Prevention in the management of musculoskeletal conditions

A guide for practice nurses
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It is intended as a resource for nurses employed in general practice to assist them in improving the care of people with osteoarthritis, osteoporosis, rheumatoid arthritis and idiopathic juvenile arthritis. It is recognised that these conditions are chronic in nature and as such require planned multidisciplinary team care over an extended period of time. Practice nurses are part of this team, and as such require clinical and organisational skills to enhance practice capacity in order to manage chronic disease care for patients.

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Foreword

The effect of arthritis and osteoporosis on the community is significant, with osteoarthritis being the tenth most commonly managed problem in general practice.

Nurses have proven to be major contributors to chronic disease prevention and management in general practice and their expertise and competence in the area of musculoskeletal conditions will be enhanced by the information contained in this resource. As a national health priority, these conditions require a multidisciplinary approach to care by skilled, competent team members and this includes practice nurses.

Based on The Royal Australian College of General Practitioners Clinical guidelines for musculoskeletal diseases, the clinical information provided in this resource will give practice nurses additional expertise and confidence to approach the prevention of osteoporosis and management of arthritis. Together with general practitioners this will ensure better outcomes for patients seeking health care for musculoskeletal conditions.

The Royal Australian College of General Practitioners is pleased to provide this resource to the increasing numbers of nurses working in general practice and look forward to the optimal management of all patients with musculoskeletal conditions.

Dr Chris Mitchell
President, the RACGP
Section 1
Introduction

The management of chronic illness accounts for a large proportion of the work that health professionals undertake in primary care.

In 2007, the estimated cost of arthritis to the Australian economy was $23.9 billion. The Australian Government, who has long recognised the importance of musculoskeletal conditions and their impact on the Australian economy, designated arthritis and musculoskeletal conditions as Australia’s seventh National Health Priority.

This has helped determine the importance and recognition of opportunities to improve the prevention and management of musculoskeletal conditions.

Critical intervention points are identified in the National Service Improvement Framework for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis. They are broadly categorised into:

- reduce risk
- find the conditions early
- have the best care and support in the early stages
- have the best care and support during the acute episodes
- have the best care and support during long term management
- have the best care during the advanced stages.

This framework allows consistent evidence based messages to be delivered by a range of health professionals seeing patients with musculoskeletal conditions. Practice nurses, as part of the general practice team, play an important role in assisting these patients to maintain optimal health. General practice, and practice nurses, are recognised as key personnel in caring for people with these conditions.

The following symbols are used throughout the guide to identify resources, further reading and activities.
Quality care

Quality in healthcare, and more specifically quality in general practice, operates within a small business environment. This is influenced by the education, training and aspirations of the owners and staff in a regulated marketplace, and often a balance is difficult to achieve. The World Organisation of Family Doctors (Wonca) defines quality as:

‘The best outcomes possible given available resources and the preferences and values of patients’.

With the failure of quality comes errors, or the risk of errors. The concept of risk management has heightened in recent years as general practice strives to close evidence-knowledge gaps, reduce errors, and raise the standards that have been set for clinical practice.

It is argued that quality strategies should proceed on four levels:
- the individual practitioner
- the group or team
- the organisation
- the system.

The Royal Australian College of General Practitioners Quality Framework background paper provides numerous examples of quality issues and concludes that there is room for improvement in the delivery of healthcare in Australia. Evidence suggests that some patients do not receive best practice care, there is significant variability, and there is evidence of medical errors and latent failures.

The concept of quality in healthcare underpins the work that all staff have in caring for patients in any healthcare setting.

This guide will give practice nurses ideas, information and resources to use when reflecting on the quality of care that they provide to patients with musculoskeletal conditions such as osteoporosis, osteoarthritis, rheumatoid arthritis and juvenile idiopathic arthritis. Achieving this goal may require changes to the way we work.

Change management

Implementing system change at a practice level is seldom a single action; it usually requires robust planning and a combination of different interventions. Individual practices will find differing tolerance for the motivation and acceptance of change. Grol developed a model for implementing change that includes:
- developing a concrete proposal for change
- identifying obstacles to change
- linking interventions to obstacles
- developing a plan
- carrying out the plan and evaluating progress.
Managing patients with musculoskeletal condition may require a change in practice policy, skill mix, patient support, co-ordination, appointment scheduling, and available patient resources. The practice nurse is well placed to contribute to this change process, however, consultation and communication with the practice team is fundamental to this process.

One of the most effective ways of making small measurable changes which improve quality has been the ‘plan, do, study, act’ (PDSA) methodology.

**Continuous quality improvement: the PDSA cycle**

Continuous quality improvement provides a framework for planning, implementing and monitoring changes within the practice. Continuous quality improvement includes:

- identifying what will be accomplished
- identifying what will be measured
- assessing whether the change constitutes improvement
- identifying alternatives to current practice
- testing changes on a small scale.

The PDSA cycle (*Figure 1*) is a tool that encourages practices to undertake small and incremental changes. A PDSA cycle evaluates the effectiveness of changes in roles or processes over time, and reflects on the successes and possible identification of areas for further improvement.

---

*Figure 1. PDSA model*
Scope of practice, competency and continuing professional development

The World Health Organization recommends all staff working with the chronically ill have the following skills:

- **Patient centred care** – interviewing and communicating effectively, assisting change in health related behaviour, supporting self management and using proactive approach
- **Partnering with patients, other providers and communities**
- **Quality improvement** – measuring care and its outcomes, learning and adapting to change and translating evidence into practice
- **Information and communication technology** – designing and using patient registries, using computer technologies and communicating with partners
- **Public health perspective** – providing population based care, systems thinking, working across the continuum, and working in primary healthcare led systems.

Having these skills, as well as clinical knowledge about the disease, will ensure that all workers are competent to manage patients presenting with ongoing illness and disability associated with musculoskeletal conditions.

Scope of practice (including delegation and supervision between nurses) and continuing professional development (CPD) are fundamental components of competency to practise. Both enrolled and registered nurses are required to demonstrate their competency measured against the Competency Standards for Nurses working in general practice.

Domains for nurses working in this area include:

- professional practice
- critical thinking and analysis
- provision of clinical care
- management of clinical care systems
- collaborative practice.

The role of the practice nurse can expand as the practice provides new services to patients and changes the way in which care is delivered. Clearly identifying the clinical roles to be undertaken by each team member allows expectations to be agreed and scope of practice defined. Nurses working at an advanced level can measure their work against the Advanced Competency Standards for Nurses.

The Australian Nursing & Midwifery Council (ANMC) has developed a Continuing Competence Framework that assists nurses to demonstrate their continued competence to practise. The framework consists of four components:

- Maintaining a professional portfolio – electronic or hardcopy to record evidence (eg. include CV, job descriptions, registration certificates, awards, presentations and publications, membership and roles on professional organisations, research activities)
- Assessment of practice – annual self assessment of performance in current role against the relevant ANMC competency standards (eg. the competency standards for nurses working in general practice)
- Continuing professional development – completion of at least 20 hours of CPD per year, either informal or self directed relevant to the nurses context of practice. One hour = 1 point

• Recency of practice – practice is defined as any role in which the individual uses their nursing skills and knowledge.

The responsibility of the registered nurse is to assess, plan, implement and evaluate nursing care in collaboration with the multidisciplinary healthcare team; in this case, for patients with musculoskeletal conditions. Defining scope of practice will contribute to safe and high quality care for patients, and ensure a consistent approach to care delivery and the delegation of care to other healthcare providers.

*Figure 2* represents the process that all nurses, including those working in general practice, follow to demonstrate their ongoing competence to practise.

**CPD activities suitable for practice nurses**

* Participation in a clinical audit (eg. the osteoporosis audit)
* Developing policy, protocols or guidelines
* Presenting at or attending conferences, lectures, seminars or professional meetings (eg. presenting results of your improvement activities locally or nationally)
* Conducting or contributing to research
* Undertaking relevant online or distance education (eg. gplearning)
* Active membership of professional groups and committees (eg. Australian Practice Nurses Association).
Section 2
Musculoskeletal conditions

Hip and knee osteoarthritis

Osteoarthritis (OA) is the most common form of chronic arthritis, with radiological evidence of OA in more than 50% of people over 65 years of age. Osteoarthritis is self reported by more than 1.4 million people (7.3% of the population) with 10% of men and 18% of women suffering from symptomatic OA. It is the tenth most commonly managed problem in general practice and as the population ages this figure will increase. Joint pain and impaired mobility are the main characteristics and are associated with the gradual wearing of cartilage.8

As a chronic illness with both pharmacologic and nonpharmacologic treatment available, there is an important role for practice nurses to play in the monitoring and support of this group of patients. Care of people in general practice with OA is supported by Enhanced Primary Care Program item numbers.

Osteoporosis

Osteoporosis (OP) is defined as a disease characterised by low bone mass and micro-architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk. It is diagnosed by a bone density test that usually measures the density at the hip and spine. The result is called a ‘T-score,’ and will be in the range of normal, osteopenia or OP.

Low bone density itself does not cause any symptoms or illness other than the increased risk for fractures. The goal of OP prevention and care is to reduce the number of fractures and the health impacts that follow from the fractures.

Osteoporotic fractures are a result of reduced bone strength and are usually associated with falls. Vertebral (spinal) fractures are the hallmark fracture of OP and occur with a higher incidence and earlier in life than any other types of minimal trauma fracture. Only about one-third are caused by falls and most are precipitated by bending or lifting. A minimal trauma fracture is a fracture from a fall or equivalent from standing height or less. Approximately 11% of men and 27% of women aged 60 years or over are osteoporotic according to the World Health Organization.9

Fractures of the hip, vertebral body and distal forearm have long been regarded as ‘typical’ osteoporotic fractures. However, the effect on the skeleton is systemic and almost all types of fracture are increased in patients with low bone density and, irrespective of fracture site, adults who sustain a minimal low trauma fracture (and possibly even a high trauma fracture) are at substantially greater (2–4 fold) risk of sustaining another fracture of a different type. There is a 10–20% mortality associated with a hip fracture over the first year following fracture.10
Rheumatoid arthritis

Rheumatoid arthritis (RA) is thought to develop from several factors, including genetic susceptibility and exposure to an environmental trigger factor. It is the second most common form of arthritis and the most common autoimmune disease in Australia. Affecting 2.5% of the population, it is a chronic inflammatory joint disease of unknown cause with 57% of diagnosed cases being women.\(^{11}\)

After an initial joint synovial tissue inflammation, bone erosion and joint damage can occur leading to permanent disability. This can be minimised by the early use of disease modifying anti-rheumatoid drugs (DMARDs).

As well as the more obvious joint manifestations, multiple organs can be affected with a shortened life expectancy and deaths from cardiovascular disease, infection and cancer. The risk of developing RA is higher among smokers, with one study finding the risk six times higher in smokers compared to nonsmokers.

Chronic systemic inflammation contributes to the cardiovascular disease and over half of these patients will need to reduce or stop working 10 years after onset of the disease.\(^ {12}\)

Because of the chronic nature of RA, patients suffering from the above conditions are well placed to be supported and monitored by practice nurses in conjunction with the GP. Enhanced Primary Care funding supports the planned systematic care of these patients.

Juvenile idiopathic arthritis

Juvenile idiopathic arthritis (JIA) occurs in 1 to 4 cases per 1000 children,\(^ {13}\) has significant morbidity and mortality, and carries the potential for long term inflammatory activity and complications. Children with arthritis are eligible for broader funding arrangements under Chronic Disease Management items for GP Management Plans and the associated MBS item numbers. This will assist these patients to access care from the GP and specialist rheumatologist, and other allied health providers, to ensure prevention and early detection of complications and to limit the impact of JIA on the activities of daily living.

Prevention in general practice

A preventive approach to healthcare in general practice requires the prevention of illness, injury and disease, rehabilitation of those with a chronic illness, and reducing the burden of illness in a community. It can be divided into three categories (Table 1) and recognises the social, cultural, and political determinants of health.

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Clinical guideline for the diagnosis and management of early rheumatoid arthritis

www.racgp.org.au/guidelines/rheumatoidarthritis

Smoking cessation guidelines

www.racgp.org.au/guidelines/smokingcessation

Clinical guidelines for the diagnosis and management of juvenile idiopathic arthritis

www.racgp.org.au/guidelines/musculoskeletaldiseases

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Table 1. Categories of prevention

| Primary – promotion of health and the prevention of illness | Health promotion and prevention activities can have a positive impact on reducing patients’ exposure to risk factors for disease or by acting to change the environment in which they live |
| Secondary – early detection and prompt intervention | Reduce the impact of disease by intervening after the disease process has started but before the disease starts to impact on the patient’s life |
| Tertiary – reducing the risk of death and disability once a disease has become evident | The focus is on prevention of disease complications and is usually the main component of chronic care |

There is good evidence to support GPs investigating any individual with risk factors for OP. Practice nurses can support this by opportunistically or proactively and systematically identifying patients that have risk factors for OP. These include:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low BMD</td>
<td>Fracture risk doubles for each unit (standard deviation) decrease in T-score as measured by DXA. The absolute fracture risk increases with increasing age and decreasing bone density.</td>
</tr>
<tr>
<td>Past history of fracture</td>
<td>The presence of any spinal or nonspinal minimal trauma fracture, including vertebral fracture</td>
</tr>
<tr>
<td>Age</td>
<td>Fracture risk doubles with each decade for both genders and is an independent risk factor from 60 years of age</td>
</tr>
<tr>
<td>Gender</td>
<td>Men have 50% lower risk of osteoporotic fractures than women at any given age (equivalent of being ~10 years younger)</td>
</tr>
<tr>
<td>Multiple falls</td>
<td>A history of multiple falls without external cause in the past 12 months increases the risk</td>
</tr>
<tr>
<td>Smoking</td>
<td>Smokers generally have a higher risk than nonsmokers</td>
</tr>
<tr>
<td>Low levels of physical activity</td>
<td>Lack of physical activity is a risk factor for hip and vertebral fractures</td>
</tr>
<tr>
<td>Low body weight</td>
<td>BMI &lt;20 doubles the risk of a hip fracture for both men and women</td>
</tr>
<tr>
<td>Loss of height</td>
<td>The greater the height loss, in the absence of scoliosis, the greater the likelihood of vertebral fractures</td>
</tr>
<tr>
<td>Low vitamin D levels</td>
<td>Low dietary calcium and vitamin D increase the risk of fragility fractures. Vitamin D deficiency is associated with a higher risk of falls</td>
</tr>
<tr>
<td>Medication use</td>
<td>Corticosteroids, excessive thyroid hormone replacement, anti-androgen, anti-oestrogen, SSRIs, thiazolidenediones and certain epileptic drugs are associated with increased risk of fragility fracture</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Medical conditions</td>
<td>The following conditions lead to bone loss or lower BMD at an earlier age and an increased risk of OP and fragility fractures: rheumatoid arthritis, Cushing syndrome, hyperthyroidism, chronic kidney disease, chronic liver disease, premature menopause in women, hypogonadism in men, malabsorption (eg. coeliac disease), depression, COPD, organ or bone marrow transplantation</td>
</tr>
</tbody>
</table>

More information including the interventions for the prevention of OP can be obtained from the Clinical guideline for the prevention and treatment of osteoarthritis in postmenopausal women and older men and the Guideline for the non-surgical management of hip and knee osteoarthritis (see the ‘absolute fracture risk nomograms’ on the following pages).
**ABSOLUTE FRACTURE RISK NOMOGRAMS**

These nomograms were developed from studies of Australian men and women, allowing estimation of absolute fracture risk over 5 and 10 years. They may be helpful in discussing risk and interventions with patients. They are available at www.fractureriskcalculator.com.

To use the nomograms for predicting 5 and 10 year absolute risk of hip and all fragility fractures for postmenopausal women and older men, read up vertically to the ‘points’ scale from the age of an individual on the ‘age’ axis and repeat for each additional risk factor.

Sum the points of the risk factors and then read down vertically from that final sum on the ‘total points’ axis to the 5 year or 10 year risk scales to find that individual’s probability of sustaining a fracture within the next 5 or 10 years.

**Hip fractures – women**

![Nomogram for Hip Fractures - Women](image)

**Hip fractures – men**

![Nomogram for Hip Fractures - Men](image)
### All fragility fractures – women

#### Points

<table>
<thead>
<tr>
<th>Points</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
</table>

#### Age (years)

<table>
<thead>
<tr>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>85</th>
<th>90</th>
<th>95</th>
<th>100</th>
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#### FNBMD T-scores

<table>
<thead>
<tr>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>-1</th>
<th>-2</th>
<th>-3</th>
<th>-4</th>
<th>-5</th>
<th>-6</th>
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</table>

#### Prior fracture

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>≥3</th>
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#### Number of falls (past 12 months)

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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#### Total points

<table>
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<tr>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>120</th>
<th>140</th>
<th>160</th>
<th>180</th>
</tr>
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</table>

#### 5 year risk

<table>
<thead>
<tr>
<th>0.01</th>
<th>0.05</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
<th>0.5</th>
<th>0.7</th>
<th>0.9</th>
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#### 10 year risk

<table>
<thead>
<tr>
<th>0.01</th>
<th>0.05</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
<th>0.5</th>
<th>0.7</th>
<th>0.9</th>
<th>0.99</th>
</tr>
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</table>

### All fragility fractures – men

#### Points

<table>
<thead>
<tr>
<th>Points</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
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#### Age (years)

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<tr>
<th>55</th>
<th>60</th>
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<th>75</th>
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<th>-3</th>
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<th>-5</th>
<th>-6</th>
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#### Prior fracture

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>≥3</th>
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#### Number of falls (past 12 months)

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<tr>
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<th>0.2</th>
<th>0.3</th>
<th>0.5</th>
<th>0.7</th>
<th>0.9</th>
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#### 10 year risk

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<th>0.1</th>
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<th>0.3</th>
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<th>0.7</th>
<th>0.9</th>
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Guideline for the non-surgical management of hip and knee osteoarthritis

Guideline for the non-surgical management of hip and knee osteoarthritis

July 2009

Primary focus of guideline

Guideline touches upon

Reducing the risk of osteoarthritis
Reduce joint injury
Health promotion

Early diagnosis of osteoarthritis
Early and accurate diagnosis
Care and referral pathways

Treatment and management in early stage of osteoarthritis
Best practice management:
- optimal use of medicines
- non-pharmacological management
- care and referral pathways
- patient self management education
- patient psychosocial support requirements

Treatment and management during acute episodes of osteoarthritis
Best practice management:
- optimal use of medicines
- non-pharmacological management
- care and referral pathways
- patient self management education
- patient psychosocial support requirements

Long term management of osteoarthritis
Best practice management of chronic conditions:
- optimal use of medicines
- non-pharmacological management
- care and referral pathways
- patient self management education
- patient psychosocial support requirements

Treatment and management in advanced stages of osteoarthritis
Best practice management to optimise quality of life:
- optimal use of medicines
- non-pharmacological management
- care and referral pathways
- patient self management education
- patient psychosocial support requirements
- Carer support and information
A comprehensive approach to managing chronic diseases such as arthritis and OP requires addressing prevention and management across the continuum of care. Key messages identified in The Royal Australian College of General Practitioners ‘green book’ for promoting prevention activities in general practice include:

- identifying and instituting a prevention coordination role within the practice
- developing a strong teamwork approach
- ensuring good information management systems for efficiency
- having a patient centred approach
- using motivational interviewing techniques
- making the best possible use of existing partnerships, including divisions of general practice, other healthcare providers and community supports.

Securing the services of a general practice nurse has also been listed as a key means of increasing preventive activities in general practice.

**The consultation**

Although establishing both nonpharmacological and pharmacological therapy is a principal goal of planned management for patients with OP, long term compliance is low. The practice nurse has a role in monitoring therapy compliance, overseeing recall and reminders, co-ordinating care and encouraging self management.

Recommendation 4 of the Guideline for the non-surgical management of hip and bone osteoporosis states that health professionals should perform a comprehensive assessment to confirm the diagnosis, assess health and medication risks and to inform management for people with OA of the hip and/or knee.

**Diagnosis**

Diagnosis of OA will be made by the GP based on a detailed patient history and clinical presentation. An assessment will include:

1. Joint signs and symptoms
   - Joint pain often after weight bearing activity
   - Joint stiffness, particularly after periods of inactivity
   - Joint inflammation
   - Decreased joint mobility and/or function
   - Crepitus (a crinkly, crackling or grating feeling in the joint)
   - Joint tenderness upon palpation

2. Comorbidities
   - Nutritional assessment (weight loss is a significant modifiable risk factor)
   - Other comorbidities

3. Psychosocial assessment
   - The risk of depression and anxiety is higher for patients with chronic disease
   - Impact on social, work life, relationships and leisure activities

4. Falls risk assessment
   - May be increased due to decreased mobility, pain and decline in function

[Falls factsheet for nurses](http://www.health.gov.au/internet/safety/publishing.nsf/content/com-pubs_fallsfacts/$File/30462-Nurses.PDF)
5. Medication and NSAID risk
   - Assess for risk factors, particularly NSAIDs, including age, hypertension, upper GI events, cardiovascular, renal or liver disease
   - Allergies
   - Polypharmacy.

In addition to the clinical assessment, a consultation is an opportunity to update the patient’s file, including immunisations, allergies, smoking status, family history, social history and to ensure that medications listed are correct and current. It is not the role of the practice nurse to alter medications, but updating the medications list is well within the scope of practice for registered nurses and decreases the risk of inaccurate medication lists being included in referrals to other health providers.

NPS programs facilitated through general practice networks offer educational, small group, case based discussion on preventing OP and reducing fracture risk.
Section 3

Chronic care model

The chronic care model (CCM) (Figure 3) has been used to inform policy both in Australia and overseas. It provides a conceptual framework for understanding the elements considered essential for the management of chronic disease, including musculoskeletal conditions. The CCM provides nurses with the concept that the effective management of any patient with a chronic illness cannot be achieved in isolation. Chronic disease management requires several interdependent elements to be working; many of these will fall outside the control of the practice nurse. However, the practice nurse can make a significant contribution to all of these elements.

Figure 3. The chronic care model

The chronic care model identifies six essential areas for improving care for people with chronic conditions (Table 2).

Table 2. Essential areas for improving care for people with chronic conditions

<table>
<thead>
<tr>
<th>Area</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care organisation</td>
<td>Structure, goals and values of the provider organisation</td>
</tr>
<tr>
<td>Clinical information systems</td>
<td>Computer information systems, reminder systems, chronic disease registries</td>
</tr>
<tr>
<td>Decision support</td>
<td>Integration of evidence based clinical guidelines into practice and reminder systems</td>
</tr>
<tr>
<td>Delivery system design</td>
<td>Teams with a clear division of labour; separating acute from planned care</td>
</tr>
<tr>
<td>Self management support</td>
<td>Helping patients, and their families, to acquire skills and confidence to manage their conditions</td>
</tr>
<tr>
<td>Community resources</td>
<td>Links to other providers</td>
</tr>
</tbody>
</table>
Improving chronic care in a systematic way, as described by the CCM, requires teamwork. Teamwork requires teamwork supported by practice systems and evidence-based guidelines. Implementing systems of care in general practice requires:

- Systems to ensure that patients’ clinical information is readily accessible and in a useful format, and includes disease registers and effective systems for recalling patients
- Systems to ensure clinical expertise and decision making is appropriate
- Provision of education and support to assist patients in managing their health
- Establishment and maintenance of good community links
- Teamwork between health providers.

Organisational factors for the management of musculoskeletal conditions

Team based care of arthritis and osteoporosis

The delivery of team-based care requires teamwork and organisational support. Practices vary in their capacity and motivation to embrace the resourcing and time required to build effective practice teams. General practice needs to be well organised to implement effective team-based management of chronic disease. Taggart et al. found that the roles of practice team members were poorly defined and suggested a range of strategies necessary for optimal teamwork which included:

- Engaging practice principles
- Formal team meetings and regular support from divisions of general practice
- Training different team members together so that they could appreciate each other’s skills.

Successful teamwork is characterised by:

- Leadership
- A shared sense of responsibility
- Common goals
- Cooperation
- Trust and respect
- Use of all team members’ skills
- Clear roles and responsibilities.

The team

The practice team can vary depending on the practice size, demographics, and availability of a range of professionals to deliver services to patients. The team could include:

- GPs
- Practice nurse
- Administration/reception staff
- Practice manager
- Pharmacist
- Physiotherapist
• community health and local government support services
• family and carers
• allied health providers (eg. dietician, exercise physiologist, mental health worker, occupational therapist, physiotherapist, psychologist, optometrist)
• other medical specialists (eg. endocrinologist, rheumatologist).

Teamwork also requires support by practice policies and systems. Organisational policy can provide a framework that maximises planned or episodic care by detailing the:
• roles and responsibilities of the team and individual team members
• aims of planned health interventions
• measurement and evaluation methods
• use of evidence based clinical guidelines
• establishment of clinical referral pathways
• method of data entry, extraction and tracking
• communication pathways
• business model.

Teamwork takes time and requires leadership, effective communication, training, and monitoring of the team culture within the practice. Teamwork and the team culture have been associated with better processes of care for patients with diabetes and better continuity of care, access to care, and patient satisfaction.19

Teamwork can be linked to delivering three levels of care that have been identified by the National Chronic Disease Strategy20:
• Level 1: With the right support, the vast majority (70–80%) of people with chronic disease can self manage by actively shaping their own healthcare
• Level 2: People who require disease/care management have access to multidisciplinary teams that provide high quality evidence based care. This means proactive management of disease, following agreed protocols and pathways for managing specific diseases
• Level 3: If complications and comorbidities exist or become more complex, key healthcare worker activity is in the management and joining up of care providers.

Nurse co-ordinated care
Multidisciplinary care has been identified in all the musculoskeletal guidelines as a priority for the management of this group of patients.

Practice nurses can be involved in the planned and monitored care of patients with these conditions, and are supported by the Enhanced Primary Care Program MBS item numbers. All of the conditions mentioned in this guide are considered chronic and therefore meet the criteria for GP Management Plans (GPMP) and Team Care Arrangements (TCAs) under the EPC Program.
Management plans

Figure 4 outlines the chronic disease management musculoskeletal flow chart for OA.

Chronic disease management
Musculoskeletal flow chart

Preparation of patient
Goal setting
GP Management Plan (GPMP) MBS Item 721

Team Care Arrangements (TCA) MBS Item 723

Home Medicine Review (HMR) MBS Item 900 and Residential Medication Management Review (RMMR)

Note:
Refer to the Medicare Benefits Schedule items/notes for details of fees and requirements
Check that no EPC item numbers have been claimed in the past 12 months

Note:
Consider involvement of community health service providers

Consider involvement of community health service providers

Role of practice nurse and/or allied health professional
Assists with:
• assessment of patient and documentation
• identification of patient needs
• provision of self-management information and other patient education or exercise (eg BHSM or ‘Active Scripts’)
• preparation of GPMP
• contacting services outlined in GPMP
• GP needs to confirm and assess with patient present
• review and reassessment of patient
• referral to community health or community rehabilitation programs
• inform patient of any expenses likely to be incurred as a result of involving other providers (note: patients eligible for Medicare rebates for up to five allied health consultations per year)
• facilitation of communication between GP and allied health professional to discuss their contribution to the TCAs – the treatment and services they will provide
• provision of copy of TCA to allied health professional, with patient’s agreement

* As from 1 May 2010 Item numbers 725 + 727 have been replaced by Item number 732. This provides a rebate for reviewing GPMP or TCA
A care plan is based on individual needs, appropriate specific interventions and goals negotiated with the patient. The aim is to optimise quality of life, prevent complications, provide knowledge and skills to self manage the disease and minimise the risk of adverse events. Figure 5 shows a GP Management Plan suitable for OA.

### GP MANAGEMENT PLAN – MBS ITEM 721 (OSTEOARTHRITIS)

<table>
<thead>
<tr>
<th>Patient’s name:</th>
<th>Date of birth:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact details:</td>
<td>Medicare or private health insurance details:</td>
</tr>
<tr>
<td>[Full address]</td>
<td>[Medicare number]</td>
</tr>
<tr>
<td>[Health insurance details]</td>
<td></td>
</tr>
<tr>
<td>Details of patient's usual GP:</td>
<td>Details of patient’s carer (if applicable):</td>
</tr>
<tr>
<td>[Doctor name]</td>
<td>[Doctor full address]</td>
</tr>
</tbody>
</table>

Date of last Care Plan/GP Management Plan (if done):

Other notes or comments relevant to the patient’s care planning:

| Date of weight bearing X-ray: | [date] |
| X-ray site:                  | [site] |
| X-ray severity               | [no changes, mild, moderate, severe] |
| Body mass index (BMI):       | [ ] |
| Girth circumference:         | [cm] |
| Number of falls in last 12 months: | [ ] |

**PAST MEDICAL HISTORY**
[Clinical details: History list]

**FAMILY HISTORY**
[Clinical details: Family history]

**MEDICATIONS**
[Clinical details: Medication list]

Medication self management issues  
[ ] Yes  [ ] No

**ALLERGIES**
### Patient’s name:

<table>
<thead>
<tr>
<th>What are the things that concern me?</th>
<th>What I need to do:</th>
<th>How important is this goal for me?</th>
<th>How will I go about reaching this goal?</th>
<th>Who will support me to reach this goal?</th>
<th>How am I going?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>*** Most important</td>
<td></td>
<td>My GP/practice nurse</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>** Important</td>
<td></td>
<td>My partner/family</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Less important</td>
<td></td>
<td>Physio</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Arthritis Foundation</td>
<td></td>
</tr>
</tbody>
</table>

#### 1. Education/self management

**I want to learn more about my OA.**

- I have been given information to help me locate an arthritis self management course in my local area.
- **I have been given information to help me locate an arthritis self management course in my local area.**
- **I have been given information to help me locate an arthritis self management course in my local area.**
- **I have been given information to help me locate an arthritis self management course in my local area.**
- **I have been given information to help me locate an arthritis self management course in my local area.**

**I want to know more about how to manage my OA.**

- **I have been given information about OA.**
- **I have been given information about OA.**
- **I have been given information about OA.**
- **I have been given information about OA.**
- **I have been given information about OA.**

#### 2. Assessed problems

**Pain**

- **I need to know more about what I can do to manage my pain.**
- **I have been given information about how to become involved in local activity programs.**
- **I have been given information about how to join an arthritis support group.**
- **I have been given information about how to become involved in local activity programs.**
- **I have been given information about how to join an arthritis support group.**

**Joint stiffness**

- **I want to know more about how to manage the stiffness in my joints.**
- **I have been given information about how to become involved in local activity programs.**
- **I have been given information about how to join an arthritis support group.**
- **I have been given information about how to become involved in local activity programs.**
- **I have been given information about how to join an arthritis support group.**

**Weight**

- **I need to know more about healthy eating and exercise so that I can manage my weight better.**
- **I have been referred to a dietician to help me work out a healthy eating plan that will suit me.**
- **I have been referred to a physiotherapist to help me work out a physical activity program that will suit me.**
- **I have been referred to a dietician to help me work out a healthy eating plan that will suit me.**
- **I have been referred to a physiotherapist to help me work out a physical activity program that will suit me.**

**Mood**

- **I need to understand how my OA problem affects my mood and how to manage this.**
- **I have been given information about how OA problems can affect my mood/emotional state.**
- **With the support of my GP and other health care professionals, I have developed a plan to help me manage my pain better.**
- **I have been referred to a physiotherapist to help me work out a physical activity program that will suit me.**
- **I have been referred to a physiotherapist to help me work out a physical activity program that will suit me.**

**Impact on daily activities**

- **I need to learn ways of making everyday activities easier for me to do.**
- **I have been referred to an occupational therapist to help me work out ways of making everyday activities easier for me to do.**
- **I have been referred to an occupational therapist to help me work out ways of making everyday activities easier for me to do.**
- **I have been referred to an occupational therapist to help me work out ways of making everyday activities easier for me to do.**
- **I have been referred to an occupational therapist to help me work out ways of making everyday activities easier for me to do.**

---

Original template compiled by Monash Division of General Practice, March 2006

Guideline for the non-surgical management of hip and knee osteoarthritis July 2009
### 3. Medication management

I need to have a better understanding of my medications, why I am taking them and how to use them.

<table>
<thead>
<tr>
<th>What I need to do</th>
<th>How important is this goal for me?</th>
<th>How will I go about reaching this goal?</th>
<th>Who will support me to reach this goal?</th>
<th>How am I going?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have discussed the importance of taking medication and why with my GP.</td>
<td><strong>Most important</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have been given the address for the consumer section of the NPS website.</td>
<td><strong>Important</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My doctor has advised me on what tests and physical checks are needed to detect and prevent side effects.</td>
<td><em>Less important</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My doctor has advised me on how to correctly use my medicines and what side effects I need to look out for.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. What do I do if my OA flares up?

I need to learn what to do if my OA gets bad ('flares up').

<table>
<thead>
<tr>
<th>What do I do if my OA flares up?</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Try rest, local ice packs, anti-inflammatory creams, increase my pain relief medicines</td>
<td></td>
</tr>
<tr>
<td>Make sure I am taking my medications as recommended</td>
<td></td>
</tr>
<tr>
<td>Arrange to see my GP</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>GP</th>
<th>Practice nurse</th>
<th>Physiotherapist</th>
<th>Rheumatologist</th>
<th>Orthopaedic surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GP</td>
<td>Pharmacist</td>
<td>HMR</td>
<td>Pharmacist</td>
<td>Home medication review</td>
</tr>
</tbody>
</table>

**Guideline for the non-surgical management of hip and knee osteoarthritis July 2009**

*Original template compiled by Monash Division of General Practice, March 2006*
Clinical information systems

Clinical information systems are used to organise patient, population and provider data. They are able to describe the health of a defined population and can be used to analyse data to provide improved quality of patient care. They can be used to record individual patient information as well as collate information to examine the health of populations, including those within an individual general practice or general practice network.

Disease registries

Implementation of disease registries will strengthen the ability of the team to manage chronic disease effectively. During a patient consultation there are opportunities to gather patient information and to ‘clean’ data that is already held in the patient’s medical file. A better understanding of the patient population offers the practice the capacity to plan for the future and set relevant targets.

Chronic disease is characterised by gradual onset, and therefore early detection can be effective in preventing the progression of disease. Early detection can only be effective if there are ways to actively follow up people who have been identified as having risk factors or early markers of disease, and recall and reminder systems serve as tools to remind patients and healthcare providers of this need.

Recall and reminder systems

Disease registries and effective practice based recall and reminder systems are vital to improve screening and early detection opportunities. The first step is to identify those at risk within the practice population. For patient data to be useful, it must be accurately entered and coded into the patient’s medical record. The practice team needs to establish a clear, consistent and agreed approach to data entry. Agreement also needs to be reached on common codes/terms used; this ensures consistent and quality data entry.

Clinical audit tools

In order to systematically manage patients with musculoskeletal conditions, the practice can use its software or additional tools such as Pen Computer Systems Pty Ltd Clinical Audit Tool (CAT) and Canning Tools to collect patient population for these conditions.

By identifying patients with musculoskeletal conditions, practices can target patients to ensure management goals are reached and preventive strategies implemented to prevent disease complications.
Decision support

In many areas of clinical practice there is a gap between what is evidence based and the care that is given. Only 7–20% of patients sustaining an osteoporotic fracture receive treatment for OP to prevent further fractures. Despite a high level of evidence, less than 30% of Australian women and fewer men take specific pharmaceutical and/or use appropriate vitamin/mineral supplements for their existing OP. Only 20% of Australians with OP report exercising most days.

It is recommended by the RACGP that wherever possible clinical support be incorporated into daily practice through the availability of clinical guidelines. It is also recommended that clinical guidelines or prompts be integrated into information systems available in general practice. Such integration will decrease variability in clinical practice and promote a collaborative approach to problem solving by both practitioner and patient.

Guidelines

Guidelines are sets of ‘nonmandatory rules, principles or recommendations for procedures or practices in a particular field’. They are systematically developed and provide evidence based information to clinicians. By using this information, clinicians can then make decisions on appropriate healthcare for specific circumstances. The guidelines for musculoskeletal diseases have been developed for this purpose and are freely available on the RACGP website.
Section 4

Self management

Medication adherence relates to the extent to which patients conform to taking their medications at the correct time, in the agreed dose, and as frequently as recommended. Approximately 50% of people with a chronic condition do not take their medications in the dosages recommended by their prescribers. Practice nurses can assist patients to assess medication adherence by nonjudgmental questions about:

- how often they miss a dose
- their understanding of why they don’t take their medications regularly
- their experience with side effects
- reasons for taking medications
- benefits of taking medications.

Patients can be referred for a Home Medicines Review if they meet the appropriate criteria. ‘Chronic condition self management involves the person engaging in activities that protect and promote health, monitoring and managing of symptoms and signs of illness, managing the impacts of illness on functioning, emotions and interpersonal relationships and adhering to treatment regimens’. Medication adherence is one of these areas.

Although it is ultimately a patient’s decision whether they follow a recommended treatment or not, practice nurses are in a prime position to influence patient behaviour. By understanding patients’ attitudes to health and their conditions, practice nurses can assist and engage patients in the management of their chronic illnesses and assist with changes to health behaviours.

All the approaches outlined below can be used in any combination(s) depending on the patient’s needs and the nurse’s skill.

Stages of change

The Transtheoretical Model of Behaviour Change developed by Prochaska and DiClemente, is commonly referred to as the ‘stages of change’ model and is widely used to determine patient readiness for change in many clinical settings. The model recognises that:

- behaviour change does not occur in a linear fashion
- patients progress through predictable stages of change before reaching an action stage
- every stage of change is necessary because people learn from each stage, and
- one intervention cannot be applied to all patients as some will be at different stages of ‘readiness’ than others.

*Table 3* outlines each stage and the recommended approach suitable to that stage.
Motivational interviewing is a useful skill to assist health professionals in helping patients to change their health related behaviour by exploring and resolving their ambivalence. Patients will be motivated to change if they can see that there is a benefit to that change and that the costs of maintaining their current behaviour are high.
The 5As

The 5As is a structured approach that focuses on particular risks and offers information which can be delivered in a short timeframe. It is based on five roles and each is the same for each risk factor identified.

1. **Ask** – identify patients with risk factors
2. **Assess** – the level of risk factor and its relevance to the patient
3. **Advise** – provide written information, brief advice (evidence based) and motivational interviewing
4. **Assist** – by identifying barriers and problem solving to deal with them
5. **Arrange** – a specific follow up plan including referral, social support, telephone information and/or GP follow up.

Health literacy

Health literacy is defined as ‘the knowledge and skills required to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy’. As well as being able to read, write and understand numbers in the healthcare setting, patients need to be able to understand and interpret the meaning of health information. People with limited health literacy have less knowledge about the importance of preventive healthcare measures and are less able to participate in chronic disease management.

*Figure 6* indicates the elements to consider in a patient centred approach to care.

Using strategies such as sitting down with the patient and using plain language, diagrams and written materials in the appropriate language, may help to improve the patient’s level of understanding of their condition.
Desktop guide

The desktop guide is available for practice nurses to use when speaking with patients about a planned and shared approach to managing their health (Figure 7).

**Figure 7. Desktop guide for nurses and allied health professionals**

### Sharing Health Care: Chronic Condition Self-Management Guidelines

**Desktop guide for Nurses and Allied Health Professionals**

- **Planning**
  - Together with the client
  - Determine stage of change
  - Determine specific goals
  - Prioritise goals
  - Identify outcomes
  - Determine realistic timelines
  - Select interventions
  - Document the care plan

- **Management**
  - Select appropriate role of strategies depending on:
    - Context
    - Goals
    - Availability of resources
    - Quality of resources
    - Personal capacity

- **Monitoring & systematic follow-up**
  - Types of measures:
    - Physiological
    - Clinical
    - Quality of life

- **Does the client have a chronic condition?**
  - Yes
    - Does the client present with lifestyle risk factors?
      - Yes
        - Not thinking of change
          - Reflective listening (empathic approach)
          - Effective questioning
          - Provide objective information in a non-judgemental manner
          - Explore barriers
          - (Note: action-oriented manage not appropriate at this stage)
          - Thinking of change
            - Reflective listening (empathic approach)
            - Empathy
            - Effective questioning
            - Provide objective information in a non-judgemental manner
            - Encourage ownership of problem
            - Increase awareness of negative consequences
            - Recognise how situations affect illness
            - Ready for change
              - Encouragement
              - Empathy
              - Goal setting
              - Support for self-efficacious behaviour
            - Changing behaviour
              - Encourage stimulus control eg manipulating environment and removing cues
              - Skills training interventions
              - Encourage support from others
            - Maintaining change and relapse
              - Do not view relapses as failure but as a way to gain knowledge of triggers
              - Increase awareness of environmental and internal stimuli that trigger problem behaviours
        - Use a client-controlled approach to
          - Define the problem:
            - Impact of illness
            - Symptoms of illness
            - Lifestyle factors
          - Strengths and barriers
          - With the client determine factors that will affect or her capacity for self-management
      - No
        - Monitor risk factors for condition at subsequent visits as appropriate

- **Determine stage of change**
  - In client considering taking action within 6 months?
    - Yes
      - Important factors to address:
        - Medication use
        - Behaviour change related to lifestyle and activities
        - Pain control
        - Adjustment to change
        - Coping with emotional reactions
        - Effective use of community resources
        - Changes in disease/symptoms
      - Has the client made efforts to modify life or her habits and environment?
        - Yes
          - Has the client maintained healthy behaviours for at least 6 months?
            - Yes
              - Approaches to self-management:
                - Education
                - Self-management program
                - Symptom action plan
                - Diary
                - Motivational interviewing
                - Peer support
            - No
              - Changing behaviour
                - Encourage stimulus control eg manipulating environment and removing cues
                - Skills training interventions
                - Encourage support from others
            - Maintaining change and relapse
              - Do not view relapses as failure but as a way to gain knowledge of triggers
              - Increase awareness of environmental and internal stimuli that trigger problem behaviours
        - No
          - Not thinking of change
            - Reflective listening (empathic approach)
            - Effective questioning
            - Provide objective information in a non-judgemental manner
            - Explore barriers
            - (Note: action-oriented manage not appropriate at this stage)
          - Thinking of change
            - Reflective listening (empathic approach)
            - Empathy
            - Effective questioning
            - Provide objective information in a non-judgemental manner
            - Encourage ownership of problem
            - Increase awareness of negative consequences
            - Recognise how situations affect illness
            - Ready for change
              - Encouragement
              - Empathy
              - Goal setting
              - Support for self-efficacious behaviour
            - Changing behaviour
              - Encourage stimulus control eg manipulating environment and removing cues
              - Skills training interventions
              - Encourage support from others
            - Maintaining change and relapse
              - Do not view relapses as failure but as a way to gain knowledge of triggers
              - Increase awareness of environmental and internal stimuli that trigger problem behaviours
    - No
      - Is client considering taking action within the next 30 days?
        - Yes
          - Important factors to address:
            - Medication use
            - Behaviour change related to lifestyle and activities
            - Pain control
            - Adjustment to change
            - Coping with emotional reactions
            - Effective use of community resources
            - Changes in disease/symptoms
        - No
          - Not thinking of change
            - Reflective listening (empathic approach)
            - Effective questioning
            - Provide objective information in a non-judgemental manner
            - Explore barriers
            - (Note: action-oriented manage not appropriate at this stage)
          - Thinking of change
            - Reflective listening (empathic approach)
            - Empathy
            - Effective questioning
            - Provide objective information in a non-judgemental manner
            - Encourage ownership of problem
            - Increase awareness of negative consequences
            - Recognise how situations affect illness
            - Ready for change
              - Encouragement
              - Empathy
              - Goal setting
              - Support for self-efficacious behaviour
            - Changing behaviour
              - Encourage stimulus control eg manipulating environment and removing cues
              - Skills training interventions
              - Encourage support from others
            - Maintaining change and relapse
              - Do not view relapses as failure but as a way to gain knowledge of triggers
              - Increase awareness of environmental and internal stimuli that trigger problem behaviours

Developed by the Royal Australian College of General Practitioners. Funded by Commonwealth Department of Health and Ageing
Section 5

Case studies

Case study 1: Osteoarthritis

Patrice, the PN, has identified Mrs Jones as needing a health assessment. Mrs Jones is 76 years of age and has a diagnosis of osteoarthritis. She lives alone in an area with few community supports for the aged and disabled.

She discloses that her husband died 3 years ago of a sudden heart attack at home and she has little contact with her son and daughter as their own families keep them busy.

Patrice observes that Mrs Jones has an unsteady gait and complains of chronic bilateral knee pain and this makes it difficult for her to do the shopping. She also sometimes forgets to take her medications. Mrs Jones appears overweight and undertakes little physical activity since she has stopped playing bowls 4 months ago. She tells Patrice her husband used to help her with all the housework, and then she begins to cry. Patrice notices that there is little fresh food in the house and that the house is unkempt with rugs scattered everywhere.

Mrs Jones also reveals that she has had a few small falls, particularly on the steps at the rear of the house.

Based on a falls assessment Patrice determines that Mrs Jones is a high risk of falls because of:
- her recent falls
- being overweight
- living alone (risk of more serious consequences of a fall)
- her age
- an unsteady gait
- OA in her knees causing decreased mobility and function
- trip hazards in the home.

Patrice then assesses Mrs Jones for signs of visual and hearing impairment.

As part of the health assessment Patrice checks Mrs Jones for signs of dementia by asking questions such as: “How is your memory?” and performing a Mini-Mental State Examination.

As Mrs Jones is teary, is socially isolated, and has a chronic illness, Patrice decides to perform a screening test for depression. Mrs Jones’ mood is also influenced by the recent increase in pain in her right knee and the stiffness that she feels in both knees in the mornings.

Before leaving the house Patrice suggests that Mrs Jones would benefit from a detailed discussion with her GP about several issues including:
- weight reduction
- pain relief
- counselling
• referral to ACAT
• her risk of fracture
• referral to local council for aged care social services
• planned appointments for her ongoing care and monitoring to prevent complications
• immunisation to cover seasonal influenza and pneumococcal disease.

In the interim, Patrice recommends that Mrs Jones try the following measures to improve her quality of life:
• take the regular paracetamol which has been recommended by her GP
• think about changes to her diet
• remove the rugs from around the house.

Mrs Jones decides to stop wearing her magnetic bracelet as she has worn this for some months with no benefit.

The GPMP identified issues for discussion by the GP and the practice nurse:
• osteoporosis assessment (GP)
• falls prevention education (PN refers for occupational therapy assessment)
• weight assessment (PN)
• exercise for strength and toning
• age appropriate health checks and immunisations (PN)
• building long term ability for self care (GP, PN)
• formal assessment for depression, developing a mental health care plan for treatment (GP).

Agreement was sought from the following providers for participation in a Team Care Arrangement (TCA):
• an optometrist (falls risk)
• an exercise physiologist or physiotherapist (help with depression, muscle tone, balance, weight loss, bone health). Patrice telephoned the exercise physiologist to check that there was a good prospect of finding some appropriate exercise and that they understood there may be motivational issues to be addressed due to Mrs Jones’ depression
• a psychologist for depression, to seek agreement and contribution to a TCA. Mrs Jones and the PN agreed on an appointment schedule to include a monthly review with the PN and a bimonthly review with the GP.

Following the GP consultation, a discussion is held on options for future management and monitoring of Mrs Jones’ health. Issues to be addressed include:
1. Optimise her weight: aim for realistic weight loss (eg. 5–10 kg/year)
   • consider nutritional education, cognitive behavioural therapy, low energy diet, exercise regimen
2. Improve physical activity
   • land based exercise program
   • water aerobics
   • multimodal physical therapy
   • tai chi (especially if at risk/fear of fall)
3. Nonpharmacological pain management
   • consider thermotherapy, TENS or acupuncture
4. Pharmacological therapy

Short term
- simple analgesia (paracetamol)
- oral NSAIDs/COX-2 inhibitors
- intra-articular corticosteroids
- topical NSAIDs

Longer term
- simple analgesia (paracetamol)
- weak and strong opioids
- viscosupplementation (5–13 weeks for OA knee)
- consider surgery.

Following the consultation and discussion Mrs Jones is referred back to Patrice for ongoing monitoring, education and support. The GPMP and TCA are all completed. Mrs Jones agrees that she would benefit from care plan arrangements.

Patrice uses pamphlets from Arthritis Australia to help Mrs Jones understand OA and the importance of exercise and muscle tone in managing her pain.

Ongoing monitoring by Patrice includes:
- BP
- weight/height (BMI)
- medication compliance, and
- support and encouragement to self manage her condition as much as possible.

**Outcome**

Over the next 6 months, Patrice consulted with Mrs Jones four times. She lost 5 kg in weight and had commenced biweekly hydrotherapy sessions at the local leisure centre. Her mood lifted, she became more optimistic and made some social contacts through a local exercise group she started attending.

**Business case**

Eligible MBS items related to this OA case study:
- Item 707: Prolonged health assessment lasting more than 60 minutes, OR
- Item 701: Brief health assessment of less than 30 minutes duration
- Item 721: Preparation of a GP Management Plan + review in 3 months
- Item 723: Coordinate the development of Team Care Arrangements + review in 3 months
- Item 10993: Nurse immunisation
- Item 10997: Nurse support related to care plan x 4
- Home Medicines Review on completion.

Note: This case study highlights the problem of osteoarthritis and it is recognised that other health issues may also be identified in a health assessment.
Case study 2: Osteoporosis

Naomi, the PN at Merry Hills General Practice, has an interest in women’s health and performs about 50% of the Pap tests at the practice (there is no female GP available). Margaret, aged 68 years, has an appointment with Naomi today for a Pap test.

Margaret is usually well, however today she is complaining about thoracic back pain (she tripped over the cat last week). As part of the healthy women’s check, Naomi initiates a discussion with Margaret on several preventive health issues including her weight, her smoking, her level of physical activity and breast cancer screening. As part of these discussions, the issue of OP risk factors arises and the possibility a new vertebral fracture.

OP evaluation includes:
• OP risk evaluation (using the nomograms as an aid to discussion)
• ascertaining whether Margaret’s BMI is low
• checking Margaret’s mobility; ascertaining whether the fall caused her residual thoracic back pain.

Naomi reports her nursing assessment to the GP, as he may consider diagnostic assessment.

Education for Margaret includes:
• dietary intake with diet high in calcium (1200 mg/day)
• adequate safe sun exposure for vitamin D absorption
• smoking cessation
• adequate physical activity
• advice on falls prevention
• limit alcohol and caffeine intake
• 2 yearly Pap test until 70 years of age
• 2 yearly breast cancer screening until 70 years of age
• breast awareness messages.

After further clinical examination and investigations the GP diagnoses Margaret with OP.

A GPMP is developed by the GP and Naomi and he refers Margaret back to Naomi for ongoing management, education and support. At the next appointment Naomi:
• reviews the GPMP confirming Margaret’s health goals and self management
• provides educational resources for optimal nutrition and physical activity
• reviews Margaret’s immunisation status and provides an influenza vaccine.

A recall and reminder system was established for Margaret with:
• 3 monthly GPMP practice support reviews with the nurse
• 6 monthly GPMP reviews with the GP
• Repeat Pap test and mammogram in 2 years.
**Business case**

Eligible MBS items related to this OP case study:
- Item 721: GPMP
- Item 732: GPMP review
- Item 10993: Nurse immunisation
- Item 10997: Nurse support related to care plan
- Item 10994: Nurse Pap and preventive health check.

**Case study 3: Rheumatoid arthritis**

Bert, 45 years of age, is an accountant who is married with twin 12 year old boys. Bert was diagnosed with rheumatoid arthritis by his GP 3 months ago. He presents with worsening joint pain, stiffness and severe fatigue. The GP referred him to a rheumatologist for specialist management.

On presenting to the practice nurse Kelly for a 45-49 Year Old Health Check, Bert tells Kelly that the pain is really affecting him. He tells Kelly he cannot sleep and feels incredibly tired and down all the time. His wife and children now mow his once manicured lawns, and this upsets him. He feels he cannot concentrate at work, and is feeling stressed that he may be sacked.

Kelly discusses with Bert the outcomes of his consultation with the rheumatologist. Bert tells Kelly that he thought the specialist would give him a ‘heap of pills’ to help cheer him up and make him sleep, but never realised that he would have this problem forever.

After discussion with the GP, Kelly completes a GPMP.

**Issues discussed**

**Strategies to prevent acute flare-ups**
- Psychological counselling including treatment for depression
- Family adjustments
- Pharmacological strategies as prescribed by specialist (DMARDs)

**Nonpharmacological strategies**
- Omega-3 supplements
- GLA supplements

**Team care planning**
- Referral to occupational therapist for splints
- Referral to physiotherapist for exercises
- Referral to an arthritis support group.

**Other health professionals that could be considered**
- Orthopaedic surgeon
- Dietician
- Podiatrist
- Pharmacist for Home Medicines Review
- Social worker.
Ongoing monitoring for Bert includes:
- monitoring for cardiovascular risk factors
- monitoring safety and side effects of DMARDs as guided by the specialist
- smoking
- obesity
- physical inactivity
- hypercholesterolaemia
- hypertension
- diabetes.

Care plan review should initially be attended 3 monthly, and then once Bert’s symptoms are controlled, review every 6 months. The review should include:
- weight, height and BMI
- specialist review, especially while on DMARDs
- mood
- sleep
- activities of daily living/work
- fatigue
- annual foot review
- reminding Bert of the need for a rheumatology review.

**Outcome**

After several consultations with his GP and rheumatologist, Bert appears to be able to manage his symptoms more easily, is sleeping better with the help of relaxation exercises and simple regular analgesia. He has begun taking fatty acid supplements and has made lifestyle changes that have incorporated more family activities.

**Business case**

**Practice nurse involvement in musculoskeletal management**

This section outlines the business case for nursing involvement in the clinical care of a patient with a musculoskeletal condition in two parts:
- Comprehensive assessment
- Patient care and management where the patient has a chronic or terminal condition.

Two additional points should be kept in mind.

1. Apart from clinical care, nurses may also have a crucial role in the design, management and monitoring of practice systems that support the delivery of musculoskeletal care. This role can be subsidised through finances received through MBS items for care plans and case conferences, or through practice nurse PIP payments. There are no specific MBS rebates available for these important roles.
2. Even where there is not a business case for nursing involvement in aspects of care, individual practices may still decide that nursing involvement is warranted and will choose to subsidise the provision of this care from other funding sources.
MBS payments

Funding available through MBS item numbers is summarised in Table 4, and spelt out in more detail later.

Table 4. Funding available through MBS item numbers

<table>
<thead>
<tr>
<th>Service type</th>
<th>Musculoskeletal condition that is chronic and/or terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehensive assessment</strong></td>
<td>The nurse can contribute to components of the health assessment items, if the patient is eligible: #701, #703, #705, #707, #715</td>
</tr>
<tr>
<td><strong>Patient care and management</strong></td>
<td>Care planning items: #721, #723, #729, #731, #732, #10997</td>
</tr>
<tr>
<td></td>
<td>Case conferencing items: #735, #739, #743, #747, #750, #758</td>
</tr>
<tr>
<td><strong>Design, management and monitoring of practice systems</strong></td>
<td>Nil</td>
</tr>
</tbody>
</table>

Practice Incentive Payments

If a practice is registered for Practice Incentive Payments (PIPs), they may also claim the Practice Nurse Incentive PIP. The level of payment to practices varies depending on the practice population and rurality. The payment is intended to subsidise a minimum of two nursing sessions per week over the payment quarter.

Patient co-payments

At the discretion of the practice, patients may be charged a payment for nursing services. This is allowable when the patient is privately billed. However, Medicare rules state patient co-payments for nursing services aside from vaccinations cannot be levied where the patient is being bulk-billed.

Comprehensive assessment

Patients presenting with a musculoskeletal complaint are eligible for comprehensive health assessments, funded by time based MBS Items 701–707, if they are:

- 45–49 years of age and at risk of developing a chronic disease
- 40–49 years of age with a high risk of developing type 2 diabetes mellitus, as determined by the Australian Type 2 Diabetes Risk Assessment Tool
- 75 years of age and older
- a permanent resident of a residential aged care facility
- a refugee or other humanitarian entrant, or
- a person with an intellectual disability.

These items are summarised in Table 5.
Table 5. MBS item numbers for comprehensive health assessments

<table>
<thead>
<tr>
<th>Item</th>
<th>Item name</th>
</tr>
</thead>
<tbody>
<tr>
<td>#701</td>
<td>Brief health assessment of less than 30 minutes duration</td>
</tr>
<tr>
<td>$55.00</td>
<td></td>
</tr>
<tr>
<td>#703</td>
<td>Standard health assessment lasting more than 30 minutes but less than 45 minutes</td>
</tr>
<tr>
<td>$127.80</td>
<td></td>
</tr>
<tr>
<td>#705</td>
<td>Long health assessment lasting more than 45 minutes but less than 60 minutes</td>
</tr>
<tr>
<td>$176.30</td>
<td></td>
</tr>
<tr>
<td>#707</td>
<td>Prolonged health assessment lasting more than 60 minutes</td>
</tr>
<tr>
<td>$249.10</td>
<td></td>
</tr>
<tr>
<td>#715</td>
<td>Aboriginal and Torres Strait Islander people health assessment</td>
</tr>
<tr>
<td>$196.65</td>
<td></td>
</tr>
</tbody>
</table>

According to the MBS, ‘practice nurses may assist medical practitioners in performing the health check, in accordance with accepted medical practice and under the supervision of the medical practitioner. This may include activities associated with:

• information collection, and
• providing patients with information about recommended interventions at the discretion of the medical practitioner’.

The time taken by the nurse during their contribution to the health assessment can be included in the total time for the health assessment. For example if the nurse takes 30 minutes and the GP 20 minutes, a long health assessment lasting more than 45 minutes but less than 60 minutes (Item #705) may be claimed.

Clinical services for chronic/terminal musculoskeletal conditions

Patients presenting with a musculoskeletal complaint that is deemed to be a chronic or terminal condition are eligible for a multidisciplinary care plan and associated reviews and services related to that care plan.

The MBS definition of a chronic condition is ‘one that has been or is likely to be present for at least 6 months, including but not limited to asthma, cancer, cardiovascular illness, diabetes mellitus, musculoskeletal conditions and stroke. Therefore a patient presenting with occupationally related lower back pain that may be cured within 6 months does not have a chronic condition and is not eligible for a care plan (#721, #731), however a patient diagnosed with rheumatoid arthritis is eligible. These items are summarised in Table 6.'
Table 6. Chronic conditions and the MBS

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item name</th>
</tr>
</thead>
<tbody>
<tr>
<td>721</td>
<td>Preparation of a GP Management Plan</td>
</tr>
<tr>
<td>723</td>
<td>Coordinate the development of a Team Care Arrangement</td>
</tr>
<tr>
<td>729</td>
<td>Contribution to a multidisciplinary care plan prepared by another provider or to a review of a multidisciplinary care plan prepared by another provider</td>
</tr>
<tr>
<td>731</td>
<td>Contribution to a multidisciplinary care plan for a patient in a residential aged care facility prepared by that facility, or a review of such a plan Or contribution to a multidisciplinary care plan prepared for a resident by another provider before the resident is discharged from a hospital or an approved day hospital facility, or to a review of such a plan prepared by another provider</td>
</tr>
<tr>
<td>732</td>
<td>Review of a GP Management Plan, or coordination of a review of a Team Care Arrangement</td>
</tr>
<tr>
<td>10997</td>
<td>Service provided to a person with a chronic disease by a practice nurse or registered Aboriginal health worker if: (a) the service is provided on behalf of and under the supervision of a medical practitioner; and (b) the person is not an admitted patient of a hospital; and (c) the person has a GP Management Plan, Team Care Arrangement or Multidisciplinary Care Plan in place; and (d) the service is consistent with the GP Management Plan, Team Care Arrangement or Multidisciplinary Care Plan</td>
</tr>
</tbody>
</table>

According to the MBS, ‘a practice nurse... may assist a GP with items 721, 723, and 732 (e.g., in patient assessment, identification of patient needs and making arrangements for services). However, the GP must review and confirm all assessments and arrangements, and see the patient.’
**Business case**

The business case for the involvement of a nurse in musculoskeletal care is strongest when the patient’s musculoskeletal condition is chronic. These conditions include, but are not limited to:

- All cases of arthritis, including
  - osteoarthritis
  - rheumatoid arthritis
  - ankylosing spondylitis
  - septic arthritis
  - psoriatic arthritis
  - juvenile idiopathic arthritis
- Chronic cases of gout
- Chronic cases of articular (joint) disorders, which can be accompanied with arthritis
- Chronic muscular diseases causing musculoskeletal problems
- Chronic neurological disorders causing musculoskeletal problems.

**Case study 1. Patient presenting with chronic disease and complex care needs (fully bulk-billed)**

An elderly 77 year old patient that is new to the practice presents with suspected osteoarthritis. At the first consultation, the GP organises investigations to test for OA and decides the patient would benefit firstly from a comprehensive health assessment, which takes 50 minutes. After the assessment is completed and the test results are received, the patient is recalled and it is decided they would benefit from a comprehensive multidisciplinary care plan including both a GP Management Plan and a Team Care Arrangement.

In this case, the nurse can be involved in the assessment and care planning and can be funded through the claiming of the associated items. Within a 12 month period, the practice can claim items #705, #721, #723, #732 and #10997.

<table>
<thead>
<tr>
<th>Service</th>
<th>Item</th>
<th>Nurse role</th>
<th>Nurse time taken</th>
<th>GP time taken</th>
<th>MBS remuneration (bulk-billed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard consultation</td>
<td>#23</td>
<td>Nil</td>
<td>0</td>
<td>15 minutes</td>
<td>$34.30</td>
</tr>
<tr>
<td>Long health assessment</td>
<td>#705</td>
<td>Patient education and collects patient information to provide to GP to complete assessment</td>
<td>35 minutes</td>
<td>15 minutes</td>
<td>$176.30</td>
</tr>
</tbody>
</table>
### GP Management Plan

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>721</td>
<td>Patient education and collects patient information to provide to GP to</td>
<td>35 min</td>
<td>$133.65</td>
</tr>
<tr>
<td></td>
<td>complete plan</td>
<td>15 min</td>
<td></td>
</tr>
</tbody>
</table>

### Team Care Arrangement

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>723</td>
<td>Liaison with other providers, collection of patient information to provide</td>
<td>35 min</td>
<td>$105.90</td>
</tr>
<tr>
<td></td>
<td>to GP to complete plan</td>
<td>15 min</td>
<td></td>
</tr>
</tbody>
</table>

### Review of Team Care Arrangement

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>732</td>
<td>Nurse liaises with other providers, collects patient information to provide</td>
<td>20 min</td>
<td>$66.80</td>
</tr>
<tr>
<td></td>
<td>to GP to complete plan</td>
<td>10 min</td>
<td></td>
</tr>
</tbody>
</table>

### Provision of five services for patient associated with their care plan

<table>
<thead>
<tr>
<th>#</th>
<th>Description</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10997</td>
<td>Nurse monitors patient’s adherence to care plan, provides health coaching</td>
<td>15 min</td>
<td>$11.35</td>
</tr>
<tr>
<td></td>
<td>and patient information, and assists in making further appointments</td>
<td>0 min</td>
<td>$11.35</td>
</tr>
</tbody>
</table>

Total remuneration over 12 months: $573.70

Total nursing time spent: 3 hours and 20 minutes

Total nursing cost: 3.33 hours x ($29/hr + 20% on-costs) = $115.99

Total GP time spent: 70 minutes

Total GP cost: 1.17 hours x $130/hr = $152.10

Total GP and PN cost: $268.09

Remuneration minus GP/nurse costs (to be spent on systems, equipment, administrative costs or for profit): $305.61.

Resources

Arthritis Australia
www.arthritisaustralia.com.au

Australian Association of Occupational Therapists
www.ausot.com.au

Australian Hand Therapy Association
www.ahta.com.au

Australian Institute of Health & Welfare
www.aihw.gov.au

Australian Medicines Handbook
www.amh.hcn.net.au

Australian Rheumatology Association (ARA)
www.rheumatology.org.au

ARA patient medication information sheets
www.rheumatology.org.au/community/

Carers Australia
www.carersaustralia.com.au

RACGP ‘greenbook’
www.racgp.org.au/guidelines/greenbook

Independent Living Centres
www.ilcaustralia.org

International Osteoporosis Foundation
www.iofbonehealth.org

MBS Online
www.mbsonline.gov.au

National Health and Medical Research Council (NHMRC)
www.nhmrc.gov.au

National Prescribing Service
www.nps.org.au

National Osteoporosis Foundation US
www.nof.org

National Osteoporosis Society UK
www.nos.org.uk

Osteoporosis Australia
www.osteoporosis.org.au

RACGP ‘redbook’
www.racgp.org.au/guidelines/redbook

Sleep Disorders Australia
www.sleepoz.org.au

The Royal Australian College of General Practitioners (RACGP)
www.racgp.org.au

Therapeutic Guidelines
www.tg.com.au
Appendices

Appendix 1.

Diagnosis and management of hip and knee osteoarthritis

This algorithm applies to adults aged more than 18 years presenting with suspected hip or knee osteoarthritis. Refer to RACGP Clinical guidelines for musculoskeletal diseases for more information on recommendations and grading of evidence www.racgp.org.au/guidelines/musculoskeletaldiseases

PROBABLE OA

Common presentations

Management mild-moderate persistent symptoms
- Simple analgesia (A)
- Regular paracetamol (maximum 4 g/day)
And/or
- Trial short term
  - topical NSAIDs (C)
  - topical capsaicin (D)
If symptoms persist:
- trial short term oral NSAID (B)
- monitor blood pressure, renal function

ConsideR impact of comorbidities
Nutritional assessment (BMI, girth)
Falls risk assessment, function, impairment
Consider other impacts
Psychosocial assessment (emotional disability eg. depression, anxiety), sleep, mobility, activities of daily living
NSAID risk
Age, hypertension, upper GIT events, cardiovascular, renal or liver disease
Medication risk
Polypharmacy, aspirin allergy, diuretics, ACEIs, anticoagulants
Patient’s knowledge, expectations and goals

Consider referral
Eg. severe OA and fails to respond to conservative therapy

EXCLUDE
OA may present in other ways. Investigations to rule out alternative diagnoses (if needed based on clinical judgment): laboratory tests (eg. ESR, RRF, synovial fluid analysis); and radiographs (particularly weight bearing X-rays, however findings are often nonspecific)

CONSIDER
Trauma, soft tissue conditions, referred pain syndromes, inflammatory arthritis (eg. rheumatoid, psoriatic), septic/crystal arthritis, haemarthrosis

Moderate-severe persistent symptoms in those whom mild-moderate strategies have not been successful
Check use of strategies for mild-moderate. Then consider:
- Continued oral NSAID (with caution)
- Viscosupplementation for the knee* (eg. hyaluronate 5–13 weeks for OA knee) (C)
- Opioid therapy (A) for severe symptoms where surgery is contra-indicated or not yet available

Management of an acute flare of symptoms
Manage as for mild-moderate, stepping up/adding therapy as needed
And/or
Intra-articular corticosteroid injection (B)

Short term pharmacological therapy
- Simple analgesia (paracetamol) (A)
- Oral NSAIDs/COX-2 inhibitors (with caution) (B)
- Viscosupplementation (eg. hyaluronate 5–13 weeks for OA knee) (C)

Long term pharmacological therapy
- Simple analgesia (paracetamol) (A)
- Weak and strong opioids (with caution) (A)
- Viscosupplementation* (eg. hyaluronate 5–13 weeks for OA knee) (C)

Assess nonpharmacological interventions for all patients according to individual need at all stages of OA

OPTIMISE WEIGHT (B)
- Optimal weight BMI 18.5–25
- Combination of two or more interventions: nutrition education, cognitive behavioural therapy, low energy diet, exercise regimen, dietician referral

ALLIED HEALTH INTERVENTIONS
- Land based exercise program (B)
- Aquatic therapy (C)
- Multimodal physical therapy (C)
- Tai chi (especially if at risk/ fear of fall) (C)
- Thermotherapy (C)
- TENS (C)
- Acupuncture (C)
- Patellar taping (D)
- Massage therapy (D)
- Low level laser therapy (D)

EDUCATION AND SELF MANAGEMENT SUPPORT
Self management and education programs (C)
Telephone support (D)
Review
- Complementary therapies
- Activities of daily living
- Sleep, mood
- Medication and self care adherence
- Consider referral to pharmacist for home medication review

Complete joint replacement surgery referral for orthopaedic assessment

*Procedure of administering synthetic hyaluronic acid products into the joint via intra-articular injection
### Diagnosis and management of hip and knee osteoarthritis

**SELECTED PRACTICE TIPS (SEE THE FULL GUIDELINE FOR MORE TIPS AND FURTHER DETAILS)**

www.racgp.org.au/guidelines/osteoarthritis

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral NSAIDs</td>
<td>Good evidence for NSAIDs or COX-2 inhibitors for reducing pain in the short term for hip or knee OA (Recommendation 21 B)</td>
</tr>
<tr>
<td></td>
<td>Caution: In those at risk (e.g. elderly) the use of other medications, especially ACEIs, ARBs and diuretics. Monitor BP and renal function. For patients with high NSAID risk for GIT problems where NSAIDs are considered necessary, prescribe a traditional NSAID plus a PPI or COX-2 inhibitor. There is a higher risk of adverse events for patients with concomitant use of diuretics, ACEIs, angiotensin 2 receptor blockers, cyclosporin, warfarin, oral corticosteroids or aspirin</td>
</tr>
<tr>
<td>Topical NSAIDs</td>
<td>Some evidence to support short term treatment of knee OA with topical NSAIDs (Recommendation 24 C)</td>
</tr>
<tr>
<td>Intra-articular corticosteroid injection</td>
<td>Good evidence to support intra-articular corticosteroid injections for short term treatment of knee and hip OA (Recommendation 23 B)</td>
</tr>
<tr>
<td>Glucosamine</td>
<td>Conflicting evidence of benefit for glucosamine sulphate and glucosamine hydrochloride in the treatment of the symptoms of knee OA (Recommendation 27 C). There is insufficient evidence to support benefit for preventing progression of OA knee cartilage loss. In all reported studies, glucosamine was safe compared to placebo</td>
</tr>
<tr>
<td>Opioids</td>
<td>Opioids have a modest effect in managing moderate to severe OA pain in patients for whom paracetamol is ineffective, and who do not respond to, or have contraindications for, NSAIDs. However, most of the research on opioid use has been in short term trials and long term efficacy has not been shown</td>
</tr>
</tbody>
</table>

**Pharmacological management**

- Land based exercise
- Aquatic exercise
- Multimodal physical therapy
- Magnetic bracelets
- Weight loss
- Walking aids

**Nonpharmacological interventions**

- Braces and orthoses
- Electromagnetic fields
- Chondroitin sulphate
- Therapeutic ultrasound
- Topical capsaicin

**Interventions not supported by current evidence**

- Aquatic exercises
- Land-based exercise
- Electromagnetic fields
- Chondroitin sulphate
- Nonsteroidal anti-inflammatory drugs
- Opioids

**FOR DETAILED PRESCRIBING INFORMATION**

National Prescribing Service www.nps.org.au
Therapeutic Guidelines www.tg.com.au
Australian Medicines Handbook www.amh.net.au

**PATIENT SERVICES**

Arthritis Australia www.arthritisaustralia.com.au
Australian Rheumatology Association www.rheumatology.org.au

**NHMRC grades of recommendations**

- **A** Body of evidence can be trusted to guide practice
- **B** Body of evidence can be trusted to guide practice in most situations
- **C** Body of evidence provides some support for recommendation(s) but care should be taken in its application
- **D** Body of evidence is weak and recommendation must be applied with caution

**Disclaimer**

The information set out is of a general nature only and may or may not be relevant to particular patients or circumstances. It is not to be regarded as clinical advice and, in particular, is no substitute for a full examination and consideration of medical history in reaching a diagnosis and treatment based on accepted clinical practices. Accordingly, The Royal Australian College of General Practitioners and its employees and agents shall have no liability (including without limitation liability by reason of negligence) to any users of the information contained in this publication for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information contained and whether caused by reason of any error, negligent act, omission or misrepresentation in the information.

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Appendix 2.

Detection, prevention and treatment of osteoporosis

Ideally, decisions about intervention should be based on estimates of absolute risk fracture, but this can only be crudely estimated from current data (refer to the Absolute fracture risk nomograms at www.racgp.org.au/guidelines/osteoporosis and at www.garvan.org.au/promotions/bone-fracture-risk/). Optimal treatment may reduce that risk by 50%. Additional risk factors, e.g., low body weight, included in the algorithm cannot be accurately built into the nomogram. Use clinical judgment to modify your risk estimate. It is important to differentiate between evidence for fracture prevention versus bone density change. As fracture prevention is more important, this algorithm focuses on fracture prevention.

---

### Presence of major risk factors – consider any of the following:

- Age
  - Age more than 70 years
- Age ≥60 years for men and ≥50 years for women plus any of:
  - Family history of minimal trauma fractures
  - Smoking
  - High alcohol intake (>2–4 standard drinks per day for men, less for women)
  - Diet lacking in calcium
  - Low body weight
  - Recurrent falls
  - Sedentary lifestyle over many years

### Medical conditions and medications – any adult with these chronic conditions or medications

- Endocrine (e.g., hypogonadism, Cushing syndrome, hyperparathyroidism, hyperthyroidism)
- Inflammatory conditions (e.g., RA)
- Malabsorption
- Organ or bone marrow transplant
- Chronic kidney disease, chronic liver disease
- Drugs (e.g., anti-epileptic, anti-oestrogen, anti-androgen, corticosteroids, excessive thyroxine, SSRIs)
- Multiple myeloma

---

#### BMD BY DXA RECOMMENDED

- **BMD T-score ≥–1.0 normal**

---

#### NO FRACTURE

- **BMD T-score >–2.5 and <–1.0 osteopenia**

---

#### POSSIBLE VERTEBRAL FRACTURE

- **Back pain, height loss and kyphosis**

---

#### ANY FRACTURE FOLLOWING MINIMAL TRAUMA

- **X-ray shows vertebral fracture**

---

#### BMD TEST RECOMMENDED, NOT ESSENTIAL TO START TREATMENT

- **BMD T-score ≤–2.5 osteoporosis**

---

#### EXCLUDE AND TREAT CAUSES OF SECONDARY OSTEOPOROSIS

- **Calcium and vitamin D supplements when dietary intake is inadequate (C)**

---

#### Dietary and lifestyle interventions for prevention and treatment

- Ensure adequate daily calcium intake – dietary calcium (A for prevention of bone loss)
- Encourage healthy lifestyle (D)
- Education and psychosocial support (D)
- Falls reduction strategies (D consensus, for fracture risk reduction)
- Encourage exercise (A for prevention of bone loss, D for fracture risk reduction)
- Sunlight as a source of vitamin D – consider supplements

---

#### DISCUSS ABSOLUTE FRACTURE RISK

- **Ongoing monitoring (B) Recommend after 3–6 months to review side effects and adherence.**
  - Repeat BMD (B) Consider at 1 year if there is a change in anti-osteoporotic treatment or the patient is on steroids (>7.5 mg/day x 3 months) or has other secondary OP. Repeat BMD when likely to be approaching T=–2.5. Average decline in T-score is 0.1/year.

---

#### START SPECIFIC ANTI-OSTEOPOROTIC THERAPY TO REDUCE FRACTURE RISK

- **Calcium and vitamin D supplements when dietary intake is inadequate (C)**
  - Plus one of:
    - Bisphosphonates (A)
    - Hormone therapy (A for women, D consensus for men)
    - Parathyroid hormones (teriparatide) (A for women, B for men)
    - Selective oestrogen receptor modulators (SERM) (raloxifene, women only A)
    - Strontium ranelate (women only A)
### Detection, prevention and treatment of osteoporosis

**SELECTED PRACTICE TIPS (SEE THE FULL GUIDELINE FOR MORE TIPS AND FURTHER DETAILS)**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
</tr>
<tr>
<td>BMD measurement</td>
<td>BMD should be measured by DXA scanning performed on two sites, preferably anteroposterior spine and hip (Recommendation 3 A)</td>
</tr>
<tr>
<td><strong>Prevention</strong></td>
<td></td>
</tr>
<tr>
<td>Vitamin D supplementation</td>
<td>Vitamin D from sunlight exposure (avoiding the middle of the day) and supplements should ensure 25-hydroxyvitamin D (25-OH D) levels &gt;60 nmol/L. If vitamin D supplements are required, doses of at least 800 IU/day are usually needed (Recommendation 18 C)</td>
</tr>
<tr>
<td>Calcium supplementation</td>
<td>Calcium citrate does not need to be taken after meals unlike calcium carbonate, as it does not require an acid environment to be optimally absorbed (Recommendation 11 C)</td>
</tr>
<tr>
<td><strong>Ongoing monitoring</strong></td>
<td></td>
</tr>
<tr>
<td>Repeat BMD</td>
<td>Usually a decrease in bone density greater than the measurement error is not seen before 2 years; hence, follow up bone densitometry is not recommended at intervals of less than 2 years in most patients (Recommendation 27 B)</td>
</tr>
<tr>
<td>In patients with confirmed OP</td>
<td>Repeat BMD is generally not required, however it may be conducted before initiating a change in, or cessation of, anti-osteoporotic therapy</td>
</tr>
<tr>
<td><strong>Pharmacological management</strong></td>
<td></td>
</tr>
<tr>
<td>Bisphosphonates</td>
<td>Active upper GIT disorders, including strictures and dysphagia are contraindications to oral bisphosphate use</td>
</tr>
<tr>
<td>Duration of bisphosphonate therapy</td>
<td>Taking oral therapy after fasting for several hours (usually overnight) and then remaining upright and avoiding food or other medications for at least 30 minutes will maximise medication absorption</td>
</tr>
<tr>
<td>Side effects of bisphosphonates</td>
<td>Reconsider bisphosphonate therapy after 5–10 years in patients who have had a good response to treatment, determined through re-evaluation of BMD and fracture risk (ie. BMD above T-score -2.5 and no recent fractures) (Recommendation 20 D)</td>
</tr>
<tr>
<td></td>
<td>The risk of osteonecrosis of the jaw (ONJ) is not great enough (&lt;1:1000) to recommend routine dental examinations before starting treatment. Risk is higher for higher IV doses used in cancer care. Reinforce need for good oral hygiene. Complete any obviously needed dental surgery before starting treatment. Where unavoidable, extractions should be performed under antibiotic prophylaxis with minimal trauma and suture socket. Maintain communication with dentist about doses and risk factors for ONJ. Cease bisphosphate if confirmed ONJ</td>
</tr>
<tr>
<td>Hormone therapy</td>
<td>HT is effective in reducing the risk of fractures in postmenopausal women with OP. The increase in risk of adverse events, especially breast cancer and CV effects associated with treatment, should be weighed carefully against benefits and long term use is not recommended (Recommendation 21 A)</td>
</tr>
<tr>
<td><strong>Nonpharmacological management</strong></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>Individually tailored exercise considering gait and balance, strength, flexibility (Recommendation 17 D)</td>
</tr>
<tr>
<td>Falls reduction</td>
<td>To be successful, a falls reduction program needs to be tailored to the individual’s needs and include a range of strategies. A falls reduction program may include: education on the risk of falling and prevention strategies; medication review and modification; exercise programs tailored to the individual’s specific needs and abilities; use of appropriate assistive devices; treatment of postural hypotension and cardiovascular disorders; reduction of environmental hazards; correction of vitamin D deficiency</td>
</tr>
<tr>
<td>Falls clinics</td>
<td>Falls clinics are offered at most major public hospitals and many community health centres throughout Australia. Clinics can be located by contacting Osteoporosis Australia (Recommendation 9 D)</td>
</tr>
</tbody>
</table>

**FOR DETAILED PRESCRIBING INFORMATION**

- National Prescribing Service [www.nps.org.au](http://www.nps.org.au)
- Australian Medicines Handbook [www.amh.net.au](http://www.amh.net.au)

**PATIENT SERVICES**

- Osteoporosis Australia [www.osteoporosis.org.au](http://www.osteoporosis.org.au)
- Australian Rheumatology Association [www.rheumatology.org.au](http://www.rheumatology.org.au)

---

**NHMRC grades of recommendations**

- **A** Body of evidence can be trusted to guide practice
- **B** Body of evidence can be trusted to guide practice in most situations
- **C** Body of evidence provides some support for recommendation(s) but care should be taken in its application
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Early diagnosis and management of rheumatoid arthritis

This algorithm applies to men and women aged more than 16 years presenting with joint pain and swelling. Refer to RACGP Clinical guidelines for musculoskeletal diseases for more information on recommendations and grading of evidence.

www.racgp.org.au/guidelines/musculoskeletaldiseases

### Suspected RA
Consider any of the following:
- **History (B)**
  - Joint pain and swelling and/or fever
  - Morning stiffness >30 minutes
  - Previous episodes
  - Family history of RA
  - Systemic flu-like features and fatigue

### Initial Therapy
**Pharmacological interventions**
- Simple analgesics (eg. paracetamol) (B)
- Fatty acids: omega-3 supplements (A), higher doses of omega-3 are likely to be of greatest benefit (up to 12 g/day), gamma linoleic acid supplements (C)
- NSAIDs/COX-2 inhibitors (A)
- DMARDs (A)
- Corticosteroids (oral: A, intra-articular: B)

**Nonpharmacological interventions**
- Weight control (B)
- Patient education and self management programs (B)
- Occupational therapy (B)
- Exercise (eg. dynamic, aerobic, tai chi) (C)
- Psychosocial support (C)
- Sleep promotion (B)
- Appropriate foot care (C)
- Thermotherapy (eg. heat and/or ice packs) (D)

Refer to rheumatologist or specialist (A)
- Immediately when multiple swollen joints, particularly if RhF and/or anti-CCP antibody are positive
- If still requiring NSAIDs beyond 6 weeks after initial treatment

### Clinical Examination (B)
- Three or more tender and swollen joint areas
- Symmetrical joint involvement in hands and/or feet
- Positive squeeze at MCP or MTP joints

**OR in consultation with rheumatologist or specialist (if immediate access is not available)**
- DMARDs (eg. methotrexate once weekly) (A)
- Short term low dose oral corticosteroids (7.5 mg/day) (A)

### Ongoing Monitoring
(shared care between patient, GP and rheumatologist)
- Joint effects: number, tenderness and swelling
- Extra-articular (eg. nodules, rash)
- CVD: BP and other risk factors, and renal function
- Risk of infection (immunomodulators)
- Toxicity: monitor for potential toxicity (eg. skin, lungs, GIT, heart, blood and/or urine tests)
- Lifestyle (eg. smoking, weight, BMI)
- Activities of daily living (eg. function, sleep, mood, fatigue)
- Annual foot review
- Medication adherence
- If long term corticosteroids, review osteoporosis risk, BP, lipids, cataracts

### Advanced Therapy
(prescribed by a rheumatologist)
For example: efalizumab, cyclosporin, biological agents, etanercept, adalimumab, infliximab, anakinra, rituximab

RA may present in other ways. Investigations to consider based on clinical judgment
- Clinical history and examination to rule out other causes
- Consider a range of infections (eg. hepatitis B and C, rubella, parvovirus, enteric infections or fibromyalgia) that may cause polyarthritis

Diagnostic investigations (A)
- Raised ESR and/or CRP
- Positive rheumatoid factor (RhF) and/or anti-cyclic citrullinated peptide antibodies (anti-CCP)

Absence of any of these key symptoms, signs or test results does not necessarily rule out RA

If persistent swelling beyond 6 weeks (even if RhF and/or anti-CCP negative) and/or inadequate pain relief consider referral
Early diagnosis and management of rheumatoid arthritis

SELECTED PRACTICE TIPS (SEE THE FULL GUIDELINE FOR MORE TIPS AND FURTHER DETAILS)

www.racgp.org.au/guidelines/rheumatoidarthritis

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Pharmacological management</td>
<td></td>
</tr>
<tr>
<td>Simple analgesics</td>
<td>• Prescribe paracetamol in regular divided doses to a maximum of 4 g/day for treating persistent pain</td>
</tr>
<tr>
<td>Fatty acid supplements (omega-3 and gamma-linolenic acid)</td>
<td>• Omega-3 supplementation as an adjunct for management of pain and stiffness in patients with RA (Recommendation 13 A)</td>
</tr>
<tr>
<td></td>
<td>• Higher doses of omega-3 are likely to be of greatest benefit (up to 12 g/day)</td>
</tr>
<tr>
<td></td>
<td>• Fatty acid intervention may provide supplementary or alternative treatment to NSAIDs in some patients. They can also enable a reduction of NSAIDs</td>
</tr>
<tr>
<td></td>
<td>• The recommended dose for gamma-linolenic acid (GLA) is 1400 mg/day of GLA or 3000 mg of evening primrose oil</td>
</tr>
<tr>
<td>Traditional NSAIDs and COX-2 inhibitors</td>
<td>• Consider using conventional NSAIDs or COX-2 inhibitors for reducing pain and stiffness in the short term treatment of RA where simple analgesia and omega-3 fatty acids are ineffective (Recommendation 15 A)</td>
</tr>
<tr>
<td></td>
<td>• Only one NSAID or COX-2 inhibitor should be prescribed at any one time</td>
</tr>
<tr>
<td>DMARDs</td>
<td>• Investigations before DMARD therapy: chest X-ray, FBC, ESR, CRP, hepatitis B and C, renal and liver function tests</td>
</tr>
<tr>
<td></td>
<td>• Commence DMARDs within 12 weeks of onset in consultation with a rheumatologist</td>
</tr>
<tr>
<td></td>
<td>• Once weekly methotrexate is first choice as a single or combination therapy unless contraindicated</td>
</tr>
<tr>
<td></td>
<td>• DMARDs require at least 2–3 months to take effect</td>
</tr>
<tr>
<td></td>
<td>• Cease smoking and limit alcohol if on methotrexate or lefunomide (Recommendation 17 and 18 A)</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>• Intra-articular for individual joints to suppress synovitis</td>
</tr>
<tr>
<td></td>
<td>• Oral, IM or IV for general flare while waiting for DMARD action</td>
</tr>
<tr>
<td></td>
<td>• Low dose oral corticosteroids (7.5 mg/day) may have DMARD action but long term use is not recommended</td>
</tr>
<tr>
<td></td>
<td>• Ongoing monitoring for medication safety and comorbidities is an important shared GP role</td>
</tr>
<tr>
<td></td>
<td>• Discuss medication interactions (including over-the-counter preparations and complementary medicines)</td>
</tr>
</tbody>
</table>

Nonpharmacological interventions

| Complementary therapies                | • Inform patients about insufficient volume of evidence available on treating RA with complementary therapies (Recommendation 21 B) |
| Tripterygium wilfordii                 | WARNING: DO NOT recommend the Chinese herb Tripterygium wilfordii due to risk of serious adverse effects (Recommendation 22 B) |
| Exercise                               | • Encourage regular, dynamic physical activity, compatible with the patient’s general abilities, in order to maintain strength and physical functioning (Recommendation 24 C) |
| Weight                                 | • Encourage weight control and dietary modification (Recommendation 23 B) |
| Disease monitoring and comorbidities   | • Assess and treat CV risk factors such as smoking, obesity, physical activity, hypercholesterolaemia, hypertension and diabetes |
|                                        | • Monitor at least 3 times per year: CV/S, GIT and renal function (Recommendation 16 A) |

WARNING: Aggressive early treatment prevents joint damage. However, treatment may cause serious adverse effects including death. Physicians and patients must monitor for signs and symptoms of potential toxicity through regular clinical and laboratory review

FOR DETAILED PRESCRIBING INFORMATION

Therapeutic Guidelines www.tg.com.au
Australian Medicines Handbook www.amh.net.au
National Prescribing Service www.nps.org.au

PATIENT SERVICES

Arthritis Australia www.arthritisaustralia.com.au
Australian Rheumatology Association www.rheumatology.org.au

GPs may utilise EPC items to facilitate access to appropriate services www.health.gov.au/epc. Eligible services include, but are not limited to, those provided by physiotherapists, occupational therapists and exercise physiologists; and refer for HMR with pharmacist for medication education and management (Recommendation 5 B); psychological support (Recommendation 9 C); podiatrist for foot care (Recommendation 27 C)

NHMRC grades of recommendations

<table>
<thead>
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</tr>
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Expiry date of recommendations: August 2014

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Appendix 4.

Diagnosis and management of juvenile idiopathic arthritis

Juvenile idiopathic arthritis (JIA) is one of the less common but challenging diseases presenting to Australian general practice; affecting 1–4 children per 1000. GPs should contribute to a team management approach to JIA (specialist and general practice) based on the following therapeutic goals: preservation of function and quality of life, minimisation of pain and inflammation, joint protection, and control of systemic complications.

This algorithm refers to children and adolescents aged less than 16 years presenting with one or more painful and swollen joints. Refer to RACGP Clinical guidelines for musculoskeletal diseases for more information on recommendations and grading of evidence [www.racgp.org.au/guidelines/musculoskeletaldiseases](http://www.racgp.org.au/guidelines/musculoskeletaldiseases)

**SUSPECTED JIA**
- Pain and/or swelling in one or more joints
- Stiffness after rest or sleep
- Constitutional features (eg. fever, rash, loss of weight)
- Previous episodes
- Family history (rheumatic or autoimmune diseases)
- Impact on activity levels, sleep and/or school attendance

**EXTRA HISTORY**
- Overseas travel

**CLINICAL EXAMINATION**
- Examine all joints: tender and/or swollen joints (synovitis, range of movement, deformity)
- Localise the site of discomfort
- Conduct general physical examination, including lymphadenopathy, hepatosplenomegaly, fever, rash, nail changes, bruising, bleeding
- Measure growth parameters (height, weight, BMI)
- Assess nail pits, psoriatic rash

**CONSIDER MIMICKERS OF JIA**

**Serious**
- Acute painful onset monoarticular arthritis associated with fever is septic unless proven otherwise. Needs urgent culture

**Common**
- Reactive: post-infectious (eg. mumps, dengue fever, Ross River virus)
- Rheumatic fever in Aboriginal population, poststreptococcal arthritis
- Trauma or nonaccidental injury (eg. occult fracture, foreign body)
- Hypermobility

**Uncommon**
- Inflammatory: inflammatory bowel disease, sarcoidosis
- Infection: septic arthritis, Lyme disease, osteomyelitis
- Systemic: systemic lupus erythematosus, Henoch-Schönlein purpura and other vasculitides
- Malignancy: acute lymphocytic leukaemia, bone tumours

**USEFUL TESTS IF SYMPTOMS PRESENT FOR MORE THAN 4 WEEKS**
- FBE, ESR, CRP
- Consider these further investigations in discussion with a paediatric rheumatologist
- X-rays and further imaging
- Autoimmune investigation if indicated (ANA, dsDNA, C3, C4, immunoglobulins)
- Investigations for classifying JIA (eg. RhF, ANA, HLA B27)

**INITIAL THERAPY**

**PHARMACOLOGICAL INTERVENTIONS**
- Each JIA subtype may require a different approach to therapy. The main three subtypes of JIA are: oligoarthritis, polyarthritis, and systemic onset.
- Basic therapy (in consultation with paediatric rheumatologist)
- Traditional NSAIDs (B)
- Simple analgesics (eg. paracetamol) (C)
- Consider weak opioids (eg. codeine) (D)

**NONPHARMACOLOGICAL INTERVENTIONS**
- Adequate diet including daily calcium and vitamin D intake (B)
- Calcium supplementation (together with vitamin D when on corticosteroids) (B)
- Land based exercise programs (C)
- Aquatic exercise (C)
- Thermotherapy (heat/ice packs, warm baths) (D)
- Consider splints (D)
- Consider foot orthotics (D)
Diagnosis and management of juvenile idiopathic arthritis

**MONITORING AND SUPPORT**

- **Psychosocial support and education (C)**
  - Psychosocial support for patients, family members, and carers
  - Ongoing education on disease management and medications
  - Refer patients to support organisations

- **Ongoing monitoring of JIA (C)**
  - Optimise multidisciplinary communication
  - Assess arthritis activity at least three times per year and adjust therapy to maintain swollen and tender joint count as low as possible
  - Monitor toxicity and medication side effects
  - Paediatric rheumatology review at least twice per year
  - Adjust medication in consultation with paediatric rheumatologist
  - Ophthalmology review (uveitis)

- **Managing comorbidities (C)**
  - Regular ophthalmological review for JIA related diseases treated with long term corticosteroids
  - Preventive medicine: immunisations, weight, growth, nutrition, dental
  - Monitor sleep, fatigue, mood, school progress, peer and age appropriate activity

**MANAGEMENT OF ACUTE FLARE EPISODES**

- Determine if persistent flare
- Manage short term flares symptomatically with analgesics +/- NSAIDs, heat, and relative rest
- Beware of infection if on immunosuppressive medication and evaluate for co-infection
- If persistent flare or other concerns, contact a paediatric rheumatologist or rheumatology team for advice

**SELECTED PRACTICE TIPS (SEE THE FULL GUIDELINE FOR MORE TIPS AND FURTHER DETAILS)**

**www.racgp.org.au/guidelines/juvenileidiopathicarthritis**

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Pharmacological management</strong></td>
<td></td>
</tr>
<tr>
<td>Simple analgesics</td>
<td>In overweight children, the ideal body weight should be used to calculate analgesic dose. Maximum daily dose of paracetamol is 90 mg/kg to a maximum of 4 g/day</td>
</tr>
<tr>
<td>Traditional NSAIDs</td>
<td><strong>Caution</strong>: Most children with asthma can take NSAIDs safely. However, those with diagnosed or suspected aspirin induced asthma (symptoms of asthma usually accompanied by facial flushing and rhinitis within 3 hours of exposure to an NSAID) should avoid all NSAIDs</td>
</tr>
<tr>
<td>Topical NSAIDs</td>
<td><strong>Caution</strong>: Do NOT prescribe topical NSAIDs to treat patients with JIA. There is no evidence that they work (Recommendation 12 D)</td>
</tr>
<tr>
<td>Advanced therapy</td>
<td>DMARDs, intra-articular or systemic steroids, biological DMARDs, as prescribed by rheumatologist</td>
</tr>
<tr>
<td><strong>Nonpharmacological interventions</strong></td>
<td></td>
</tr>
<tr>
<td>Calcium intake</td>
<td>Monitor calcium intake in children with JIA and provide advice on increasing daily calcium (Recommendation 14 B)</td>
</tr>
<tr>
<td>Nutritional therapies</td>
<td>Consider treating some patients with JIA with oral calcium and vitamin D supplementation</td>
</tr>
<tr>
<td>Orthotics</td>
<td>Most children who have JIA of the lower limb only need comfortable, supportive shoes rather than orthotics</td>
</tr>
<tr>
<td><strong>Therapy</strong></td>
<td></td>
</tr>
<tr>
<td>Thermotherapy</td>
<td>No systematic reviews or randomised control trials of thermotherapy for treating children and adolescents with JIA (Recommendation 19 D)</td>
</tr>
<tr>
<td>Complementary therapies</td>
<td>No significant research into use of complementary/alternative physical therapies in children with JIA (Recommendation 20 D)</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Care plan</td>
<td>Prompt the specialist involved for a case-by-case guide to monitoring disease activity, complications and medication side effects</td>
</tr>
</tbody>
</table>

**FOR DETAILED PRESCRIBING INFORMATION**

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References

13. The Royal Australian College of General Practitioners.
19. The Royal Australian College of General Practitioners Summary statement.