the most common form of arthritis by far, accounting for over half of all cases of arthritis in Australia. Although the condition is more common among older people, it can occur at any age, and more than half of people with OA are of working age.[9]

Arthritis, of which OA is the most prevalent form, is one of the leading causes of chronic pain and disability in Australia. Nearly 600,000 Australians, or 15 per cent of all those who report a disability, are disabled by arthritis, with one in four of these experiencing severe or profound limitations on physical activity.[10]

In addition, arthritis is a leading cause of workplace disability and lost productivity in Australia. More than 80,000 people aged 45-64 years can't work because of their arthritis at an estimated loss to GDP of $9.4 billion a year.[11] Arthritis accounts for 40 per cent of the annual loss in workforce participation in Australia due to chronic disease, higher than all other chronic diseases. It also accounts for 24 per cent of the loss due to absenteeism.[13] For OA specifically, work disability is common after the age of 50 years, and OA is a leading cause of early retirement. One in two people with OA aged between 45 and 64 years is no longer in the workforce, compared to one in four without the condition.[14]

Expenditure on OA in 2012 was estimated to be $3.75 billion[7] with over half of these costs arising from joint replacements. The cost of hip and knee replacements alone is increasing by more than $80 million a year.[15] Costs to the aged-care and welfare systems through disability support and carer payments are also substantial.

The total economic cost of OA in 2012, including productivity losses and loss of wellbeing, was estimated to be around $22 billion.[7]

The burden of OA is expected to increase exponentially in coming decades due to an ageing and increasingly obese population, with prevalence expected to reach three million Australians by 2032.[7]

3. The patient journey

3.1 Risk factors and prevention

The causes of OA and the pain associated with it are not well understood, but a number of biomechanical, genetic, behavioural and environmental factors are involved.[5] In particular, contrary to public perception, OA is not an inevitable consequence of ageing that must be endured[5] and much can be done to prevent or better manage the condition so as to reduce its prevalence and impact. Strategies to increase public awareness of the risk factors for OA and what can be done to prevent it, and to address major risk factors at the population level, are essential steps towards reducing the burden of OA in Australia.

The most important modifiable risk factors for OA are excess weight and obesity, joint injury, and certain repetitive joint-loading occupational activities. A substantial proportion of OA could be prevented at the population level by implementing programs that reduce these risks.

3.1.1 Excess weight and obesity

Excess weight is the most important modifiable risk factor associated with the development and progression of OA. The impact of excess weight on OA risk is likely to be both mechanical (due to increased joint loading) and systemic (a result of metabolic and inflammatory factors).[16]

Obese people are 2.6 times as likely to have OA as people of healthy weight.[17] The risk of developing OA rises as excess body weight increases, and the earlier in life a person gains excess weight, the greater that person's risk of developing OA.[18]

The association is strongest for OA of the knee, in which each additional unit of weight gain results in a fourfold increase in joint loading.[19] Being overweight doubles a person's risk of developing knee OA, while obesity increases the risk fourfold.[20] The risk for people who are very obese is up to 14 times that of people of normal weight.[18] Each five kilograms of weight gain increases the risk by 36 per cent.[21]

Obesity also leads to a modest increase in the risk of developing hip OA[22] and, possibly, OA of the hand.[23]

In 2008, it was estimated that one in four people with OA in Australia, or more than 420,000 people, had developed OA as a result of obesity.[24]

In addition to increasing the risk of developing OA, obesity adversely affects outcomes for people at every stage of the disease. Persistent obesity aggravates the pain and disability associated with OA, accelerates disease progression and raises the likelihood of requiring joint replacement.[18] An Australian study found that greater weight and body mass index at age 18 to 21 years that persisted into middle age was associated with an increased risk of 25 per cent for knee replacement and 11 per cent for hip replacement.[25] In older women, obesity can increase the likelihood of needing knee replacement tenfold.[26] In the US, which has the highest rates of obesity in the world, there is evidence that diagnoses of knee OA are increasing, as are joint replacement rates, and that joint replacements are being required at earlier ages, with obesity suggested as the major contributing factor.[27]

Obesity also leads to poorer outcomes from joint replacement surgery and accelerates implant failure, increasing the need for repeated operations. Nearly half of obese patients undergoing joint replacement surgery have poor outcomes, compared to less than 10 per cent of those of normal weight.[18]

The implications for Australia, which has one of the highest rates of overweight and obese citizens in the world, are sobering. Currently, two in three adults and one in four children in Australia are overweight or obese, up 12 per cent and 18 per cent respectively since 1995.[28] Rising numbers of overweight and obese people, increases in obesity at earlier ages, and increases in the number of people who are very obese[28] are expected to lead to higher prevalence, earlier onset and greater severity of OA (especially of the knee) in the future. This is likely to drive an exponential increase in joint replacement procedures and in associated costs to the health system.

Effective interventions

Primary prevention of obesity is complex and challenging, but could achieve substantial reductions in the prevalence of knee and hip OA as well as other chronic conditions.

The comprehensive obesity control strategy recommended by the National Preventative Health Task Force (NPHTF) in 2009 outlines an integrated, multi-sectoral approach to addressing the main drivers of obesity, based on the best available evidence at the time. The NPHTF strategy includes a number of key recommendations:

- Build the evidence base through research, monitoring and surveillance.
- Drive changes to the physical environment (e.g. through urban planning and design) to facilitate and support increased physical activity and a reduction in sedentary behaviour
- Drive changes in the food supply to support healthier food choices, including better food labelling, food reformulation and improved access to healthier foods
- Embed physical activity and healthy eating in everyday life through setting-based interventions in communities, schools and workplaces
- Encourage people to improve their levels of physical activity and healthy eating through social marketing and public education campaigns
- Restrict the marketing and promotion of unhealthy foods and beverages to children
- Strengthen primary health care's capacity to advise and support people in adopting healthier lifestyles and achieving and maintaining a healthy weight
- Implement targeted programs to address higher-risk groups, such as disadvantaged and indigenous Australians.[29]

An assessment of the cost-effectiveness of a number of obesity interventions found that policy and regulatory approaches were generally more cost-effective than health promotions or clinical interventions. A number of the interventions assessed, including implementing a tax on unhealthy food and beverages, front-of-pack nutrition labelling, restricting unhealthy food advertising to children, and school-based interventions, were deemed not just cost-effective but cost-saving; i.e. the costs saved were in excess of the costs of implementation.[30] Some of the NPHTF recommendations are being implemented to varying degrees[31] but it is unclear whether political commitment to implement them more fully will be ongoing.

Greater efforts to act on these recommendations – and to improve awareness of the link between excess weight/obesity and increased risk of OA – are required.

What could be achieved?

Even a small loss of weight can reduce a person's risk of developing OA. Weight loss of just seven per cent in obese individuals without knee OA has been shown to improve knee structure[32], while losing five kilograms of excess weight has been estimated to reduce the risk of developing knee OA, especially in women, by around 50 per cent.[21,33]

It has been estimated that preventing obesity at the population level could reduce the prevalence of symptomatic knee OA in Australia by 43 per cent, and of knee OA requiring joint replacement by 53 per cent.[20] Halving knee replacements would result in an annual saving to the health system (at 2012 rates) of nearly $600 million.

3.1.2 Joint injury

Sports-related joint injury is a major modifiable risk factor for developing OA.

Around 5.2 million Australians suffer sports-related injuries each year, at an estimated cost of $2 billion annually. Injuries are most common in those aged between 18 and 24, with the most common injuries being injuries to the knee.[34]

Knee injury is the most important modifiable risk factor for knee OA in men, and is second only to obesity in women.[35] A person who suffers a knee injury is four to five times more likely to develop knee OA than someone who does not.[17,36] In particular, ruptures of the anterior cruciate ligament (ACL), a major supporting ligament in the knee, are linked to OA changes in 50 to 70 per cent of patients 10 to 15 years following the injury.[37]

It is estimated that 25 per cent of incident symptomatic knee OA in men and 14 per cent in women could be prevented by preventing knee injuries.[38]

Most ACL injuries occur in adolescents and young adults, with the result that many people develop OA at a relatively early age (30 to 50 years old), with associated pain and disability. Sports and occupational activities that involve pivoting are especially implicated. Young women are at three to five times greater risk of ACL injury than men[39] although, as men tend to play sports with higher ACL injury risk, overall incidence of ACL injury is higher in men.[40] In Australia, team ball sports, especially Australian Rules football, rugby, soccer and netball, have been identified as potential targets for injury prevention programs because of their comparatively high rates of overall and significant injury.[40,41]

In the absence of joint injuries, frequency, intensity and duration of recreational physical activity appear to have minimal effect on the development of OA, although elite athletes may be affected.[42]

3. The patient journey

Effective interventions

There is ample evidence that neuromuscular conditioning programs are effective in significantly reducing knee and ankle injuries.[38] These programs, which typically consist of structured warm-up, balance, stretching, strengthening and agility training, have been shown to reduce the risk of ACL injury by up to 60 per cent.[38,43]

Sports injury prevention programs have been implemented successfully in a number of countries, including Norway (handball), Switzerland (soccer) and New Zealand (rugby), showing sustained reductions in injury rates.[44] A number of international organisations including the International Olympic Committee (IOC) and International Federation of Association Football (FIFA)[45] have supported the implementation of injury prevention programs. Player compliance, tailoring the exercise program to the specific sport and focusing on coach education have been identified as key factors in the success of injury prevention programs.[44,46]

In Australia, a project to develop and implement guidelines for injury prevention in Australian Rules football at the community level is currently underway[47] but implementation of sports injury prevention programs has been limited, despite proven efficacy. Much more needs to be done at both elite and community sports levels to reduce the incidence and burden of joint injuries.[48] This is especially important as increased physical activity and participation in sports are promoted as obesity control strategies.

The Bone and Joint Decade (BJD), an international organisation endorsed by the United Nations (UN) and World Health Organization (WHO) that works to improve the health-related quality of life for people with musculoskeletal disorders,[49] developed a proposal to implement a population-level injury prevention program in Australia. The proposed program is similar to one implemented in Norway, which reduced sports injuries by 60 per cent. Because the peak incidence of sports injuries occurs in young people between the ages of 15 and 24 years, the program is targeted at those aged under 24.

The proposal is based on three key elements:

- incorporating injury prevention content into existing coach education resources and programs;
- research into sport-specific education content; and
- intervention at the community sport level through a coach-directed, 'train the trainer' approach.

The BJD proposal could be rolled out in stages depending on funding. BJD estimates that a program that reached 40,000 players could be started for $1.25 million, with ongoing program maintenance costs of $50,000 a year, while a large-scale program targeting all frequent sports participants would cost just $28 million to set up and less than $2 million a year to maintain.[48]

What could be achieved?

Implementing a national sports injury prevention program could significantly reduce the future prevalence of OA of the knee and associated knee replacements, while also reducing the substantial additional costs associated with sports injuries, estimated at $2 billion in 2005.[50]

The BJD estimated that even a modestly effective injury prevention program that reduced knee injuries by 30 per cent would result in savings to the health system of $98 million a year, due to a reduction in joint replacements (saving $46 million), arthroscopies ($30 million) and knee reconstructions ($22 million).[48] While savings on joint replacements would accrue mainly in the longer term, shorter-term annual savings on knee reconstructions and arthroscopies alone would be twice that of the cost of setting up a comprehensive program.

3.1.3 Occupational overuse

Occupational activity has long been recognised as a risk factor for OA of the hip and knee. Particularly at risk of OA are those in occupations with a heavy physical workload that involves kneeling, squatting, heavy lifting and/or climbing.[51,52] Such occupational activities have been estimated to increase the risk of knee OA by a factor of 1.6.[52] Occupations associated with the greatest risk include farming, construction work (especially bricklaying and flooring installation), and health care workers.[53]

It has been estimated that modifying tasks that typically involve heavy lifting and squatting could prevent 15 to 30 per cent of knee OA.[54]

Effective interventions

Mandated occupational health and safety (OHS) requirements in Australia outline safe work standards and establish obligations for employers to address health and safety hazards in the working environment. These obligations include considering the OHS implications of specific manual tasks and 'body stressing' that may increase employees' risk of developing or aggravating OA.[53,54,55]

In most Australian workplaces, however, awareness of arthritis as a specific health issue is low, with musculoskeletal disorders generally of greater concern.[56] This likely reflects the fact that while musculoskeletal disorders are the most common conditions cited in worker's compensation claims, accounting for 43 per cent of injury and disease-related claims in Australia in 2003, less than one per cent of claims are for OA.[57] The long latency period for the development of OA as well as difficulties in attributing causality almost certainly contribute to the under-representation of the condition in worker's compensation claims.

The implementation of OHS-related controls to reduce the risk of work-related musculoskeletal disorders in Australia varies, with a 2008 survey for Safe Work Australia showing that larger workplaces were more likely to implement engineering, job redesign and training controls to address risk, while one in five workers was provided with none of these controls. Additional intervention research is proposed to determine optimal ways to effectively reduce the risk of developing work-related musculoskeletal disorders.[58]

In addition to OHS requirements, workplace wellness and health promotion programs promoting healthy weight, good nutrition and physical activity may assist in the prevention and management of OA in the workplace. Increasingly, in Australia, such programs are being implemented by government and industry, and evidence indicates modest improvements in chronic disease risk factors and reductions in medical and absenteeism costs in the workplace can be achieved.[59,60]

Two programs to address arthritis risk and management in the workplace have been developed in Australia. In 2008, the Australian WorkHealth Program – Arthritis, an education program designed to minimise the risk of developing arthritis in the workplace and reduce absenteeism and 'presenteeism', was developed and tested with the aid of funding from the Commonwealth Department of Health and Ageing.[56] However, no funding was made available to implement the program.

In addition, Arthritis ACT developed and trialled a generic workplace health program, with arthritis and osteoporosis as components of that program, in collaboration with other health consumer organisations. Detailed results of the evaluation of this program are not yet available.

Both programs found that most employers have low interest in disease-specific workplace programs and a general health promotion strategy is most often embraced.[59] Also, because employers tend to be interested primarily in short-term health and safety issues, they focus less on longer-term objectives such as avoiding OA in the future.[61] Consequently, integrating strategies for preventing and managing OA into OHS programs and more general workplace wellness/health promotion initiatives, such as the National Healthy Workers Initiative, appears to offer the best way to address OA risk in the workplace.

Economic factors – particularly the contribution of work disruptions, absenteeism, presenteeism and lost productivity to indirect costs – are a key leverage point for the introduction of workplace health programs.[59]

What could be achieved?

If workplace OHS and health promotion programs start addressing OA risk factors, this could result in a significant reduction in the future prevalence of OA, especially if employees at greater risk of developing work-related OA are targeted. Workplace health and safety programs could also help workers who already have OA to better manage their condition and delay its progression, increasing workforce retention.

The potential benefits of such strategies are substantial given that arthritis is the most commonly reported chronic condition in people of working age and accounts for 42 per cent of the annual loss in full-time employment in Australia due to chronic disease, equivalent to 225,000 person-years of lost participation.[13] The annual loss of GDP due to arthritis-related early retirement has been estimated at $9.4 billion.[11]

3.1.4 Other risk factors

Other risk factors that may be amenable to preventive intervention include genetic predisposition and joint abnormalities.

The genetic contribution to OA has been estimated at between 40 and 65 per cent, and the severity of pain associated with OA may also have a genetic component, especially for the OA of the hip and hand.[16] This is a focus of ongoing research and already, some genes associated with higher disease risk have been identified.[63] Further research into identifying genes and other biomarkers associated with OA risk, could provide the basis for a screening tool that would allow preventive interventions, such as avoiding weight gain and joint injury, to be targeted to those at greatest risk before irreversible joint damage occurs.

Joint shape abnormalities or misalignment (e.g. femoro-acetabular impingement or dysplasia), either congenital or acquired – say, through injury – are also associated with a heightened risk of developing OA, especially of the hip and in younger patients. There is increasing evidence that these abnormalities, even if minor, may account for most cases of OA of the hip.[16,64] Long-term data are not yet available, but short term results of studies of early surgical correction of hip abnormalities as a means of slowing OA progression are promising, suggesting the importance of consulting an orthopaedic surgeon early in these cases.

3. The patient journey

Opportunities for improvement – Risk factors and prevention

- Conduct campaigns to increase public awareness of OA risk factors and strategies for prevention
- Work with organisations active in countering obesity and chronic disease, and those delivering healthy lifestyle, physical activity and sporting programs, to incorporate messaging and programs about preventing OA
- Work with sporting organisations to implement a national sports injury prevention program
- Work with OHS organisations, unions and workplace wellness providers to incorporate messages on OA prevention and management into workplace health promotion programs
- Support primary care providers to give advice on lifestyle modification and make referrals for people who are inactive and/or overweight, for example, by developing local referral pathways and by accrediting programs offering effective lifestyle interventions

3.2 Early detection and diagnosis

OA develops progressively over many years, and identifying it in its earliest stages could reduce the impact of the condition. Early identification allows the timely initiation of appropriate interventions to prevent or slow the progression of the disease before irreversible joint damage occurs. Currently, however there is no reliable method of diagnosing OA in its early stages, before symptoms appear.

Research into the development and validation of biomarkers, improved imaging, and other methods of detecting OA in its early stages is ongoing, but is complicated by an incomplete understanding of the early joint changes associated with OA.[65]

Diagnosis of OA is primarily clinical, based on history and physical examination. Diagnostic criteria include symptoms such as persistent pain, joint stiffness and reduced function. Imaging is overused in OA diagnosis; it is of limited utility except as a way to rule out other conditions when a diagnosis is unclear.[66] This is mainly because not all radiological OA is associated with symptoms and symptoms such as joint pain and stiffness may be present in the absence of radiological evidence of the condition.[21,67]

Imaging of joints for ongoing OA management, in the absence of changes in a person's condition, is also of limited value as, in the vast majority of cases, the imaging results do not change the way the person's condition is managed.[66]

Reducing unnecessary or inappropriate use of imaging in OA diagnosis and management can generate substantial savings to the health system. In the US, it was estimated that 20 to 50 per cent of 'high-tech' scans (across all conditions) were unnecessary, because the results of the scans failed to help diagnose or treat a patient's ailment.[66] The extent of unnecessary or inappropriate imaging in Australia is not clear.[68] Anecdotal evidence suggests, however, that patients frequently present to specialists with MRI scans already done, even though the clinical utility of such scans in OA is questionable.[67]

OA, which is mostly diagnosed and managed by GPs, is the most common problem for which GPs order imaging tests, accounting for 5.2 per cent of all imaging orders. One in six, or 17 per cent of all GP encounters for OA generate at least one order for imaging,[69] although some of these orders may be driven by patient demand. Education and decision support tools for health care providers could help ensure the appropriate use of diagnostic imaging,[68] especially for more expensive modalities such as CT and MRI scans.

Validated screening tools to identify people with early symptoms of OA who have yet to be diagnosed have been developed for OA in some joints.[70] Applying these tools has the potential to improve patient outcomes by allowing early initiation of appropriate management that may slow the progression of the disease. Some small studies using postal or telephone surveys to evaluate screening suggest that these may be feasible methods of screening for OA[71,73] as well, although these studies make no assessment of cost-effectiveness.

One screening tool for OA of the knee was developed to be administered on paper or through a web-based interface.[70] This tool has been incorporated into MyJointPain.org.au, a website developed by Arthritis Australia in collaboration with the Bupa Health Foundation to identify people with OA and support them in managing their condition.

Opportunities for improvement – Early detection and diagnosis

- Conduct campaigns to increase public awareness that OA can be effectively managed to reduce symptoms and delay progression
- Support and promote further research into methods for detecting OA in its earliest stages, when irreversible joint damage might be avoidable
- Develop and provide advice, education and decision support tools for GPs regarding the appropriate use of diagnostic imaging in OA

3.3 Early treatment

Good management of OA in the early stages can help to reduce patients' pain, preserve function, slow disease progression and improve quality of life.

However, management of OA in Australia is largely palliative, with a focus on advanced-stage disease. Typically, treatment is limited to the use of analgesic and/or anti-inflammatory medications to reduce symptoms until the condition worsens, at which point the patient is referred for a joint replacement.[4] Yet the pharmacological therapies available to treat OA are only moderately effective, and many of them are subject to significant safety concerns.[38]

Dissatisfaction with care is common among people with OA and the clinicians who treat them. Two thirds of people with OA report that they are faring badly with their condition. Key factors associated with faring badly are patients' perceived standard of care, the information made available to them and their access to GPs, specialists and allied health professionals – not the severity of their arthritis or how long they have had it.[1] GPs, who play an important role in management of people with OA, are also dissatisfied with the care they are able to provide. They report feeling hamstrung by the lack of effective treatments and by poor access to support for lifestyle changes and non-drug management.[3]

Consequently, there is substantial scope to improve quality of life for people with OA, and to reduce the future burden of OA on individuals and society by improving management of the condition in its early stages, before extensive and irreversible joint damage occurs.

3.3.1 Conservative management

A range of local and international clinical practice guidelines is available for the management of OA – including, in Australia, the RACGP's Guideline for the non-surgical management of hip and knee OA.

Most guidelines recommend a combination of non-pharmacological and pharmacological modalities, usually referred to as conservative management, for the optimal management of OA at all stages of the disease. They recommend that joint replacement surgery only be considered when conservative management strategies no longer provide adequate pain relief or functional improvement.

Non-pharmacological interventions include patient education and self-management, weight reduction for those who are overweight or obese, exercise and physical therapy. These interventions are usually recommended as first-line management for OA, as well as being important for managing the condition at all stages.[38,74]

Where these interventions alone are inadequate to manage OA symptoms, pharmacological interventions, such as analgesics and NSAIDs, are recommended.

To date, there is limited evidence available on the cost-effectiveness of conservative management for OA. A recent systematic review, however, found that all the exercise interventions reviewed were cost-saving.[75] An evidence-based modelling study found that exercise programs were highly cost-effective, at less than $5000 per quality-adjusted life year (QALY), but there was insufficient evidence to model weight loss and patient education interventions.[76]

Conservative management of OA, especially non-pharmacological modalities, is underutilised in Australia. Up to 68 per cent of people on waiting lists for elective joint replacement surgery have had no prior conservative management except for medication.[77,78]

A number of primarily hospital-based models for the provision of conservative management, targeting people on specialist outpatient and/or elective surgery waiting lists, are being implemented in Australia (see Existing models of care), with promising results. However, there is no clear model for the provision of community-based conservative care for OA, and evidence regarding optimal delivery methods in this context is scarce.[4]

Effective models for providing conservative management appear to rely on using an individual coaching or case management approach, led by a health professional who can provide education, ongoing support and referrals to appropriate services. A range of health professionals, including GPs, nurses in general practice, physiotherapists and pharmacists, could fulfil this role[79] as could online services such as MyJointPain.org.au. More intensive case coordination and support is likely to be required as a person's condition progresses.

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Information, education and support for self-management

Self-management has been identified as a key strategy for managing chronic disease.[80,81] There is no consensus definition but the term is generally used to describe the activities undertaken by a person with a chronic condition, in conjunction with their family and care community, to manage the symptoms, treatments, psychosocial and lifestyle consequences of their condition in order to maintain optimal health.[82] Effective self-management requires access to information, education and support from health professionals and carers.[5]

Interventions to support self-management vary in content and in method of delivery but generally, they aim to improve the knowledge and skills a person requires to manage their condition effectively. Although the evidence is limited, self-management interventions in OA have been associated with small improvements in pain and disability[83] and are generally recommended in clinical practice guidelines.[84,86] One Australian study of participants in arthritis self-management courses showed small but sustained improvements in levels of pain, fatigue and health distress as well as in self-efficacy and health-related behaviours.[87]

Evidence relating to the cost-effectiveness of self-management programs is limited,[88] but programs for OA of the knee have shown that most of the cost is offset by reduced primary-care visits within a year.[89] An evaluation of a range of self-management interventions in Australia across a number of chronic conditions also found that these interventions reduced the use of health services, as well as improving health outcomes and quality of life.[90]

The proportion of people in Australia with OA who receive support for self-management from their health practitioners or who participate in self-management programs is unknown, but is likely to be less than optimal. Only one third of people with arthritis discuss self-management with their GPs or specialists[9] while evidence indicates that just 10 per cent of people on surgical waiting lists for joint replacements have attended self-management programs.[5] Self-management programs are available through arthritis organisations across Australia but a recent survey found that only 32 per cent of GPs were aware of these programs and only 19 per cent had referred anyone to them.[3]

Barriers to participation in self-management interventions exist at both the health system and individual levels. Time constraints and cost have been identified as significant barriers to more active GP support for self-management education.[90] This suggests that other practitioners, such as nurses in general practice or physiotherapists, may be better placed to provide self-management support to people with OA. Nurses in general practice are currently underutilised in the provision of self-management support for people with arthritis; only 29 per cent report that they regularly undertake arthritis education, assessment and management tasks, compared to 59 per cent for diabetes and 76 per cent for cardiovascular disease.[91] A cadre of arthritis educators (similar to existing diabetes educators) could also be developed, supported by Australian government funding (for example, through the Medicare Benefits Schedule).

At the individual level, barriers to participating in community-based self-management interventions include physical limitations, such as restricted mobility and pain; transport issues; work and family commitments; and lack of interest.[92] Certain groups, such as men, Aboriginal and Torres Strait Islanders, and people from culturally and linguistically diverse (CALD) backgrounds may also be less likely to participate.[5]

There appears to be substantial scope to increase people's participation in self-management interventions and support long term adherence to self-management strategies. Research indicates that the probability of a person with OA participating in community-based arthritis self-management programs is substantially higher when this is recommended by a health care professional,[93] so strategies to increase professionals' awareness of and referrals to these programs may be of benefit.[94] Tailored programs for specific groups, such as CALD groups, may also be beneficial.

Providing more accessible and flexible options for participation may also boost the uptake of self-management. Online programs, such as MyJointPain.org.au, and social networking technologies offer great potential to support and engage people in improving self-management of OA.

There is also scope for providing more structured ongoing support for self-management, through greater utilisation of health practitioners such as nurses, physiotherapists and pharmacists. Arthritis South Australia, for example, is piloting a pharmacy-focused health package designed to provide selected pharmacies with training, resources and in-store health services to support people with arthritis and osteoporosis.[95]

Stakeholder consultations for this project highlighted lack of support for people with OA in self-managing their condition as a major issue.

Exercise

Exercise plays an important role in the management of symptoms across all stages of OA and is consistently recommended in clinical practice guidelines.

The benefits of exercise in relation to pain and physical function are similar to those attained with analgesics and non-steroidal anti-inflammatory medications (NSAIDs), but with fewer side effects.[96]

There is strong evidence that both aerobic and muscle strengthening exercise reduce pain and improve physical function in people with OA, particularly OA of the knee, as well as providing other benefits such as improved cardiovascular fitness. Both land- and water-based exercise are effective and tai chi may also be of benefit.[85,97] Exercise therapy may need to be adapted to take into account patient characteristics such as age, comorbidity and overall mobility.[98]

Any type of exercise program is beneficial, whether it is individual, group or home-based, but programs with more than 12 directly supervised sessions are associated with greater reduction in pain and improvements in function.[96] As yet, however, there is insufficient evidence on which to base recommendations about the frequency, intensity and duration of exercise required for optimal benefit.[96] Patient adherence is one of the main predictors of positive long-term outcomes from exercise therapy, but it tends to decline over time.[99]

While exercise is of benefit in reducing OA symptoms, there is no evidence to suggest that exercise can influence structural disease progression.[97] Lack of exercise, however, can contribute to weight gain, which increases the symptoms of OA and accelerates disease progression.

Despite evidence of benefit, people with arthritis experience particular barriers to physical activity, including concerns about aggravating their pain and causing further joint damage, and lack of knowledge about the type and intensity of physical activity that is appropriate for their condition.[100,101]

These barriers could be addressed by improving access to exercise professionals, such as physiotherapists and exercise physiologists, who can provide advice and support on how to modify exercise programs so people with OA can exercise with confidence that their activity programs won't aggravate their condition. Providing such access will require strategies to increase workforce capacity and skills to deliver appropriate services.

There is also an opportunity to increase public awareness of the importance of exercise and its most appropriate forms for people with arthritis. Currently, Arthritis Australia is developing a project to expand the provision of exercise and physical activity programs addressing the needs of people with or at risk of arthritis, to assist in the prevention and management of the condition.

Weight loss

Clinical practice guidelines consistently recommend that people with OA who are overweight or obese lose weight. Excess weight aggravates the pain and disability associated with OA, accelerates disease progression and raises the risk of requiring joint replacement.[18] Weight loss of five per cent or more significantly improves symptoms of pain and physical function in obese people with knee OA.[102] Furthermore, greater weight loss may yield improved results. In one trial, a weight reduction of 10 per cent improved function by 28 per cent, with a nine per cent improvement in symptoms for every one per cent of body fat shed.[103]

Although there has been little research in this area, combining exercise and weight loss appears to be more effective than either intervention alone.[97] One study found that weight loss of five per cent over 18 months in overweight and obese adults with knee OA led to an 18 per cent improvement in function, while weight loss and exercise combined improved function by 24 per cent, and was accompanied by a significant improvement in mobility.[19]

The most recent NHMRC guidelines for the management of overweight and obesity recommend multicomponent lifestyle interventions incorporating healthy eating, increased physical activity and support for behavioural change, tailored to the needs of the individual. Primary health care professionals, especially GPs and nurses in general practice, are identified as having an important role to play in referring patients to dietitians and lifestyle programs and, in follow-up, maintenance and management of relapses over the long term. A systematic and proactive approach to managing care is recommended to support effective weight management in primary care.[104]

Overall, there is little evidence available regarding interventions that aim to improve physical activity and dietary behaviour in those with or at risk of OA, but telephone counselling has been shown to be effective. Interventions lasting six to 12 months, and those including 12 or more calls produced the most favourable outcomes.[105] Telephone counselling has also been shown to be cost-effective in the Australian context.[106]

Despite substantial evidence of its benefits, the uptake of exercise and weight loss as a means of managing OA in Australia is limited. Only eight per cent of people with arthritis in Australia try to lose weight and only 19 per cent exercise most days to manage their condition.[107] Although around 90 per cent of those on waiting lists for elective joint replacement surgery are overweight or obese, very few have tried conservative management for their condition prior to being referred for surgery.[108] In a recent survey, nearly all GPs indicated that they recommended non-drug measures including exercise, weight loss and physiotherapy for their patients with OA. Most, however,

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cited poor access to support for lifestyle changes, including the cost of seeing allied health professionals, as a major barrier to adopting such an approach. Most GPs surveyed (71 per cent) reported that they would like to improve their ability to counsel people with OA on lifestyle measures they could adopt to improve their condition.[3]

Physical therapy

Multimodal physical therapy, which typically includes range of motion exercise, soft-tissue mobilisation, and muscle strengthening and stretching, is generally recommended for OA management in clinical practice guidelines.[84,85] Evidence indicates that these therapies can achieve significant improvements in pain, physical function and health-related quality of life, both in the short term and the longer term for those with OA of the knee.[85] People with milder disease are most likely to respond positively to such therapy, suggesting that earlier referral is preferable.[109] Delivery modes, including individual, group and home exercises, are all effective; and contact with the therapist may improve these benefits.[110]

In Australia, the utilisation of physical therapy for OA is suboptimal. Only two per cent of people with OA reported consulting with physiotherapists and/or other physical therapists with regard to their condition in 2007–08. GPs referred people with OA to physiotherapists in only four per cent of the OA cases they managed.[111]

Costs associated with seeing allied health professionals have been identified as a major barrier to the successful treatment of arthritis.[3] This finding is supported by increasing evidence that chronic illness and disability are associated with serious economic hardship – hardship that is often a result of the high costs incurred in treating and managing chronic conditions, compounded by loss of income due to reduced capacity to work.[112] There is substantial potential to increase access to allied health services for physical therapy for people with OA by improving referral pathways and ensuring key services are more affordable.

In some international and local programs, physiotherapists are taking a leading and expanded role in the management of musculoskeletal conditions, including arthritis, providing case management, assessment and triage services as part of multidisciplinary teams (see Existing models of care).[113] In Queensland, the Orthopaedic Physiotherapy Screening Clinic and Multidisciplinary Service is a hospital-based clinic led by an experienced musculoskeletal physiotherapist who acts as a case manager for people referred to the service. The service has delivered good clinical outcomes and recorded very high satisfaction rates from patients, referrers and consultants.[114] This suggests that appropriately experienced physiotherapists could take on an expanded role managing the health of people with OA at the community level.

Other non-pharmacological conservative therapies

A range of other non-pharmacological conservative therapies is available for the treatment of OA, but to date, evidence of their efficacy is limited and/or variable in quality. There is some evidence, however, that walking aids, knee braces, advice regarding appropriate footwear (including the use of lateral wedged insoles), thermal therapies and possibly acupuncture are of benefit to OA patients.[85,115]

Pharmacological interventions

Pharmacological interventions for OA include paracetamol as a first-line analgesic for persistent mild to moderate pain; then oral and topical NSAIDs; and, if other pain relief has been ineffective, opioids and intra-articular corticosteroid injections.

Existing pharmacological therapies are only moderately effective, and many are subject to significant safety concerns.[38] Paracetamol can lead to small reductions in pain but has no significant effect on stiffness or physical function in knee OA. Some evidence suggests that paracetamol is of limited benefit in reducing OA pain and may increase the risk of gastrointestinal and renal toxicity with long-term use.[115]

NSAIDs can lead to small to moderate reductions in pain but are associated with adverse effects, including a three to five times greater risk of serious gastrointestinal complications such as peptic ulcers, perforations and bleeds, and increased risk of cardiovascular events. Consequently, guidelines recommend that NSAIDs should be used at the lowest possible effective dose, with long-term use to be avoided if possible.

As cardiovascular comorbidities are common in people with OA, the increased cardiovascular risk associated with some NSAIDS is a major limiting factor in the use of these medications in this cohort.[116] Topical NSAIDs, which have fewer side effects than oral forms, are also

recommended as an adjunct or alternative to oral NSAIDS and other analgesics, although efficacy appears to vary between products.[115] The use of NSAIDs in combination with paracetamol is associated with a higher risk of gastrointestinal bleeding than using either agent alone.[117]

Opioids are associated with moderate to large improvements in pain intensity but frequently have side effects such as nausea, constipation, dizziness, somnolence and vomiting, not to mention accidental overdose.[115]

Intra-articular corticosteroid injections are usually used to treat people with OA with moderate to severe pain that does not respond to other treatments, or who show signs of local inflammation. These procedures are associated with a relatively large improvement in short term pain relief, but only small improvements in physical function and stiffness. They are not associated with any major safety issues, making them an important part of the management of severe OA, especially in people for whom joint replacements are not appropriate.[115]

Medication is the most common OA management strategy used by GPs in Australia, with drugs prescribed, advised or supplied in 86 per cent of OA problems being managed.[111] The most common medications used are paracetamol (in 26 per cent of OA problems managed by GPs), COX -2 inhibitors (six to 11 per cent) and a range of opioid analgesics (four to five per cent).[118] One in three Australians with arthritis uses pharmaceuticals to manage their condition. This is four times the number who try to lose weight and nearly twice as many as those who exercise most days to manage their condition,[119] despite comparable benefits. The number of people with OA who currently receive intra-articular corticosteroid injections in Australia is unknown, as these procedures were removed from the Medicare Benefits Schedule in 2009.

Complementary and alternative medicine

People with arthritis and musculoskeletal conditions are major users of complementary and alternative medicines (CAM), with around 60 per cent trying a variety of products in an effort to gain relief from the chronic pain and disability associated with their condition.[120] More than half of all people with arthritis in Australia take supplements or natural therapies for their condition. Of these, around 60 per cent take omega-3 fish oils and glucosamine, while about 13 per cent take chondroitin.[111]

Evidence relating to the efficacy of glucosamine and chondroitin sulphate is mixed and mostly of poor quality and the effectiveness of these agents in OA treatment remains a matter of controversy.[115] Currently there is insufficient evidence regarding the benefits of fish oil in OA.[121]

A major concern in relation to the use of CAM is the potential for adverse drug reactions with conventional pharmaceutical medications, especially as CAM use is not regularly disclosed to or discussed with medical practitioners during consultations.[122] Fish oil, for example, may interfere with the action of anticoagulants,[121] and this is a major concern, given that cardiovascular conditions are common comorbidities with OA.

There is a need to build on existing patient information about the use of CAM, including potential interactions with other drugs and the importance of patients discussing all medicines they are taking with their treating doctors.

3.3.2 Surgical interventions

The main surgical procedure used in mild to moderate OA is arthroscopy. While joint replacement surgery (arthroplasty) for OA is very common, it is usually undertaken in those with advanced-stage disease, when other conservative therapies no longer provide adequate pain relief or functional improvement (see Advanced-stage care).

Nearly 10,000 arthroscopies were performed in Australia for OA in 2010–11.[123] at an estimated total cost of more than $36 million a year.[124]

The role of arthroscopies in treatment of knee OA is subject to controversy.[85] Some studies have shown short-term relief of symptoms and benefit in some younger patients and those with mild OA.[85,125] Recent high-level evidence, however, shows that arthroscopy may offer no benefit over placebo (sham surgery) and no additional benefit when added to physical and medical therapy. [125,127] A study of trends in knee arthroscopies in Victoria from 2000 to 2009 noted that rates of knee arthroscopy for OA had not reduced significantly over this time[128] but the validity of these findings is difficult to confirm.[129]

As yet, there are no Australian clinical practice guidelines relating to arthroscopies, but recent guidelines from the American Academy of Orthopaedic Surgeons recommend against their use in knee OA.[130]

The Medical Services Advisory Committee (MSAC) is currently reviewing existing MBS items for diagnostic knee arthroscopies.

Osteotomy and other joint-preserving surgical procedures may be of benefit in preventing or delaying the progression of OA in young adults with joint abnormalities [85,130] (see also Other risk factors). This highlights the importance of early referral to orthopaedic surgeons in these cases.

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Opportunities for improvement – Early treatment

Promote and support the implementation of conservative management of OA in primary care

- Develop and implement tools and education campaigns targeting GPs and other primary care practitioners, to support them in implementing conservative management of people with OA in primary care
- Encourage GPs to promote exercise and weight loss, and support self-management for people with OA
- Encourage GP referrals to allied health practitioners and to community-based healthy lifestyle counselling, exercise and weight loss programs
- Increase the utilisation of nurses in general practice, physiotherapists and pharmacists to provide management for people with early OA, including education and ongoing support for self-management
- Work with Medicare Locals to build local workforce capacity and develop local referral pathways for access to effective community-based lifestyle counselling, exercise and weight loss programs
- Work with existing providers of lifestyle modification programs to ensure that the needs of people with OA are addressed

Improve the timely provision of information and support to people newly diagnosed with OA

- Develop a comprehensive information package and tools for those recently diagnosed with OA to help them understand the condition, treatment options, and how to navigate their way around available services
- Refer those newly diagnosed to MyJointPain.org.au and to their state or territory arthritis organisations for access to information resources, education in self-managing OA and peer support groups
- Tailor and adapt existing information resources and self-management courses to cater for the needs of specific groups, such as those from CALD backgrounds and promote through relevant organisations and community groups

Prepare and promote a joint position statement from stakeholder organisations on the use of arthroscopies in the diagnosis and management of OA, to be released in clinician and consumer versions.

3.4 Ongoing management

As OA progresses, the level of functional decline and disability and the number of comorbidities tends to increase, adding to the complexity of care and level of support required to achieve best outcomes. More intensive, coordinated multidisciplinary care is usually required to achieve best outcomes and support people with OA manage their condition.

People with OA may also be referred to orthopaedic services for joint replacement; in Australia, this often occurs before they actually require surgery, when conservative management therapies such as weight loss and exercise may still be effective.

3.4.1 Multidisciplinary care

Multidisciplinary care is a key principle for the management of OA, and is recommended in local and international guidelines and standards of care.

In the early stages of OA, developing an individualised multidisciplinary care plan in primary care, with access to community-based allied health practitioners and to exercise and weight loss programs in line with individual needs, is appropriate.

People with more complex and advanced disease, the elderly and those with significant comorbidities are likely to require more intensive, specialised and coordinated multidisciplinary care. At present, this level of care is provided almost entirely through hospital-based clinics that help manage the care of people on waiting lists for orthopaedic outpatient clinics and elective joint replacement surgery (see Existing models of care). There is scope to extend these models of care into the community, to improve access by establishing community-based multidisciplinary teams that have specific expertise in managing musculoskeletal conditions. Both public and private sector services would be required.

The composition of each multidisciplinary team would depend on local resources and patient needs, and would typically include, but not be limited to: GPs and their practice staff, specialists, orthopaedic surgeons, physiotherapists, nurses, occupational therapists, dietitians, psychologists, social workers, pharmacists, exercise physiologists and podiatrists.[4]

Stakeholder consultations identified lack of access to multidisciplinary care and allied health services, and the costs of accessing these services, as issues of major concern for people with OA. Inequity of access

between metropolitan and rural areas/regional centres, and between public and private health care sectors, fragmentation of care and lack of communication between health care providers, were also highlighted as major problems.

The cost of accessing private allied health services, which are inadequately covered by Medicare and private health insurance, creates a significant barrier to optimal access. People with OA can access MBS rebates for allied health services under Chronic Disease Management items, but subsidised visits are currently limited to just five per year. This number is inadequate to meet the costs of accessing the range of allied health services that may be required for optimal care of people with OA, and needs to be increased.

3.4.2 Comorbidities

People with OA often have a range of comorbidities which increase in number with age. Common comorbidities for people with arthritis include obesity, hypertension, heart disease, diabetes, anxiety and depression. Over half of elderly patients with arthritis have hypertension, 20 per cent have cardiovascular disease and 14 per cent, diabetes.[131] One in five people with arthritis also experience one or more mental disorders. Published studies suggest a causal pathway from musculoskeletal conditions to psychological disorders rather than the reverse.[132]

Over 50 per cent of Australians known to have chronic illness have more than five concurrent chronic illnesses.[133]

Arthritis is also a major comorbidity for other conditions. In 2004–05, 52 per cent of Australians with heart, stroke and vascular disease and 41 per cent of people with diabetes had arthritis as well.[134] Arthritis is also present in more than half of people with cancer.[131]

While these comorbidity clusters are likely to be due mostly to shared risk factors across these conditions, arthritis may actually heighten a person's risk of developing other chronic conditions, because the pain and reduced mobility associated with the condition increase the likelihood of physical inactivity and consequent obesity. By creating a barrier to physical activity, OA may also hinder the effective management of other chronic conditions, such as diabetes and cardiovascular disease.[100,133]

The existence of comorbidities complicates treatment and management for both OA and the comorbid conditions, and highlights the importance of taking a person-centred, integrated, multidisciplinary approach to management and treatment. Comorbidity also hinders a person's capacity to self-manage their condition.[133]

As noted previously, the five Medicare-subsidised allied health services per patient year available under the Chronic Disease Management items are likely to be inadequate to support improved outcomes in OA management. This situation is exacerbated if a person has co-morbidities requiring a range of allied health services. A person with arthritis and one or more other chronic conditions is likely to require the services of several practitioners – a dietician, a podiatrist, a physiotherapist and a psychologist as well as, say, a diabetes educator – to help manage their various conditions. This level of need simply cannot be accommodated under the five-visit limit that currently applies to allied health services subsidised under the Chronic Disease Management items. In knee OA, for example, evidence indicates that exercise programs with more than 12 directly supervised sessions led to the greatest improvements with regard to pain and physical function.[95]

Initiatives are required to improve, integrate and coordinate prevention and care across chronic conditions, particularly in primary care. For example, exercise and rehabilitation programs for people with cardiovascular or respiratory disease could be redesigned to accommodate arthritis-related limitations. Further research into managing multiple disease conditions is also required.

Opportunities for improvement – Ongoing management

Improve access to multidisciplinary care for people with more severe disease and more complex needs

- Establish community-based multidisciplinary arthritis clinics/teams to provide public and private services
- Provide services in rural and other underserviced areas through outreach clinics and/or telehealth services arranged in a hub-and-spoke model from larger centres
- Increase the number of annual Medicare-subsidised allied health visits available under Chronic Disease Management items, and raise the level of subsidy so that it more closely reflects the cost of accessing services
- Improve the integration and coordination of prevention programs and care across chronic conditions, particularly in primary care

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3.5 Advanced-stage care

3.5.1 Joint replacement surgery

For patients with severe symptoms and functional limitations despite conservative therapy, joint replacement surgery (arthroplasty) is a highly effective intervention that can restore near-normal function. Hip and knee replacements provide substantial and sustained improvements in pain and physical functioning, with outcomes generally better for hip procedures. Studies show that up to 84 per cent of people undergoing total hip replacement were free from pain nearly 10 years after their procedures. People undergoing knee replacements report improvements in pain, function and range of motion of between 63 per cent and 100 per cent four to six years after surgery, depending on the type of procedure.[85]

Both hip and knee replacements have been shown to be highly cost-effective in the Australian context, with hip replacements more so than knee replacements.[135]

While joint replacements can last 20 years, some fail earlier so surgery needs to be repeated (revision surgery). Revision surgeries are more expensive, and are associated with increased complication rates and poorer outcomes than primary joint replacements.[27] Revision rates for both hip and knee replacements are around six per cent after five years and 12 per cent after 10 years.[136] There is an increased risk of early revision (within five years) among those who undergo joint replacement at an earlier age.[27]

The outcome of joint replacement surgery is influenced by a range of factors including the age, gender, diagnosis and overall health of the patient, the type of prosthesis and surgical techniques used, and the volume of procedures undertaken by the surgeon.[137]

Joint replacement in Australia

In Australia, the National Joint Replacement Registry collects and publishes data on joint replacements. In 2012, there were 48,215 knee replacements and 37,696 hip replacements undertaken in Australia: 97 per cent of total knee and 89 per cent of total hip replacements are for OA.[137] The rate of joint replacement surgery increased substantially in the decade to 2011–12, with knee replacements per 100,000 population increasing by 54 per cent over this time, while hip replacements increased by 20 per cent.[123] The total cost of hip and knee replacements alone now amounts to more than $2 billion annually, and this cost is increasing at a rate of more than $80 million a year. Most joint replacement surgery in Australia is undertaken in the private sector, which accounts for 59 per cent of hip and 69 per cent of knee replacements. The rate of joint replacements is growing faster in the private than in the public sector.[137]

Elective surgery waiting lists

Access to public elective surgery is rationed by waiting lists. In 2011–12, median waiting times for elective joint replacement surgery in Australia were around 120 days for hip and around 180 days for knee surgery, but this varied considerably across regions. Waiting times for knee replacement were highest in Tasmania and the ACT, at around 475 days, and in NSW at around 300 days; they were lowest in Queensland, Western Australia and Victoria, at around 120 days.[138] Waiting lists are not maintained for private elective surgery.

These waiting lists do not fully reflect the total waiting time required for surgery; often, there are extensive waiting lists for specialist orthopaedic outpatient clinics as well. In Queensland, in the quarter to 1 October 2013, for example, only 42 per cent of patients were seen by orthopaedic consultants within the clinically recommended time.[139]

Evidence suggests that a lengthy waiting time for surgery may lead to a decline in a person with arthritis's quality of life and physical function and an increase in joint-related pain, and that from the time of referral, surgery waiting times should be no more than 180 days.[4,140] Many states are failing to meet this benchmark.

Patients referred for joint replacement surgery are assessed in terms of their clinical need for and expected benefit from surgery, then assigned to one of three broad categories of urgency as part of the waitlisting process. However, many people are referred to orthopaedic services before they actually require surgery,[141] and up to 68 per cent of those on elective surgery waiting lists in Australia have undertaken no prior conservative management except medication.[78,142]

There is also evidence of considerable variation in how people are assigned to clinical urgency categories.[143,144] Concepts of 'clinical need' and 'benefit' tend to be poorly defined and there's a lack of specific guidelines to assist in allocating patients to urgency categories.[145] Moreover, there is no clear agreement on the most appropriate timing for joint replacement surgery,[144] As a result, many people who may not require surgery in the short term are on waiting lists, while access to surgery for those in most need may be delayed.

Recently, the Australian Institute of Health and Welfare and the Royal Australian College of Surgeons have responded to the need to address inconsistencies among the states and territories with respect to categorising OA patients awaiting elective surgery in terms of clinical urgency by proposing a more consistent and easily comparable package of definitions.[146]

For people with advanced OA, improved cross-disciplinary collaboration in care, including the involvement of orthopaedic surgeons in multidisciplinary teams, is also likely to improve the timeliness and appropriateness of referrals for joint replacement surgery.

Improving the management of people who may require joint replacement surgery

Internationally and locally, attempts are being made to adopt a more systematic and equitable approach to referral and prioritisation for joint replacement surgery, and to enhance the provision of best care prior to surgery.[145]

In 2007, the RACGP produced a management guide for referral for joint replacements, aimed at GPs, specialists and allied health professionals. The guide was designed to help health care professionals identify appropriate patients for referral, support decision-making regarding joint replacement surgery, and ensure the provision of best care before surgery.[147] It is not clear to what extent this referral guide is used by GPs in Australia.

Several Australian states are implementing programs and/or models of care to improve the management of people with OA on specialist outpatient and surgical waiting lists, and provide better conservative management prior to surgery. These programs include the Osteoarthritis Hip and Knee Service in Victoria (OAHKS),[148] the Queensland Orthopaedic Physiotherapy Screening Clinics and Multidisciplinary Service(OPSC & MDS), and the NSW Osteoarthritis Chronic Care Program (OACCP).[4]

Key elements of these programs include early and comprehensive assessment, the engagement of a multidisciplinary team led by a musculoskeletal coordinator (in the Queensland model, this role is filled by a physiotherapist who provides patient assessment, diagnosis, management planning and coordination of care); the provision of appropriate conservative management for those not ready for surgery, and equitable and appropriate prioritisation for surgery.

Western Australia has also developed an Elective Joint Replacement Service Model of Care,[140] while South Australia has developed the Arthroplasty Demand and Allocation Management (ADAM) proposal[149] to better manage patients on surgical waitlists. These models may not directly recommend multidisciplinary conservative management strategies, but they refer people who do not yet require surgery back to their GPs or community-based programs, through which they can get support for conservative management.

Implementation of these programs, where it has occurred, has resulted in substantial improvements in the care of people with OA, including reduced waiting times for patients, improved clinical outcomes, increased uptake of conservative management, and more appropriate prioritisation of surgery in line with clinical need. The pilot for the OAHKS program, for example, reduced waiting times from first visit to surgery from 22 months to a mean of eight months within a year. In addition, two out of three people referred were managed conservatively and, of these, 27 per cent no longer required surgery.[150] Moreover, preliminary results for the OACCP program indicate that 13 per cent of people were able to be removed from the waitlist, as they no longer required surgery due to effective conservative management.[151]

Modelling indicates that a 10 per cent reduction in the number of hip and knee replacements in future years as a result of implementing these programs nationally would reduce the number of hip and knee replacement procedures by more than 8000 in the first year and more than 11,000 by 2032. The associated reduction in acute care costs would be $156 million in the first year and around $430 million by 2032.[59]

Even greater benefits may accrue from improving the uptake of conservative management through community-based services earlier in the disease course, rather than targeting people on elective surgery waiting lists, most of whom are at later stages of disease progression.

Patient selection for joint replacement

While the benefits of joint replacement are clear, the procedure is not suitable for some people with advanced OA due to factors such as age, comorbidities and poor overall health.

In addition, up to one in five people undergoing joint replacement surgery is unhappy with the outcome, and continues to experience pain and mobility issues, with rates of dissatisfaction generally higher for knee replacements than for hip replacements.[152,153,154]

Preoperative risk factors for worse outcomes from joint replacement surgery include more severe pain and poorer function (suggesting that earlier surgical intervention may be warranted in some cases); poorer mental health; medical comorbidities; and obesity.[5,155]

To improve outcomes for people undergoing joint replacement surgery, additional research is required. Such research would address early interventions to tackle poor

3. The patient journey

prognostic risk factors, strategies to optimise patient selection for, and the timing of joint replacement surgery, and the most appropriate management for people for whom joint replacement is unsuitable.

3.5.2 Aged Care

Arthritis is a common condition and the leading cause of disability among the elderly. Around half of all Australians aged 65 years and over suffer from arthritis, with OA being the most common form in this age group.[62]

Musculoskeletal conditions, including OA, are the second most common main health condition among residents of aged care facilities, affecting 18% of residents.[156] These conditions are also projected to be one of the top three contributors to increases in costs for residential aged care with costs expected to increase from $0.7 billion in 2002-03 to $2.7 billion in 2032-33.[157]

Anecdotal evidence suggests management of OA amongst residents of aged care facilities is an issue in terms of both pain management and limited mobility.

Improving management of OA in older people both in the community and in residential aged care can help them to maintain their independence for longer, reduce the burden on informal carers, reduce premature admission to residential aged care facilities and delay requirements for higher level care.

Arthritis Australia will work with the aged care sector to develop strategies to enhance care for older people with OA.

3.5.3 Disability support

Disability support for people with OA over the age of 65 years is provided through the aged care system, while support for those below this age is available from disability support services. Anecdotal evidence suggests, however, that people with arthritis are often denied access to disability services because their condition is considered a medical condition and not a disability, despite the associated limitations on activity.

Recent government initiatives in the area of disability offer the potential to significantly improve inclusion, support and life opportunities for people with disability, their families and carers. This includes the rollout of the National Disability Insurance Scheme (NDIS) and state and national initiatives under the National Disability Strategy (NDS).

Informal advice is that people with severe arthritis related disability will be eligible for support under the NDIS. There is a need to monitor the rollout of the NDIS, as well as relevant initiatives under the NDS to ensure that people with OA-related disability receive fair and appropriate support. Support for carers, to assist them in maintaining their own quality of life, is also important.

Opportunities for improvement – Advanced-stage care and surgery

- Establish benchmarks for timely access to elective joint replacement surgery
- Reduce the demand for elective joint replacement surgery by establishing community-based multidisciplinary clinics for people with advanced OA that incorporate orthopaedic triage and provide conservative management options, hosted by Medicare Locals in collaboration with local hospital networks
- Promote the uptake of the RACGP management guide to referral for joint replacement surgery by GPs, specialists and allied health professionals, and incorporate it into computer-based decision support tools
- Prepare and promote a joint position statement from stakeholder organisations on the use of arthroscopies in diagnosing and managing OA, in both clinician and consumer versions
- Undertake research on appropriate patient selection for surgery and the most appropriate management of people for whom surgery is unsuitable
- Undertake research into the disability support needs of people with OA and work with the NDIS to develop practical tools that will assist assessors when they are considering the needs of people with significant OA-related disability

4. Australian health care environment

4.1 Supporting multidisciplinary care in Australia

A number of broad structural factors within the Australian health care environment affect the implementation of best practice care for OA. Many of these factors reflect the difficulties of providing ongoing, integrated, multidisciplinary, patient-centred care for chronic health conditions within a health system that is still predominantly structured to deliver acute care.

There are models for multidisciplinary care of OA at the hospital level but these are focused mainly on people with the most advanced stage of disease. Implementing a similar standard of care at the community level provides health care workers with opportunities to intervene at earlier stages of the disease to delay or prevent progression of the disease, ultimately improving outcomes for people with OA and thereby reducing demand for hospital services and surgery.

The creation of Medicare Locals to plan, integrate and coordinate primary health care services on a local basis provides significant opportunities for improving multidisciplinary care for OA. Medicare Locals can provide a locus for community-based multidisciplinary clinics for OA and other forms of arthritis, support the development of local referral pathways, and facilitate telehealth and outreach services. A number of tools, including Map of Medicine[i] and Health Pathways,[ii] have been developed to assist in establishing local referral pathways, and are being implemented in some Medicare Locals.

Medicare provides some funding to support enhanced chronic disease management in primary care through items that include rebates for preparing management plans and coordinating team care arrangements and some allied health services.[158] In addition, the Practice Incentives Program (PIP)[159] and Practice Nurse Incentives Program (PNIP) provide financial incentives to general practices that enable them to improve certain areas of patient care, including chronic disease management. The PNIP supports an expanded and enhanced role for nurses in general practice in preventive health, chronic disease management and care coordination, while specific PIPs are available for managing asthma and diabetes. An evaluation of the PNIP program is currently underway.

These programs appear to be underutilised in OA management. A recent survey of GPs found that only 46 per cent prepared structured management plans for people with OA[3] while only 29 per cent of nurses in general practice report providing arthritis education, assessment or management services.[91]

Stakeholder consultations held for this project highlighted the cost of accessing private allied health services and the limited availability of public services as major impediments to the effective care of people with OA. Access issues are exacerbated in rural and remote areas of Australia.

Inadequate funding for allied health services in both public and private sectors is an important barrier to accessing multidisciplinary care for OA, and needs to be addressed. In particular, only five Medicare-subsidised allied health visits per patient, per year are provided under the current Chronic Disease Management items. This is inadequate to address the number and variety of allied health visits that are typically required to support optimal care of OA patients.

4.2 Workforce

A recent survey of people with arthritis found that two in three were not faring well with their condition, and that their perceived standard of care, as well as poor access to specialists, GPs and allied health professionals, were key factors associated with how poorly they were faring.[1] GPs also reported that limited access to specialists and allied health practitioners was a major barrier to effective care of people with arthritis.[3] Stakeholder consultations highlighted the need to educate and support GPs and other primary care practitioners to enable them to deliver better conservative management of OA in the early stages of the condition, including increased referrals to allied health practitioners. Many participants suggested that the time constraints faced by GPs meant they were not always in the best position to provide education and support to people with OA to help them self-manage their condition. They suggested that other practitioners, particularly nurses in general practice and physiotherapists, could take a more active role in the care and management of OA patients, in collaboration with GPs.

There is also scope to build a workforce of arthritis educators (similar to existing diabetes educators) supported by Medicare funding.

[i] Map of Medicine is a collection of evidence-based, practice-informed care maps that connect knowledge and services around a clinical condition and can be customised to reflect local needs and practices http://www.mapofmedicine.com/solution/whatisthemap/, viewed 27/10/2103

[ii] Health Pathways provides an online health information portal for primary care clinicians to use at the point of care; it also includes a guide to local resources. http://www.canterburyinitiative.org.nz/Home.aspx and http://www.hnehealth.nsw.gov.au/innovation_support/programs_for_20102011/health_pathways, both viewed 27/10/2013

4. Australian health care environment

4.3 Services in regional and rural services

Access to appropriate services, particularly to publicly funded allied health services, is a particular problem in regional and rural areas of Australia. Access is also problematic for people with more advanced-stage disease who need to consult specialists, as most specialists are located in metropolitan areas.

Increasingly, outreach and telehealth services are being used in Australia to deliver specialist services in rural and remote areas, and evidence suggests that they may also be useful for certain allied health services.[160] As well as improving access to specialists in rural and remote areas, these services help to upskill local primary care practitioners, improve continuity in patient management, and reduce costs to patients and their families and the health system, through reductions in travel time to access care.[161]

Upskilling GPs, nurses, physiotherapists or other health practitioners in rural areas so that they are equipped to manage people with more advanced OA could also help to improve standards of care.

4.4 Disadvantaged groups

Special attention needs to be provided to the needs of CALD and other disadvantaged groups, including those with low health literacy. Information resources need to be made available in a range of languages, and the potential need for greater assistance with the coordination of care and support should be recognised. A culturally matched peer support program could also be considered.

5. Existing models of care for OA

5.1 The Chronic Care Model

The Chronic Care Model was developed in the mid-1990s to encourage high-quality care for a range of chronic diseases, health care settings and target populations.[162] This model has been widely adopted in international and local initiatives[iii] to improve chronic disease management, and evaluations suggest that redesigning care protocols in line with its directives generally improves patient care and outcomes, although evidence regarding cost-effectiveness is still emerging.[163]

The model summarises the basic elements required for improving care in health systems at the community, organisational, practice and patient levels so as to provide proactively managed, integrated care. These elements include support for self-management, delivery system design, decision support, and clinical information systems, such as patient registers and recall and reminder systems.

The Chronic Care Model

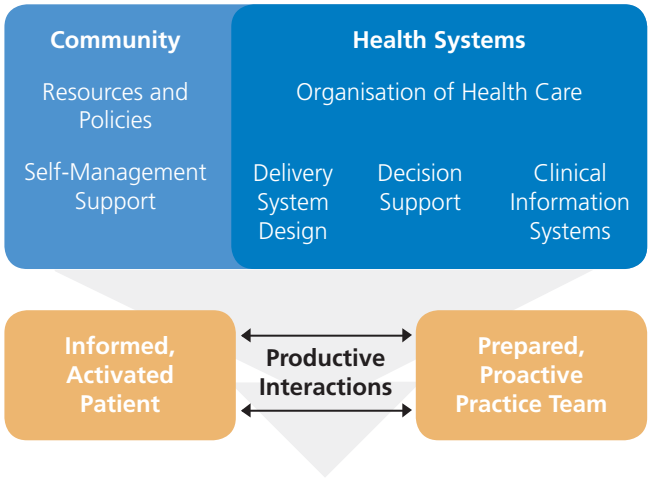

Figure 2: The Chronic care model

Source: http://www.improvingchroniccare.org/index.php?p=Chronic+Care+Model&s=124

It is not clear to what extent these principles are used in Australia for the care of people with OA, or with other forms of arthritis; however, a range of tools, such as cdmNet,[164] which includes guidelines for OA management, are available to health care providers to support them in implementing the model in primary care.

5.2 Osteoarthritis Hip and Knee Service (OAHKS), Victoria

The OAHKS program aims to improve coordination of the management of people with hip and/or knee OA, and prioritise those on outpatient and elective surgery waiting lists according to clinical need.

OAHKS incorporates a multidisciplinary musculoskeletal clinic staffed by a musculoskeletal coordinator and other practitioners, such as rheumatologists, general practitioners, nurse practitioners and/or orthopaedic surgeons. Individuals are prioritised for surgery using a specially designed tool, and those who do not yet require surgery are offered conservative management interventions.

OAHKS also aims to coordinate optimal communication between referring GPs, allied health services, waiting list managers and surgeons.

5.3 Osteoarthritis Chronic Care Program Model of Care, New South Wales

The Osteoarthritis Chronic Care Program Model of Care (OACCP) is a multidisciplinary model of care for people with hip and/or knee OA, many of whom are awaiting elective joint replacement surgery. The aim of the program is to help people to manage their symptoms while they await surgery by offering them conservative management interventions, including participation in programs for weight loss and exercise, with a view to delaying or avoiding surgery. The program also provides for escalation to surgery, with those most in need of it given priority.

As part of the program, a musculoskeletal coordinator, in conjunction with a multidisciplinary team, assesses individuals and links them with relevant team members, who then provide care in accordance with the individual's needs.

Key elements of the program include self-management, exercise, weight loss, psychological management, pharmacologic assessment and disease management education.

Currently the program is being piloted at seven sites across NSW. Initial results indicate that 13 per cent of participants with knee OA have been removed from elective joint replacement surgery waiting lists because as a result of participating in the program, they no longer require surgery.

[iii] Some Australian examples include the Flinders Program™ developed in South Australia (see http://www.flinders.edu.au/medicine/sites/fhbhru/self-management.cfm) and the Integrated Chronic Disease Management Program in Victoria (see http://www.health.vic.gov.au/pch/icdm/)

5. Existing models of care for OA

5.4 Orthopaedic Physiotherapy Screening Clinic and Multidisciplinary Service (OPSC & MDS)

This program provides early assessment and non-surgical active management to suitable patients referred to most specialist orthopaedic outpatient clinics throughout Queensland.

All referrals to the orthopaedic outpatient departments are triaged and then assessed for suitability for the OPSC & MDS clinic. This clinic is led by an experienced musculoskeletal physiotherapist who provides early assessment and acts as a case manager for people referred to the service. The clinic is supported by a designated multidisciplinary team that typically includes a physiotherapist, an occupational therapist, a psychologist and a dietician.

A person attending the clinic undergoes a comprehensive assessment by the musculoskeletal physiotherapist, who then designs an individualised management plan that incorporates interventions from members of the team as necessary. Patients' progress is monitored and, if their condition warrants it, they are referred on to an orthopaedic consultant.

Implementing this service at multiple sites within Queensland Health has resulted in reduced waiting times for patients, very good clinical outcomes, and very high satisfaction rates from patients, referrers and consultants.[165]

5.5 Service Model for Community-based Musculoskeletal Health in Western Australia, Department of Health, WA[6]

The recently launched service model for community-based musculoskeletal health in Western Australia sets out details for establishing community-based multidisciplinary clinics to provide integrated and coordinated care for people with complex or chronic conditions such as inflammatory arthritis.

The clinics would be based in a range of community locations including GP clinics, Medicare Locals, community health centres, non-tertiary hospitals, non-government organisations (e.g. Arthritis and Osteoporosis WA) and Aboriginal medical services. Access would be by referral from GPs or other primary health professionals.

The clinics would provide assessment, triage and referral services in addition to clinical services, for people with musculoskeletal conditions. Service coordinators would provide coordination of care, links with referring GPs, and coordinated telehealth services for rural consumers and health professionals.

5.6 UK Department of Health Musculoskeletal Services Framework (2006)

The UK Department of Health's Musculoskeletal Services Framework outlines a model of care for these conditions in which multidisciplinary musculoskeletal clinics provide the interface between primary care and hospital-based care. These clinics provide a one-stop shop for assessment, diagnosis, treatment or referral to other specialists.

The emphasis is on holistic care, offered as close to home as possible, that addresses the psychological, social and physiological needs of people with these conditions. It draws on three main approaches to caring for people with these conditions: case management, disease management and supported self-care.[166]

So far, however, implementation of the model outlined in the UK framework has been limited.[167] Initial reports of a two-year pilot of the model commenced in Northern England in 2011 show that episodes of care increased by 62 per cent but overall expenditure was reduced, while the average cost per episode of care fell by 41%. The pilot se rvice was very well received by both patients and GPs.[168]

6. Stakeholder consultations

A series of stakeholder consultations that included people with arthritis, carers, medical practitioners, nurses, allied health workers and researchers, was held across Australia with the aim of identifying key issues and priorities to be addressed as part of the Time to Move: Arthritis strategy.

The key issues raised in relation to OA were:

- the need to address misconceptions on the part of the community and health professionals that OA is an inevitable part of ageing, about which nothing can be done;
- lack of community, health care professional and policymaker awareness of the impact of OA on people living with the condition, and trivialisation of the condition;
- lack of recognition of the health care costs to individuals with OA, and the cost of OA to the community in terms of lost productivity, increased need for hospital services, and treatment costs;
- lack of awareness about ways to prevent OA and strategies to address primary prevention;
- lack of information, education and support for people with OA who are attempting to self-manage their condition;
- the importance of lifestyle modification in managing OA at all stages;
- lack of a consistent gold standard for the care of people with OA;
- the need to educate GPs about how best to manage OA, especially through encouraging lifestyle changes, and the role of allied health professionals in this process;
- the need to improve management of OA at all stages of the condition and in particular, to increase the uptake of conservative management options such as weight loss and exercise;
- lack of access to and costs associated with using allied health services, limited access to publicly funded allied health services and the inadequacy of coverage for private services through Medicare and private health insurance;
- lack of a coordinated multidisciplinary approach to managing OA in primary care, lack of communication between health care professionals, and fragmentation of services;
- inequity of access to services, particularly to publicly funded services, especially in rural areas;
- problems in reaching people from CALD backgrounds, and a lack of uptake of service in these communities;
- inappropriate referrals to surgery without first offering conservative therapy; and
- waiting lists for elective surgery, and the need to triage patients to enable more efficient use of surgery time.

Solutions suggested included:

- adopting a national approach to OA prevention;
- working to increase awareness of and education about OA at all levels, including by the community, GPs, allied health professionals and government bodies;
- creating algorithms for GPs to improve early diagnosis and treatment of OA;
- providing improved information, education, and support for self-management to people with OA;
- utilising nurses as patient educators and care coordinators;
- improving access to allied health professionals;
- increasing conservative management approaches to OA, especially lifestyle modification (exercise and weight loss);
- establishing centres of excellence for the management of OA;
- facilitating improved access to multidisciplinary care including, for example, a one-stop shop or musculoskeletal hub affording access to all relevant health care professionals (rheumatologists, orthopaedic surgeons, physiotherapists, dieticians, nurses, occupational therapists and imaging technicians); and
- establishing triage clinics and pre-surgery diversion to support the conservative management of OA.

7. Conclusion

There is substantial scope to deliver improved and more equitable care for people with OA in Australia, by increasing the uptake of conservative management across all stages of the condition, improving access to coordinated multidisciplinary care for more advanced and complex cases, and providing timely and equitable access to joint replacement surgery when conservative therapies no longer provide relief.

The objectives of the national model of care will be to deliver the following key elements of care for people with OA:

- primary prevention of OA through population based strategies, to promote healthy lifestyles, reduce overweight and obesity, and prevent joint injury;
- early diagnosis of people with OA and advice regarding conservative management therapies, including exercise, weight loss and self-management, in primary care;
- the provision of appropriate information, education and support for self-management for people with OA at all stages of the condition;
- access to programs that support physical activity and weight loss according to individual needs;
- access to evidence-based non-pharmacological and pharmacological therapies in line with individual needs;
- access to integrated, coordinated multidisciplinary team care, delivered in community-based multidisciplinary arthritis clinics by appropriately skilled practitioners, for more complex and advanced cases;
- effective ongoing management, including the management of comorbidities;
- timely and equitable access to appropriate surgery; and
- access to appropriate disability support services in line with individual needs.

8. Recommendations

1. **Develop and implement strategies to increase awareness and understanding of OA, including opportunities for prevention and improved management of the condition, by the public, health professionals and policymakers**
2. **Develop and implement strategies to support the prevention of OA**
   - 2.1 Work with organisations active in the prevention of obesity and chronic disease, and those delivering healthy lifestyle, physical activity and sporting programs, to incorporate messaging and programs that relate to the prevention and management of OA
   - 2.2 Work with sporting organisations to implement a national sports injury prevention program
3. **Support improved management and continuity of care for people with OA in primary care**
   - 3.1 Develop and implement education, information and incentive strategies for GPs and other primary care practitioners to promote conservative management (especially exercise and weight loss) for people with OA
   - 3.2 Increase the utilisation of nurses in general practice, physiotherapists and pharmacists to support ongoing management and continuity of care for people with OA, including education and support for self-management
   - 3.3 Work with Medicare Locals to build local workforce capacity and develop local referral pathways for access to effective community-based lifestyle counselling, exercise and weight loss programs
   - 3.4 Develop and/or promote existing tools (e.g. cdmNet, Health Pathways, Map of Medicine) to improve access for GPs and other health practitioners to information and resources that support appropriate diagnosis and management of OA, provide referral pathways, and include guides to local services
   - 3.5 Prepare and promote a joint position statement from stakeholder organisations on the use of arthroscopies in the diagnosis and management of OA, in both clinician and consumer versions

9. Priorities and implementation

4. Improve information, education and support for people with OA to assist them in self-managing their condition

4.1 Develop a comprehensive information package and tools to help people with OA better understand their condition and its treatment, navigate their way around available services and coordinate their own care

4.2 Promote the referral of people with OA to MyJointPain.org.au and state and territory arthritis organisations for access to information resources, self-management education and peer support groups

4.3 Tailor and adapt existing information resources and self-management courses to cater for the needs of specific groups, such as those from CALD backgrounds, and promote these through relevant organisations and community groups

5. Improve care and support for people at more advanced stages of disease and with more complex needs

5.1 In collaboration with Medicare Locals and other stakeholders, establish community-based multidisciplinary arthritis clinics and teams to provide public and private services that incorporate orthopaedic triage and offer conservative management strategies

5.2 Develop system incentives/funding models to support the delivery of multidisciplinary care to people with OA in the private sector, including increasing access to Medicare-subsidised allied health visits under Chronic Disease Management items, in line with clinical requirements

5.3 Provide services in rural/underserviced areas through multidisciplinary outreach clinics, with additional support offered via telehealth services

5.4 Work with disability and aged care service providers and the NDIS to ensure appropriate access to programs and services that support independence and fuller participation in life for people with OA-related functional limitations

5.5 Undertake research into optimising patient selection and timing for joint replacement surgery, interventions to address poor prognostic factors and the most appropriate ways of managing the condition in people for whom surgery is unsuitable

A number of areas have been identified by the Steering Committee as offering the greatest scope for reducing the burden of OA, and as being the most feasible to implement in the short term. These 'priority areas of action' include:

- implementation of a sports injury prevention program;
- strategies to improve continuity of care for people with OA in primary care, with an initial focus on increasing the utilisation of nurses in general practice;
- developing a joint position statement on arthroscopies for OA; and
- optimising patient selection and timing for joint replacement surgery.

Implementation of these recommendations will require collaboration between stakeholders across all sectors of the health system, as well as the aged care and disability sectors. Arthritis Australia will work with relevant stakeholders to encourage and support the implementation of the Time to Move strategy.

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