



STOCKTAKE OF ARTHRITIS ACTIVITIES IN AUSTRALIA

A summary to inform
The National Strategic Action Plan for Arthritis

Arthritis Australia 2019

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1 Introduction

This aim of this document is to identify major arthritis-related programs and activities across Australia to assist in identifying gaps and potential programs that could be implemented nationally to improve arthritis prevention and care. It is not intended to provide an exhaustive review of existing programs and activities, but to highlight key activities within the priority areas identified in the *National Strategic Action Plan for Arthritis*.

Information on programs and activities was collected through the consultations undertaken for the development of the Action Plan and through web-based searches.

2 National strategies and frameworks

In addition to the *National Strategic Framework for Chronic Conditions*, there are some key national strategies with specific relevance to arthritis which have informed the development of the *National Strategic Action Plan for Arthritis*.

2.1 National Osteoarthritis Strategy (2018)

The *National Osteoarthritis Strategy*, prepared by the National Osteoarthritis Strategy Project Group, aims to provide a national response to osteoarthritis and to deliver major benefits to people at risk of, or with, osteoarthritis by making more effective, cost-effective and accessible healthcare solutions available.

The Strategy identifies seven priority areas covering the whole person journey from prevention and early management to joint replacement or other surgery and rehabilitation, focusing on reducing the impact of osteoarthritis on individuals, families and the community. It provides an evidence-informed policy foundation on which practical and feasible implementation plans for osteoarthritis prevention and management can be developed. It also aims to guide government, other key stakeholders and organisations as to how existing limited healthcare resources can be better coordinated and targeted to achieve optimal outcomes for people with osteoarthritis.

The Strategy has informed the development of many of the recommendations of the *National Strategic Action Plan for Arthritis* and provides additional implementation detail relating to the prevention and management of osteoarthritis. Further information is available at [University of Sydney http://sydney.edu.au/medicine/ibjr/events/National_OA_Strategy_PostSummit.pdf](http://sydney.edu.au/medicine/ibjr/events/National_OA_Strategy_PostSummit.pdf).

2.2 Time to Move: Arthritis Strategy (2014)

The *Time to Move: Arthritis* strategy was developed by Arthritis Australia to provide a roadmap for improving care for people with arthritis across Australia. The strategy focuses on osteoarthritis, rheumatoid arthritis and juvenile idiopathic arthritis. Key components of the strategy include:

- Awareness raising campaigns and strategies
- Health promotion and primary prevention strategies
- Enhanced education and support for self-management for people with arthritis
- Improved access to multidisciplinary care
- Workforce capacity building
- Research.

The strategy has formed the basis for the actions outlined in the *National Strategic Action Plan for Arthritis*.

2.3 National Pain Strategy (2010) and National Strategic Action Plan for Pain Management

The *National Pain Strategy* outlines an integrated approach to improve care for all types of pain, including acute, chronic and cancer pain. As arthritis and musculoskeletal conditions are the leading cause of chronic, non-cancer pain in Australia, the recommendations of the National Pain Strategy are of great relevance to children and adults living with these conditions.

A *National Strategic Action Plan for Pain Management*, based on the Strategy, is currently in preparation.

3 Arthritis Prevention

3.1 Obesity, physical inactivity and smoking

Like most chronic conditions, arthritis is associated with a number of modifiable risk factors including obesity, physical inactivity, poor diet, and smoking. It is beyond the scope of this report to list the wide range of primary prevention and health promotion activities which are currently available across Australia to address these risk factors. However, it is worth noting that arthritis is rarely mentioned in programs or messaging around chronic disease prevention, including obesity prevention, health risks of smoking or healthy lifestyle promotion at any level.

However, Arthritis Australia and Quit Victoria will run an awareness-raising campaign around smoking and rheumatoid arthritis in mid-2019.

3.1.1 Move it Aus -Better Ageing Grants

The Better Ageing Grants Program aims to increase levels of physical activity of Australians aged 65 years or over, particularly those least active, to improve their overall health and wellbeing. Grants totalling \$22.9 million have been awarded to a number of health and community organisations including Arthritis Australia and Musculoskeletal Australia.

With the support of this grant, Arthritis Australia will be rolling out The Joint Movement program, an evidence-based group exercise program suitable for older people, including those with chronic conditions such as arthritis and musculoskeletal conditions. The program offers both warm-water and land-based strength exercise programs. (See 5.6.1 for more information)

Musculoskeletal Australia will be working with the Australian Neighbourhood Houses and Centres Association to offer age-appropriate initiatives including strength training, tai chi, qi gong, Pilates, yoga, group-based exercise and walking.

3.1.2 Victorian Active Ageing Partnership

The Victorian Active Ageing Partnership aims to increase opportunities for participation in physical activity for older Victorians, especially in areas of socio-economic disadvantage and among isolated, lonely older people not currently involved in physical activity. The program is managed by Musculoskeletal Australia in collaboration with Monash University, Fitness Australia and, for 2019, VicSport.

The Partnership has developed a number of strategies and tools for service providers working with older people in physical activity settings to help them to better engage this cohort. These include:

- An evidence-based best-practice framework to address enablers and barriers to older people engaging in physical activity, particularly under-represented groups
- A self-assessment tool and resources to assist organisations to reflect on and improve their current programs and activities
- Professional development resources and activities.

3.2 Joint injury prevention

Joint injury due to participation in sport or occupational injuries is a major risk factor for the development of osteoarthritis, especially of the knee. Sports injuries are a major concern because injuries most commonly occur in adolescents or young adults, leading to the development of osteoarthritis at a relatively young age. Simple strategies are available to reduce lower limb sports injuries associated with increased osteoarthritis risk.

3.2.1 Sports injury prevention

Youth Sports Injury Prevention Group

The Australian Orthopaedic Association has established a Youth Sports Injury Prevention Group to explore, raise awareness and encourage the funding of a National Youth Sports Injury Prevention Program. Members of the group include clinicians and academics involved in sports injury management and prevention, and Arthritis Australia.

The Group has developed a proposal to implement a national sports injury prevention plan.

The Group's website provides information about sports injury prevention and links to available sports agility programs for soccer, rugby, Australian rules football and netball. For more information see [safesport \(http://www.safesport.org.au\)](http://www.safesport.org.au)

Sports injury prevention programs

Sports injury prevention programs exist for a number of sports in Australia, although uptake is limited. Typically, these programs consist of a warm-up, balance, stretching, strengthening, plyometrics, and sport specific agility training. The following programs are available:

- [Footy First](#) for Australian rules football
- [Powerstep](#) for rugby league, rugby union and touch football
- [FIFA 11+](#) for soccer
- [The Knee Program](#) for netball.

There are some research centres with an interest in sports injury prevention including:

- [Australian Centre for Research into Injury in Sport and its Prevention](#)
- [La Trobe Sport and Exercise Medicine Research Centre](#)

Sports Injury Dictionary

The Australian Sports Injury Data Dictionary provides guidelines for injury data collection and classification for the prevention and control of injury in sport and recreation. The Dictionary has been written to assist sporting and recreation organisations, researchers, sports medicine

professionals, first-aiders and individual clubs to collect information on sports injury. The Dictionary is available from Sports Medicine Australia, together with sport specific data collection forms.

Sports Injury Database

In May 2018, the Federal Government pledged funding for a national Sports Injury Database.

3.2.2 Work injury prevention

A number of occupations are associated with a high risk of developing osteoarthritis. Particularly at risk are those in occupations with a heavy physical workload that involves kneeling, squatting, heavy lifting and/or climbing. Occupations associated with the greatest risk include farming, construction work (especially bricklaying and flooring installation), health care and military service.

Safe Work Australia and Safe Work organisations in each State and Territory work with government, employers and employees to improve work health and safety in Australia. They provide resources and advisory and support services to minimise health and safety risks, including those that may increase employees' risk of developing or aggravating osteoarthritis.

Safe Work Australia has a Code of Practice for Hazardous Manual Tasks that provides practical guidance on managing the risk of musculoskeletal disorders, including 'joint and bone injuries or degeneration', arising from hazardous manual tasks [1].

Safe Work NSW is implementing a Musculoskeletal Disorder Strategy (2017-2022) to reduce serious work-related musculoskeletal injuries and illnesses by 30% by 2022 [2].

4 Awareness, education and support

4.1 Arthritis Australia and Affiliates activities and programs

Arthritis Australia works with Affiliates in the ACT, New South Wales, Northern Territory, Queensland, South Australia, Tasmania and Western Australia to provide a range of arthritis awareness, education and support resources and activities. A summary of the services and programs offered by Arthritis Australia and Affiliated organisations is provided in Table 1.

Consumer information resources

Consumer information and support resources include a telephone Infoline, general and condition-specific websites, and booklets and information sheets on different types of arthritis, treatments and management. Multicultural information sheets are available in ten different languages.

All Affiliates provide a free e-newsletter and most also offer a printed magazine providing the latest news and information on arthritis to subscribers.

Self-management and community education programs

All Affiliates run community education and/or speaker programs. Education events include:

- Self-management education courses to help people learn about their arthritis and its management. Courses include condition-specific structured self-management education programs and/or the *Take Charge of Pain* education and self-management course.
- Community education seminars and speaker programs held in a variety of locations.
- Webinars.

MyJointPain online osteoarthritis self-management support program

Arthritis Australia has developed [MyJointPain.org.au](https://myjointpain.org.au), an osteoarthritis-specific, online self-management support program which provides individuals with a personalised action plan, monitoring tools and education videos. The program has been independently evaluated and shown to be effective in supporting people to better manage their condition [3].

Rheumatoid arthritis online support program

Arthritis Australia is currently developing a comprehensive, state-of-the-art rheumatoid arthritis online support program. This program will provide tailored and ongoing information, tools and support for people with the condition throughout their patient journey, with additional health professional support offered if required. The program will be launched in mid-2019. The intention is to expand this program to other types of inflammatory arthritis in the future.

Additional online support is available for inflammatory forms of arthritis through the [Empowered website https://empowered.org.au/](https://empowered.org.au/).

MyBackPain website

The MyBackPain website is an innovative website that has been developed by Arthritis Australia in collaboration with the University of Queensland.

The website will provide high-quality general and tailored information and advice to consumers on treatment choices for their low back pain, addressing the key messages that are considered critical to achieve best outcomes. The website is currently being evaluated through a randomised controlled trial and will be launched in mid-2019.

Physical activity/healthy lifestyle programs

Most Affiliates currently provide physical activity and healthy lifestyle programs for people with arthritis, including warm water exercise and strength exercise classes. A few Affiliates also offer limited allied health services such as dietetics, exercise physiology and physiotherapy.

Arthritis and Osteoporosis Western Australia (AOWA) also provides land based exercise classes designed to improve balance, bone density and general mobility. Examples of these classes include ballet for arthritis, yoga for arthritis and exercise for osteoporosis.

With the support of leading health and fitness experts, Arthritis Australia has developed The Joint Movement program. This program is an evidence-based, arthritis-focused group exercise program designed to provide safe and effective warm water and/or land based strength exercise programs for people with arthritis and related musculoskeletal conditions (see 5.4.1). This program will be rolled out across participating Affiliates in 2019, with funding support from the Move it AUS Better Ageing program.

Rural programs

Arthritis Western Australia coordinates rural rheumatology clinics across the state. Rheumatologists travel from Perth regularly to provide this rheumatology service to people living in rural Western Australia who would otherwise need to travel to Perth to visit their specialist.

In 2018, Arthritis New South Wales ran a Rural Health Initiative, delivering arthritis information and education in five rural centres across NSW. Partnerships with local community organisations were

developed to ensure that the content and format was tailored to suit each individual location. Due to the success of the initiative it is currently being transitioned to a rural program.

Peer support groups

All Affiliates provide access to peer support groups, either face-to-face or online. Both general and condition-specific support groups are available, although this varies by Affiliate.

In addition Arthritis and Osteoporosis Western Australia (AOWA) runs a one-on-one peer support program called Social Lines, in which matched volunteers will telephone a person with arthritis on a regular basis for a chat. Arthritis Queensland is also developing a Telephone Support Network to provide one-on-one peer support and information to consumers.

Kids camps

Kids camps for children and young people with juvenile idiopathic arthritis (JIA) or other rheumatic conditions are run in New South Wales, Queensland (in conjunction with Zoe's Angels) and Western Australia. These camps provide an opportunity for children, families and young adults living with arthritis to meet others like themselves, and include educational workshops and self-management techniques delivered in a fun environment.

Children from states or territories which do not offer these events are offered the opportunity to participate in existing camp programs in other states.

Most Affiliates also run a Kidsflix program, a free event which includes children's entertainment and a film, for children with arthritis, a disability, chronic illness or facing social disadvantage, and their immediate family members.

Health professional education

Most Affiliates run clinical updates for health professionals such as General Practitioners (GPs) in the form of seminars or webinars.

Arthritis Tasmania is a Registered Training Organisation and offers a nationally VET accredited Course in *Management of Musculoskeletal Conditions* for exercise professionals which is recognised under the Australian Qualifications Framework. The course includes an Arthritis Essentials® module providing information about arthritis and best-practice management strategies as well as modules providing skills and competencies in instructing community fitness programs and exercise sessions for musculoskeletal conditions. This course forms the basis for The Joint Movement leader training.

An Arthritis Essentials® module tailored to pharmacy assistants is currently under development.

AOWA is registered with the Royal Australian College of General Practitioners (RACGP) as an accredited activity provider for GP education. It also runs a *Making Sense of Pain* inter-disciplinary workshop for health professionals designed to assist health professionals to translate information about supporting pain management into their clinical practice.

General awareness-raising campaigns

Arthritis Australia and its Affiliates run regular awareness-raising campaigns and activities. Examples include

- *Move it in May*, an awareness and fundraising campaign to increase participation in and awareness of the importance of physical activity to both for general well-being and to help manage the pain of arthritis.
- Activities and events to promote the annual World Arthritis Day (12 October) such as ‘Octobones’ in New South Wales.
- Specific campaigns such as the [Don’t turn your back on it](#) campaign, designed to increase awareness of ankylosing spondylitis, a form of inflammatory, spinal arthritis for which diagnosis is commonly delayed by years.

Research

Arthritis Australia and its Affiliates also support research into arthritis and related musculoskeletal conditions through a national research grants program (see 6.1.2), financial support for local research projects and academic rheumatology initiatives, and participation in research projects as a consumer partner.

Arthritis NSW has developed a Research Framework, which is overseen by a Clinical Governance and Research Committee. Arthritis NSW focuses its research on health and medical research projects, social impact and quality improvement activities.

AOWA formed a partnership with the University of Western Australia and the WA Department of Health to support a Chair of Rheumatology. The position permits allocation of dedicated resources to undertake research into musculoskeletal conditions. The position is further supported by AOWA through a PhD scholarship and a Research Assistant post.

Arthritis Queensland funds the Chair of Rheumatology at the University of Queensland Diamantina Institute.

Accessible design

Arthritis Australia’s Accessible Design Division works with industry and government to improve the design of products and packaging to make them easier to use or open for people with arthritis or other physical limitations. The Division provides a testing and advisory service for industry and Ease of Use and Easy to Open certification of products to assist consumers to identify accessible products.

The Accessible Design Division also undertakes accessibility testing for pre-packaged and portion controlled food products supplied through hospitals. Organisations which purchase these products, such as HealthShare NSW and Health Purchasing Victoria use this testing to identify more accessible products as part of their tendering processes.

Table 1: Programs & Services offered by Arthritis Australia and Affiliates

PROGRAM / SERVICE	National	NSW	QLD	WA	SA	TAS	ACT	NT
Consumer Information Services								
<i>Telephone Information Service</i>	Y~	Y	Y	Y	Y	Y	Y	Y
<i>Information Sheets / Booklets</i>	Y	Y	Y	Y	Y	Y	Y	Y
<i>Condition-specific websites</i>	Y							
<i>Community education/speaker programs</i>		Y	Y	Y	Y	Y	Y	Y
<i>Webinars/online education resources</i>		Y	Y					
<i>Magazine/e-newsletter</i>	Y	Y	Y	Y	Y	Y	Y	Y
Self-Management Education programs		Y		Y	Y	Y	Y	Y
Physical Activity/Healthy Lifestyle Programs								
<i>Hydrotherapy/Warm Water Exercise Classes</i>		Y	Y#	Y	Y#	Y	Y	Y#
<i>Strength Exercise Classes</i>		Y	Y#	Y	Y#	Y	Y	Y#
<i>Other (Tai chi, yoga etc)</i>				Y			Y	
<i>Exercise leader training</i>						Y		
Other Programs / Services								
<i>Rural health initiatives</i>		Y		Y	Y			
<i>Allied health services</i>							Y	
<i>JIA Camps</i>		Y	Y*	Y				
<i>Kidsflix</i>		Y		Y	Y	Y		
<i>Support Groups (face-to-face and/or online)</i>		Y	Y	Y	Y	Y	Y	Y
<i>One-on-one telephone peer support</i>			Y	Y				
Health Professional Education								
<i>Clinical Updates for Health Professionals</i>			Y	Y	Y		Y	
<i>Online education and training</i>					Y	Y		
<i>Paediatric rheumatology training scholarship</i>	Y							

~Supported by State and Territory Affiliates

commencing 2019

*Provided through Zoe's Angels

4.2 Musculoskeletal Australia

Musculoskeletal Australia, formerly Arthritis Victoria, is a consumer organisation representing people living with musculoskeletal conditions. It provides information and support to people living with these conditions. Activities and resources include:

- A telephone Helpline which provides information and support to both consumers and health professionals
- Online and printed consumer information resources on different musculoskeletal conditions and living well with them
- Webinars for both consumers and health professionals
- Peer support groups, including both general and some condition-specific groups
- Training programs for health professionals and peer leaders in the delivery of warm water and chair-based exercise classes for people with arthritis and other musculoskeletal conditions
- Activities for children, youth and their families (including KidsFlix)
- Funding and promotion of consumer-focused research.

In addition, Musculoskeletal Australia participated in the development of the Victorian Model of Care for Osteoarthritis of the Hip and Knee (see 5.2.1) and manages the Victorian Active Ageing Partnership in collaboration with Monash University, Fitness Australia and VicSport (see 3.1.2).

4.3 Other consumer organisations

Creaky Joints

Creaky Joints Australia is an online patient community, providing information and support to people with arthritis via digital media. It is part of the US-based non-profit Global Healthy Living Foundation.

Dragon Claw

Dragon Claw promotes self-care and coordinated support services for people with rheumatoid arthritis, lupus and juvenile idiopathic arthritis. The organisation provides access (via membership) to videos and research material, a community forum and information for clinicians, patients and carers.

Dragon Claw has recently launched a pilot program to educate Aboriginal and Torres Strait Islanders living with rheumatoid arthritis or lupus about the importance of medication compliance. The program will feature videos in four indigenous languages, as well as English, suitable for remote communities in central Australia.

Psoriatic Arthritis Australia

Psoriatic Arthritis Australia is part of Psoriasis Australia. It is a patient support group that provides up to date information and support for people living with psoriasis and psoriatic arthritis, enabling educated decisions to be made on treatment choices and lifestyle changes.

Ankylosing Spondylitis Victoria

Ankylosing Spondylitis Victoria aims to improve knowledge and management of ankylosing spondylitis (AS). The organisation provides information to patients and medical professionals on AS

through educational events, workshops and seminars and arranges social events and activities for the group's members, their families and friends.

Lupus organisations

Lupus (systemic lupus erythematosus) consumer organisations and/or support groups operate in a number of states. These include:

- The Lupus Association of New South Wales
- Lupus Western Australia
- Lupus Victoria
- Lupus Australia Queensland, Incorporated

These organisations aim to provide information and support to people living with lupus and to increase public awareness of the condition. Some also undertake advocacy and fundraising for research. The Lupus Association of New South Wales provides an information and counselling support service for those who have recently been diagnosed as well as those who have been living with lupus for some time.

Fibromyalgia Australia

Fibromyalgia Australia works to improve research, services and care for Australians living with fibromyalgia and complex pain syndromes. It provides information for both consumers and health professionals.

Fibromyalgia Australia is part of the Australian Collaboration Project for Fibromyalgia Best Practice and Education, a national collaborative of agencies working to provide Australians with current best practice information on the condition. The organisation also works with the Bridges & Pathways Institute, an Australian charity established focusing on solutions to improve services for Australians affected by ME/CFS (Myalgic Encephalomyelitis / Chronic Fatigue Syndrome) and Fibromyalgia pain syndrome.

Zoe's Angels

Zoe's Angels is a Queensland-based organisation which aims to raise awareness of juvenile arthritis. The organisation undertakes fundraising and runs two kids camps for children with JIA each year.

Scleroderma Australia

Scleroderma Australia provides information on scleroderma by conducting educational seminars, holding state-based support groups, and providing support for scleroderma research. It is also involved in awareness-raising and advocacy.

Kids Arthritis Australia

Kids Arthritis Australia is an Adelaide-based organisation which aims to support children living with arthritis. It organises local support groups and events, provides an online support group and provides speakers to raise awareness of juvenile arthritis in schools.

The Autoimmune Resource and Research Centre

The Autoimmune Resource and Research Centre, based in Newcastle, New South Wales, is a not-for-profit organisation which provides education and support for individuals living with certain

systemic, autoimmune illnesses, including lupus and scleroderma. It also undertakes research into these conditions. The Centre provides patient education, seminars and workshops, and support groups – called ‘Café Conversation Groups’ - in a range of location in New South Wales and the ACT.

4.4 Pharmaceutical industry patient support programs

A number of pharmaceutical companies which supply biologic medications provide patient support programs for people with arthritis who are prescribed their product. Patient support programs vary from information websites to programs providing personalised support by a health professional, such as a rheumatology nurse.

4.5 Pain management resources and support

A range of pain-related information and education resources is available for both consumers and health professionals. A few key consumer resources are listed here, but this list is not intended to be comprehensive. A more comprehensive list is likely to be supplied as part of the documentation to support the *National Strategic Action Plan for Pain Management*.

Agency for Clinical Innovation Pain Management Network (New South Wales)

The Agency for Clinical Innovation (ACI) Pain Management Network website provides consumers and health professionals with information on better pain management. The website is designed to help people gain a better understanding of their pain and develop skills and knowledge in pain self-management. It includes information and educational videos on pain and pain management including information for youth, Aboriginal and Torres Strait Islanders and people from culturally and linguistically diverse backgrounds.

The website also provides pain management information, tools and resources for health professionals.

Hunter Integrated Pain Service website

This website provides pain management information and resources for both consumers and health professionals and is available at [NSW Health](http://www.hnehealth.nsw.gov.au/Pain/Pages/About.aspx)
<http://www.hnehealth.nsw.gov.au/Pain/Pages/About.aspx>.

painHEALTH website

The painHEALTH website was developed through the Department of Health, Western Australia, in collaboration with Curtin University, the University of Western Australia and the Western Australian Musculoskeletal Health Network. The aim of the website is to help health consumers with musculoskeletal pain access reliable and usable evidence-informed information and skills to assist in the co-management of their musculoskeletal pain. It includes information on types of pain, approaches to pain management and patient stories as well as specific conditions, including osteoarthritis, rheumatoid arthritis and ankylosing spondylitis. For further information see [painHEALTH \(https://painhealth.csse.uwa.edu.au/\)](https://painhealth.csse.uwa.edu.au/)

5 High-value person-centred care and support

5.1 Clinical Guidelines, Standards, and Quality of Care

5.1.1 Therapeutic Guidelines: Rheumatology

The *Therapeutic Guidelines: Rheumatology* provides accurate, independent and practical treatment advice for a range of musculoskeletal conditions in both adult and paediatric patients, developed by leading medical experts [4]. The latest version (version 3) was published in 2017.

The guidelines give advice on the assessment of patients presenting with musculoskeletal symptoms, including the judicious use of investigations, as well as the management of patients with confirmed diagnoses. The guidelines emphasise collaborative, multidisciplinary care of patients, for conditions primarily managed by general practitioners as well as those primarily managed by specialists. They include advice on managing analgesic and anti-inflammatory therapy and immunomodulatory therapy and on assessing and proactively managing cardiovascular disease risk factors and other comorbidities in people with rheumatic conditions.

5.1.2 Royal Australian College of General Practitioners Guidelines

Guideline for the management of hip and knee osteoarthritis (2018)

This guideline applies to the management of all adults diagnosed with symptomatic osteoarthritis of the hip and/or knee up until referral for joint replacement. The guideline is intended primarily for use in the primary care setting by general practitioners but it is also relevant to other health professionals who treat people with osteoarthritis.

The guideline has a strong focus on self-management and non-surgical treatments to improve the health of people with knee and/or hip osteoarthritis, including regular exercise and weight management.

Clinical guideline for the diagnosis and management of early rheumatoid arthritis (2009)

This guideline presents recommendations to assist GPs in managing patients with rheumatoid arthritis. It focuses on diagnosis, early management, and coordination of multidisciplinary care needs.

Clinical guideline for the diagnosis and management of juvenile idiopathic arthritis (2009)

This guideline presents recommendations to assist GPs managing patients with juvenile idiopathic arthritis (JIA). It focuses on short term care, long term care planning and management, and coordination of multidisciplinary care needs. The guideline includes algorithms and resources to assist with the implementation of the recommendations.

Prevention in the management of musculoskeletal conditions: A guide for practice nurses (2010)

This guideline 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 [5]. Along with disease specific information, this guideline includes information on quality care, including the provision of team-based care in the general practice setting. It refers to the clinical guidelines for diagnosis and management of rheumatoid arthritis, osteoarthritis and JIA.

In particular, this guideline highlights the role of practice nurses in the planned and monitored care of patients with chronic conditions.

Referral for Joint Replacement: A management guide for health providers (2007)

This guide was developed to improve the care of people with arthritis by supporting decision making regarding joint replacement and supporting delivery of best practice care while patients are waiting for surgery. The guide was designed for GPs and specialists referring patients for orthopaedic assessment and allied health professionals involved in the primary and multidisciplinary/integrated care of individuals with arthritis.

Handbook of Non-Drug Interventions (HANDI)

The Handbook of Non-Drug Interventions is a resource developed by the Royal Australian College of General Practitioners aimed at promoting effective non-drug treatments for General Practice/primary care. It includes information on:

- Aquatic exercise for knee and hip osteoarthritis
- Education about joint protection strategies for hand osteoarthritis
- Splints for reduction of pain from hand osteoarthritis
- Knee taping for osteoarthritis
- Walking canes for knee osteoarthritis
- Aquatic exercise for knee and hip osteoarthritis

Further information can be found at [RACGP \(https://www.racgp.org.au/handi\)](https://www.racgp.org.au/handi)

5.1.3 Osteoarthritis of the Knee Clinical Care Standard (2017)

The Osteoarthritis of the Knee Clinical Care Standard [6] developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC), provides guidance to clinicians and health services managers for treating osteoarthritis. It covers assessment, diagnosis, education and self-management, weight loss and exercise, medicines used to manage symptoms, patient review, and surgery for people with osteoarthritis.

A range of implementation resources is available to promote the Standard to clinicians, consumers and health services including clinician and consumer factsheets, a summary of evidence to support the case for change, and infographics. In addition, the Standard provides a set of suggested indicators that clinicians and health services can use to monitor implementation and support improvements as needed.

A decision support tool for people with osteoarthritis of the knee has also been developed which provides a summary of the main treatment options for the condition designed to assist discussions between the patient and members of the clinical team to discuss treatment options, share decisions and plan care. This tool is available at [Australian Commission on Safety and Quality in Health Care \(https://www.safetyandquality.gov.au/wp-content/uploads/2019/04/OAK-DST-FINAL-APRIL-8.pdf\)](https://www.safetyandquality.gov.au/wp-content/uploads/2019/04/OAK-DST-FINAL-APRIL-8.pdf).

The ACSQHC is currently working with stakeholders to identify strategies to implement the Standard. This includes exploring the barriers and enablers to implementation, and identifying changes that need to occur in clinical practice and in health services to routinely provide care consistent with the Standard.

5.1.4 The ACSQHC Atlas of Health Care Variation

The ACSQHC *Atlas of Health Care Variation* reports on variations in care delivery across Australia in 18 clinical domains (hospitalization, surgical procedures and complications). Each version of the Atlas covers different interventions.

Each Atlas has included information on healthcare variation related to one or more treatments commonly used for arthritis, including joint replacements, knee arthroscopies in people aged over 55 years, and opioid use. Recommendations to reduce variations in care are also made.

5.1.5 Royal Australian College of Surgeons (RACS) Surgical Variance Reports

Since 2016, RACS, in conjunction with Medibank Private Ltd, has published a number of Surgical Variance Reports which analyse variations in a number of clinical and other indicators for common procedures within surgical specialities. The aim of these reports is to enable surgeons to gain a better understanding of variations, and consider how their practice could be improved for the benefit of patients.

The following reports are of particular relevance for arthritis:

- Rehabilitation Pathways Following Hip and Knee Arthroplasty (2018)
- Surgical Variance Reports – Orthopaedic Surgery (2016 and 2017).

5.1.6 Evolve – Rheumatology

Part of a global movement, Evolve is an initiative led by the Royal Australasian College of Physicians, in conjunction with the Choosing Wisely campaign, to drive high-value, high-quality care in Australia and New Zealand.

Evolve identifies a specialty's top five clinical practices that, in particular circumstances, may be overused, provide little or no benefit, or cause unnecessary harm. Recommendations are developed through a rigorous, peer-reviewed process; led by clinical experts; informed by in-depth evidence reviews; and guided by widespread consultation.

The top five recommendations developed by the rheumatology working group are:

- Do not perform arthroscopy with lavage and/or debridement or partial meniscectomy for patients with symptomatic osteoarthritis of the knee and/or degenerate meniscal tear.
- Do not order anti-nuclear antibody (ANA) testing without symptoms and/or signs suggestive of a systemic rheumatic disease.
- Do not undertake imaging for low back pain in patients without indications of a serious underlying condition.
- Do not use ultrasound guidance to perform injections into the subacromial space as it provides no additional benefit in comparison to non-image guided injection.
- Do not order anti-double stranded (ds) DNA antibodies in ANA negative patients unless clinical suspicion of systemic lupus erythematosus (SLE) remains high.

5.1.7 Australian Living Evidence Consortium

The Australian Living Evidence Consortium is a world-first collaboration established in 2018 that brings together leading experts in evidence synthesis, guideline development and digital

technologies to build a next-generation system for delivering reliable, accessible, up-to-date evidence in health. The Consortium is led by Cochrane Australia and includes leaders from stroke, diabetes, kidney disease and musculoskeletal conditions.

The Living Evidence model aims to reduce the lag time between research publication and incorporation into evidence-based guidance from years to weeks, that is, to create 'living' guidelines. It also aims to reduce the time and unit costs associated with key steps in producing systematic reviews and guideline recommendations by up to 75%.

5.2 Models of care

A number of models of care have been developed by different jurisdictions in Australia and are at various stages of implementation. Models of care are evidence- and consultation-based frameworks that describe what and how health services and other resources should be delivered to people with specific health conditions. They provide an effective way to embed evidence into health policy and practice and achieve system efficiencies [7]. The Models of Care listed below have been mostly developed by musculoskeletal clinical networks in the relevant jurisdiction.

5.2.1 Osteoarthritis

Osteoarthritis Chronic Care Program (OACCP) (New South Wales)

The OACCP was developed by the Musculoskeletal Network of the New South Wales Agency for Clinical Innovation (ACI) and is available through a number of public hospitals in New South Wales.

The program provides a multidisciplinary team intervention coordinated by a senior physiotherapist for people who have significant osteoarthritis of the knee and/or hip. The program uses behaviour change theory over a period of 12 months to help support management of an individual's overall health such as maintaining medication regimens, dietary change and appropriate exercise programs. The program focuses on joint health and mobility, and provides encouragement and support to access interventions within the community/wider health system.

The OACCP model of care has been implemented and evaluated in eight Local Hospital Districts in New South Wales. Most of the participants have been on the NSW public hospital wait list for elective hip or knee joint replacement surgery. Evaluation found that the model of care improved clinical outcomes, facilitated earlier access to surgery where clinically indicated, and reduced demand for surgery, with 11% of participants waiting for knee replacements and 4% awaiting hip replacements deciding they no longer required surgery.[8]

The OACCP is currently being rolled out through Local Hospital Districts across New South Wales as part of the Leading Better Value Care Initiative. In addition, the program is being adapted for delivery in the primary care environment as part of the Local Musculoskeletal Service model of care (see below).

Osteoarthritis Hip and Knee Service (OAHKS) Victoria

OAHKS is available at 14 public hospitals in Victoria. The service co-ordinates the management and treatment of people with hip or knee osteoarthritis and helps manage waiting lists for specialist clinics and elective surgery.

The service incorporates a multidisciplinary musculoskeletal clinic staffed by a musculoskeletal coordinator, usually an advanced practice physiotherapist, and other staff, such as a rheumatologist, nurse practitioner or orthopaedic surgeon. Patients are triaged to attend the OAHKS clinic by the orthopaedic registrars.

Patients are comprehensively assessed by the musculoskeletal coordinator to determine the most appropriate management pathway. This may involve referral to see the orthopaedic surgeon, or monitoring and reassessment by OAHKS with referral to various allied health professionals, usually in the community.

Through system and workforce change, OAHKS has achieved the following benefits:

- better use of limited specialist orthopaedic services, including deferral of people who do not need surgery to conservative management
- early comprehensive assessment resulting in fast-tracking surgical assessment as appropriate and/or early referral for conservative management
- active management of the elective surgery waiting list, including prioritisation to match patient need
- improved patient satisfaction [9].

Orthopaedic and Musculoskeletal Physiotherapy Screening Clinics and Multidisciplinary Service (Queensland)

These models of care provide early assessment and non-surgical active management to suitable patients referred to specialist orthopaedic outpatient clinics in Queensland. This model is being rolled out in hospitals across the state.

Through these models, orthopaedic consultants perform the initial referral triage with advanced physiotherapists then triaging the Category 2 and 3 referrals that could potentially benefit from non-surgical management. These patients are streamed to the non-operative pathways where they receive a comprehensive physical assessment by an advanced scope musculoskeletal physiotherapist, and coordination of a care plan (sent to the patient's general practitioner) to support clinical management in the community.

The multidisciplinary service component of the model is focused upon non-surgical treatment and is largely provided for patients who have exhausted Medicare subsidised alternatives or are considered too complex to be treated in the community. The multidisciplinary service is supported by a designated team that typically includes a physiotherapist, an occupational therapist, a psychologist and a dietician.

Comprehensive Osteoarthritis Pathway (Tasmania)

The Comprehensive Osteoarthritis Pathway, available at the Royal Hobart Hospital, provides comprehensive assessment, monitoring, co-ordination and management planning for people with osteoarthritis of the hip or knee. Clinics are undertaken by advanced practice physiotherapists in close liaison with the hospital's orthopaedic department. The service is currently unfunded.

This model is similar to the OAHKS service in Victoria and the OACCP program in New South Wales.

Elective Joint Replacement Service Model of Care (Western Australia)

The Western Australian Elective Joint Replacement Service Model of Care (2010) describes a coordinated system of referral to orthopaedic clinics from GPs as well as the components of optimal care from point of referral to rehabilitation and long-term post-operative monitoring. The aim of the model is to address issues and offer solutions to:

- Standardise and improve the patient pathway
- Increase efficiency, safety and quality in the services provided
- Meet the requirements for health facilities
- Ensure a skilled and competent workforce [10].

Victorian Model of Care for Osteoarthritis of the Hip and Knee

The Victorian Model of Care for Osteoarthritis of the Hip and Knee (2018) was developed by the Victorian Musculoskeletal Clinical Leadership Group and describes a comprehensive system-level pathway of treatment for people with osteoarthritis of the knee and hip. The model covers diagnosis and assessment, key components of care, and delivery of care. It emphasises appropriate non-pharmacological and non-surgical care, including patient education and self-management strategies, support for physical activity, exercise and weight loss (where indicated), and pain education and management. For people with advanced disease who have exhausted non-surgical management options and who are suitable for total joint replacement, the model recommends optimal management of co-morbid conditions prior to surgery, and improvements in peri-operative and post-operative care [11]. The model has yet to be implemented.

Local Musculoskeletal In (New South Wales)

The Local Musculoskeletal Service (LMS) model of care has been developed by ACI to improve the management of osteoarthritis and osteoporosis in primary care. The LMS model of care is based on the OACCP program (see above). It is based on using local co-ordinators linked to a Primary Health Network (PHN) and/or Local Hospital District (LHD) to engage with local health care providers to establish multidisciplinary care teams and referral pathways to deliver effective care for people with these conditions. A significant advantage of this approach is that it enables the delivery of the model to be adapted in line with local needs and resources.

The current LMS model of care builds on and incorporates learnings from an initial proof of concept trial run in four PHNs in NSW from July 2014 to June 2016, called the Musculoskeletal Primary Health Care Initiative. This initiative was designed to test whether successful hospital outpatient based chronic care programs developed by ACI for osteoarthritis of the hip and/or knee (namely the OACCP program) and osteoporosis re-fracture prevention could be adapted to the primary care environment.

Although a formal evaluation of the Musculoskeletal Primary Health Care Initiative has yet to be completed the initial findings have been positive enough for the ACI to select the model for roll out as part of its Leading Better Value Care initiative. So far, six Local Hospital Districts/PHNs in New South Wales have agreed to implement the LMS model, with more making plans to implement this method of care delivery within the next twelve months.

5.2.2 Inflammatory Arthritis

Inflammatory Arthritis Model of Care (Western Australia)

The Western Australia Inflammatory Arthritis Model of Care (2009) provides a model of care for children and adults with inflammatory arthritis. Key components include promoting musculoskeletal health, supporting early diagnosis and intervention, providing evidence-based continuing care, improving access to services and multidisciplinary care, and building workforce capacity. The model was due for evaluation within three years of implementation, however, there has been little or no progress in implementing this model of care [12].

Paediatric Rheumatology Model of Care (New South Wales)

The NSW Paediatric Rheumatology model of care was developed by the ACI Musculoskeletal Network, in collaboration with Arthritis New South Wales. The aim of the model is to provide international best standards of practice to meet the needs of families and children affected by paediatric rheumatic disease. The model of care recommends a coordinated approach that involves a multidisciplinary team including interdisciplinary specialist services, disease management and physical therapy, patient education and management, psychosocial support and interaction and community liaison. It also recommends that formalised transition services are implemented [13].

There has been partial progress in implementing the model of care in New South Wales, including

- Establishing the Paediatric Rheumatology Network (PRN) across the Sydney children's hospitals
- Establishing HealthPathways across Primary Health Networks in the State
- Employment of a nurse consultant to provide services across the PRN
- A small increase in clinical services delivered by paediatric rheumatologists.

5.2.3 Musculoskeletal conditions (including arthritis)

Service Model for Community-Based Musculoskeletal Health (Western Australia)

The Western Australia Service Model for Community-Based Musculoskeletal Health (2013) is based on establishing community-based multidisciplinary clinics to provide integrated and coordinated care for people with complex or chronic musculoskeletal conditions such as inflammatory arthritis. The model is still being disseminated and progressed [12].

Musculoskeletal Triage and Assessment Service (Tasmania)

The Musculoskeletal Triage and Assessment Service model proposes a state-wide musculoskeletal assessment and service delivery model for Tasmania, which has yet to be implemented. The service would provide a single entry point for all musculoskeletal services (rheumatology, persistent pain, orthopaedic and neurosurgery specialist services) improving patient equity, access, flow, safety and outcomes. It would also provide improved access to public rheumatology and persistent pain services for people living in north and north-west Tasmania where these services are not currently available.

5.2.4 Pain Management

Models of care for pain management have been developed in Western Australia and South Australia.

Western Australian Framework for Persistent Pain 2016-2021

The *Western Australian Framework for Persistent Pain 2016-2021* was developed by the Musculoskeletal Health Network of WA Health. The Framework is guided by evidence to inform and support persistent pain management within Western Australia in response to the National Pain Strategy. The vision of the Framework is to promote the best possible health and wellbeing outcomes for Western Australians experiencing persistent pain. To achieve this vision, the Framework provides a number of opportunities in the following priority areas:

- Awareness and understanding of the burden of persistent pain
- Improving clinical management
- Improving navigation of and access to persistent pain services
- Improving integration of care for people with persistent pain

ACI Pain Management Model of Care (New South Wales)

The *ACI Pain Management Model of Care* aims to provide equitable and evidence-based services that improve quality of life for people living with pain and their families and to minimise the burden of pain on individuals and the community. Further, the model of care aims to integrate care across all aspects of the health care system by increasing partnerships and the capacity of pain management services in New South Wales. The model identifies three tiers of service to assist in continuity of care: tier 1 - primary health care; tier 2 - specialist care services led by medical specialists; and tier 3 - multi-disciplinary pain services in teaching hospitals. The model of care enables people to transition across the continuum of care.

Model of Care for Chronic Pain Management in South Australia (2016)

The *Model of Care for Chronic Pain Management in South Australia (2016)* aims to improve the delivery of pain management services to South Australians by delivering:

- A state-wide referral pathway to improve access to services and reduce waiting list times
- Improved integration of interdisciplinary care and services across all levels
- Improved operational capacity
- A blueprint through which to improve collaborative and effective working relationships between the primary, secondary and tertiary health systems, particularly in regard to planning future services, data collection and reporting
- Greater awareness by consumers and health professionals about chronic pain, treatment options and how to access services.

An implementation plan for the model of care was endorsed in December 2017.

5.2.5 Other service design initiatives

Early arthritis clinics

A number of rheumatology services across Australia offer early arthritis clinics for people with symptoms of inflammatory arthritis to support early intervention and management. These clinics offer a more structured approach to triage, assessment and referral of patients with inflammatory arthritis with the aim of reducing waiting times for urgent cases.

Transition care services

Transition care services for young people moving from paediatric to adult rheumatology services are increasingly being developed throughout Australia. The aim of these services is to support a young person to develop the skills they need to self-manage their condition successfully, a responsibility that previously rested with their parents/carers.

Models for transition care vary and include both disease-specific and generic adolescent health services. Some services such as the Royal Children's Hospital in Melbourne provide a general transition support service for adolescents with a range of complex/chronic health conditions. Other services provide a joint transition clinic for adolescents and young adults where the young person is seen by both the paediatric and adult specialists. A joint transition clinic for young adults with rheumatological diseases is provided at the John Hunter Children's Hospital in New South Wales.

Physiotherapist-led post-arthroplasty review clinics

Post-arthroplasty review clinics for patients following total hip and knee arthroplasty, led by advanced musculoskeletal physiotherapists in collaboration with orthopaedic specialists, are being implemented in some public hospitals. In Victoria, this model was implemented on a state-wide basis. An evaluation of this service found that the clinics delivered a safe, cost-efficient model of care that improved patient access and quality of care compared to traditional specialist-led workforce models. The average cost saving per occasion of service was \$38, representing a reduced pathway cost of 44%.¹ Other locations offering physiotherapist-led post-arthroplasty review clinics include the Mater and Prince Charles Hospitals in Brisbane.

Clinical Prioritisation criteria

Queensland Health is developing and implementing Clinical Prioritisation Criteria (CPCs) which help ensure patients referred for public specialist outpatient services in Queensland are assessed in order of clinical urgency. A rheumatology specific CPC was planned for development in 2018 with implementation to follow. These criteria will be developed by a range of key clinical stakeholders involved in the delivery of rheumatology services in Queensland.

5.2.6 Private sector models

Osteoarthritis Management Program

Hunter's Hill Private Hospital and Mt Wilgah Private Hospital in New South Wales offer the Osteoarthritis Management Program to people with hip or knee osteoarthritis referred by their GP or specialist. The Program is based on the OACCP program (see 5.2.1) which is currently being rolled out in public hospitals across New South Wales. Like the OACCP, this Program provides a multidisciplinary and integrated approach to the nonsurgical management of hip and knee osteoarthritis.

Healthy Weight for Life

The Osteoarthritis Healthy Weight for Life program is a specialised knee and hip osteoarthritis management program that combines weight loss, muscle strengthening, physical activity and self-management and education strategies. The program is provided by Prima Health Solutions Pty Ltd and is available at no cost to eligible members of a number of participating health funds.

The program is run over 18 weeks and includes:

- A portion-controlled eating plan
- An activity plan and physiotherapist-developed strength, balance and mobility exercises
- Personalised symptom, progress and satisfaction tracking (online, phone and mail)
- Personal motivation, support and advice via phone, SMS, email, message board and mail.

For more information see [Osteoarthritis Management HWFL\(https://oa.hwfl.com.au\)](https://oa.hwfl.com.au)

Medibank CareFirst Program

The Medibank CareFirst Program is a six-month behaviour change program for people who have recently been diagnosed with certain chronic conditions. Osteoarthritis is one of the conditions covered by the Program.

The Program is designed to help people to understand their health better and to make lifestyle and behaviour changes to try to proactively prevent further progression of their condition. Participants are provided with a personalised health plan, information specific to their condition, health coaching, access to a community service directory and telephone access to their own Care Navigator.

For further information see [Care first program \(https://carefirstprogram.com.au/\)](https://carefirstprogram.com.au/)

BUPA Arthritis Program

The BUPA Arthritis Management Program offers self-management techniques to improve pain management and reduce depression for people with arthritis. The Program includes:

- A Bupa Arthritis Action Plan that a person can take to their doctor to complete which assists with setting goals, staying on track with medication and managing pain more effectively
- Information on arthritis, its treatment and management.

For more information see [BUPA Arthritis Management Program \(https://www.bupa.com.au/health-and-wellness/programs-and-support/Member-Support-Programs/member-suport-arthritis\)](https://www.bupa.com.au/health-and-wellness/programs-and-support/Member-Support-Programs/member-suport-arthritis)

BJC Health Connected Care

BJC Health provides co-located multidisciplinary team care for people with rheumatic conditions. Based in two locations in Sydney, the service brings together an in-house team of rheumatologists, physiotherapists, exercise physiologists, dietitians and remedial massage therapists who work together to diagnose, treat and coach people with rheumatic conditions. A care-coordinator is also available to help with patient education and support.

Queensland Rheumatology Services

Queensland Rheumatology Services provides a multidisciplinary clinic for children with rheumatic conditions in Brisbane, as well as a clinic for adolescents and young people. A partnership with Zoe's Angels (see 4.3) allows patients with financial barriers to also access these private services.

5.3 Primary Health Network Programs

5.3.1 HealthPathways

HealthPathways is an online manual used by clinicians at the point of care to help make assessment, management, and specialist request decisions for over 550 conditions. It provides information on how to assess and manage medical conditions and how to refer patients to local specialists and services in the most timely way. Rather than being traditional guidelines, each pathway is an agreement between primary and specialist services on how patients with particular conditions will be managed in the local context. Each health jurisdiction tailors the content of HealthPathways to reflect local arrangements and opinion, and deploys their own instance of HealthPathways to their clinical community.

In Australia, HealthPathways are in use in most PHNs. Localised HealthPathways for some arthritis types or for some aspects of arthritis treatment (e.g. orthopaedic surgery or pain management), are available in a number of PHNs.

5.3.2 Arthritis-specific initiatives

Most Primary Health Networks (PHNs) commission services for chronic conditions within their area. These services may be general or specific to particular conditions. There are few PHNs which commission services specifically for arthritis (or musculoskeletal conditions) or which identify arthritis as a priority area of activity. The following list provides information on arthritis-relevant activities conducted by PHNs as advised by PHNs or other sources.

WA Primary Health Alliance

The WA Primary Health Alliance (WAPHA) oversees the strategic commissioning function of the three Western Australian Primary Health Networks. The Alliance has not commissioned services specifically to treat and support patients with arthritis, but has some services and initiatives relevant to people with arthritis including:

- *A HealthPathways rheumatology working group* has recently been convened to develop localised rheumatology pathways for all three PHNs in Western Australia.
- *Integrated Chronic Disease Care* activities are delivered across Country WA PHN, in 14 locations, to provide a collaborative, wrap around model of care for people who have chronic conditions, with a focus on providing clinical care and supporting individuals and families to self-manage their conditions. Arthritis is one of several chronic conditions people are supported to manage.
- *Musculoskeletal Rehabilitation Group for the Aged* was trialled in Country WA PHN's Midwest region to support older people with lower limb osteoarthritis, chronic pain, those with elevated fall risk and those awaiting lower limb orthopaedic surgery. The project was delivered over a six-week period; patients received exercise and education to reduce falls incidents and allowed for individual and group-based sessions. Treatment included group-based hydrotherapy, gym-based exercise and education sessions.
- *Community Pain Education Program*. This program is an evidence-based treatment and support program for people with chronic pain delivered in the metropolitan PHNs. Providers

use the electronic Persistent Pain Outcomes Collaborative (ePPOC) tool) which provides benchmarking of care and treatment to improve services and outcomes.

- *A trial of working together in different ways* project, delivered in Country WA PHN's South West region, was designed to support patients impacted by pain, living in more remote regional areas. The project supported the development of collaboration between GPs, allied health providers and non-medical services for improved access to holistic and multi-disciplinary care addressing chronic conditions and enduring pain.
- *NPS MedicineWise Educational Visiting Program – Osteoarthritis* (see 5.5.1). The WA PHNs facilitated the delivery of educational visits for GPs, practice nurses and pharmacists under this program.
- *Needs Assessment*. As part of its assessment of health and service needs across the three Western Australian PHNs, the WAPHA has identified the following arthritis-relevant factors:
 - The prevalence of arthritis and musculoskeletal conditions in the Perth South and Country WA PHNs is significantly higher than the rates for Australians overall
 - Waiting lists for access to rheumatology services range from two to 12 months, with particular shortages in rural and remote areas, but also in some urban areas
 - Lack of affordable services, as most rheumatologists bill privately
 - Distance and lack of affordable transport, particularly in rural and remote areas, but also in semi-urban locations.

Primary Health Tasmania

Arthritis-related services and initiatives within the Primary Health Tasmania PHN include the following:

- *Tasmanian HealthPathways* includes 87 orthopaedic/musculoskeletal pathways, 14 rheumatology pathways and six pain pathways
- *Overcoming Pain and Living Longer* program is a bio-psychosocial education and training program that builds the capacity for self-management in people who have complex histories
- Commissioned services to support people living with chronic health conditions in rural areas: people with musculoskeletal conditions are eligible for services in the south and north-west of the state.
- Primary Health Tasmania supported health professional education events alongside public seminars on pain, delivered as part of the Pain Revolution cycle tour in which leading pain scientists and clinicians visited 10 locations in Tasmania in March 2019.

North West Metropolitan PHN (Victoria)

St Vincent's Hospital, Melbourne is partnering with the North West Metropolitan PHN to trial a 'Rapid access musculoskeletal care' community-based clinic to assess and support patients with osteoarthritis of the knee. The project aims to reduce outpatient demand by increasing capacity for musculoskeletal management in the community. This will optimise acute resources, providing timelier access for patients who require joint replacement surgery.

Sydney North Health Network

Sydney North Health Network, in partnership with Northern Sydney Local Health District and the NSW Agency for Clinical Innovation, is implementing a local musculoskeletal initiative to improve the management of hip and knee osteoarthritis and osteoporosis in primary care (See Local Musculoskeletal Service in section 5.2.1).

5.4 Regional Rheumatology Outreach Clinics program

The Australian Rheumatology Association (ARA) subsidises travel and accommodation costs for rheumatologists and rheumatology registrars to run clinics in rural areas, as part of its Regional Rheumatology Outreach Clinics and Visiting Regional Registrar Support programs. The program aims to support current services in rural and regional areas. It also aims to expose trainee rheumatologists to rural practice, with the aim of encouraging them to support rural services in future in either a residential or outreach capacity.

The programs fund rheumatologists and registrars to travel to around 15 locations in NSW, Victoria, Queensland and South Australia. The ARA estimates that these support programs account for around 15% of all fly-in, fly-out rheumatology services in the country.

5.5 Arthritis-appropriate exercise programs

5.5.1 The Joint Movement

The Joint Movement program is an evidence-based group exercise program designed to improve health outcomes for people with arthritis and musculoskeletal conditions. The 12-week program offers both warm-water and land-based strength exercise programs which are led by trained and accredited exercise professionals. The program was developed by Arthritis Australia with the support of leading health and fitness experts.

Led by a qualified and specially trained exercise professional, the first week involves a pre-exercise screen and assessment of baseline health outcome measures, followed by 10 weekly sessions of resistance training utilising hand weights, leg cuffs and body weight. A follow-up assessment is undertaken at week 12, providing participants (and their referring GP/allied health provider) with a report on progress.

The Joint Movement Leader training program provides exercise professionals with the skills, resources and knowledge required to deliver the licensed exercise programs.

The Joint Movement will be rolled out across most States and Territories in 2019.

5.5.2 Good Life With Osteoarthritis (GLA:D)

GLA:D is an evidence-based education and exercise program developed by researchers in Denmark for people with hip or knee osteoarthritis that has recently been introduced to Australia. The exercise program consists of two to three group education sessions and 12 small group exercise sessions taking place twice per week for six weeks. GLA:D is delivered by physiotherapists who are trained and accredited to deliver the exercise program and is designed to be run in private practices, community health centres and hospital outpatient facilities.

Training courses for physiotherapists in the delivery of the GLA:D program are currently being offered across Australia. The course is designed so that all the trained providers offer consistent

education and treatment based on evidence that meets the program standards. This means that all individuals with hip and or knee osteoarthritis who attend the program receive evidence-based treatment regardless of their location.

Research from the GLA:D program in Denmark has reported it can reduce symptom progression by 32%. Other outcomes include less pain, reduced use of analgesics, and less people on sick leave. GLA:D® participants also reported high levels of satisfaction with the program and increased levels of physical activity 12 months after starting the program [14]. See [GLA:D Australia \(https://gladaustralia.com.au\)](https://gladaustralia.com.au) for more information.

5.6 Pharmacy programs

Safe Script

Safe Script is a real-time prescription monitoring system being implemented in Victoria with the aim of reducing deaths from prescription medicine overdose. A major focus of the program will be on opioid scripts. Musculoskeletal conditions are the leading health problems managed with opioids in general practice in Australia, accounting for more than half of all opioid scripts, with osteoarthritis accounting for 10% of all scripts [15].

Safe Script is supported by the Victorian Government and is being implemented by a consortium comprised of the Victorian and Tasmania PHN Alliance, with Western Victoria PHN as lead agency, and NPS MedicineWise.

The program is complemented by training modules for prescribers and pharmacists on the Safe Script system and on safe medication use for pain management, and by the development of localised HealthPathways related to chronic pain and opioid dependency.

Chronic Pain MedsCheck Trial

The MedsCheck Trial is a trial program designed to help community pharmacists to support people with ongoing chronic pain. The trial is being managed by the Pharmacy Guild and the Pharmaceutical Society of Australia and is funded by the Australian Department of Health as part of the Sixth Community Pharmacy Agreement Pharmacy Trial Program.

The trial will assist patients who are taking medication to manage ongoing chronic pain for three months or more and are experiencing self-management issues or who have dependency issues. The trial will involve professional pharmacist face- to face consultations with patients to review their medication use and develop a written action plan. The action plan will incorporate education, self-management, and referral to a GP or other health professional where additional support is required.

CPD-accredited online training modules have been developed to support the trial. These modules will educate pharmacists on the complex condition of chronic pain, including both medicines and non-pharmacological management strategies.

5.7 Health professional information and education

Medical colleges and professional associations provide training, information and ongoing education and continuing professional development for their members. It is beyond the scope of this

document to summarise these programs. The following list highlights specific educational activities relating to arthritis.

5.7.1 NPS MedicineWise

NPS MedicineWise is an independent, not-for-profit and evidence-based organisation that works to improve the way health technologies, medicines and medical tests are prescribed and used. It designs and delivers evidence-based interventions to positively influence clinical practice and improve health care decision making to improve health outcomes and support affordable health care. The organisation delivers a range of information and educational programs for health professionals, including conducting educational visits with GPs, and group training with pharmacists, nurses and other health professionals. It also develops consumer information resources and tools as part of its programs. The NPS also publishes *Australian Prescriber* which includes information on a range of clinical issues, including those relating to arthritis.

NPS MedicineWise has completed a number of recent programs specific to arthritis management which are outlined below.

Rheumatoid arthritis (2018)

This program, developed together with the Australian Rheumatology Association, aims to support early investigation, diagnosis and appropriate treatment for people with rheumatoid arthritis, with a focus on the role of low-dose methotrexate. Clinical resources available through the program include a webinar on methotrexate use for rheumatoid arthritis and information on the importance of early referral and treatment and on shared care approaches to managing rheumatoid arthritis. The program includes a CPD-accredited case study for pharmacists on strategies to help their patients optimise the use of once-weekly low-dose methotrexate.

Online consumer resources are also provided, including 'Managing rheumatoid arthritis' which includes information on rheumatoid arthritis symptoms and diagnosis, general information on medicines used to treat the condition and specific information on methotrexate. In addition, a downloadable patient action plan for is available to help people with rheumatoid arthritis understand how to take their methotrexate, the goals of their treatment and when to see their doctor.

Knee and hip osteoarthritis (2017)

The NPS MedicineWise osteoarthritis clinical program provides a range of information resources and practical tools for health professionals on the diagnosis and appropriate treatment of people with hip or knee osteoarthritis. The program highlights the importance of patient education and information, weight management and physical activity and the limited role of imaging and opioids. The program includes clinical information on diagnosis and management of osteoarthritis, news articles and a CPD- and Practice Incentives Program-Accredited case study. Educational visits for GPs, practice nurses and pharmacists were also available for the duration of the program.

Online consumer resources are also provided, including 'Osteoarthritis explained' and 'Managing osteoarthritis' which include consumer information on osteoarthritis symptoms and diagnosis and information and tips on self-management strategies.

5.7.2 Australian Rheumatology Association (ARA)

The Australian Rheumatology Association supports and educates members (typically rheumatologists) and other practitioners in the musculoskeletal field to enable provision of the best-practice management for patients. It fosters excellence in the diagnosis and management of musculoskeletal and inflammatory conditions through training, professional development, research and advocacy (see [Australian Rheumatology Association \(https://rheumatology.org.au\)](https://rheumatology.org.au)). It provides clinical recommendations for GPs including:

- Information on biologic treatment for rheumatoid arthritis, including information on the introduction of biosimilars
- Information on low-dose once-weekly methotrexate
- Telehealth information
- Fertility preservation guidelines
- Pregnancy prescribing information
- Clinical care standards for osteoarthritis (see Section 5.1.3).

For patients, it provides condition and medication information.

5.7.3 Paediatric Rheumatology Training Scholarships

Arthritis Australia, the Australian Paediatric Rheumatology Group of the Australian Rheumatology Association and Zoe's Angels Inc. are currently funding two scholarships to support paediatricians and paediatric trainees to undertake training in paediatric rheumatology.

The aim of the scholarships is to increase the paediatric rheumatology workforce in Australia by addressing the lack of dedicated funding within the Australian health system for training in paediatric rheumatology.

5.7.4 Royal Australian College of GPs (RACGP)

The RACGP provides ongoing professional development opportunities for its members including courses, online learning modules and programs, webinars and a journal, the *Australian Journal of General Practice*. A number of these offerings include topics relating to the management of various forms of arthritis.

5.7.5 Australian Medical Association (AMA) Doctorportal

The AMA provides an online learning platform for members called Doctorportal which includes a learning activity on rheumatoid arthritis.

5.7.6 Physiotherapy

Australian Physiotherapy Association

The Australian Physiotherapy Association is the peak body for physiotherapists in Australia. They provide continuing professional development opportunities for physiotherapists, including education on arthritis. In addition, there is a pathway for physiotherapists to become specialists, including as *Specialist Musculoskeletal Physiotherapist*.

RAP-eL

The RAP-eL e-learning program was developed to provide practising physiotherapists, physiotherapy students and students of other disciplines with essential disease-specific knowledge and clinical practice strategies to help them to optimally co-manage people with rheumatoid arthritis. The program was developed following research which identified that that physiotherapists and trainees lacked confidence in their disease-specific knowledge and clinical skills in best-practice management of rheumatoid arthritis. RAP-eL was developed to close those evidence-practice gaps.

An interdisciplinary team developed RAP-eL with funding from Curtin University, Arthritis and Osteoporosis WA and the Western Australian Department of Health. The content covers important aspects of rheumatoid arthritis itself and of physiotherapy management principles at different stages of the condition.

Assessment of the program found that following the education program, physiotherapist's self-reported confidence in their ability to manage patients with rheumatoid arthritis is improved [16].

The program is available at [RAP-eL\(<http://www.rap-el.com.au/index.html>\)](http://www.rap-el.com.au/index.html)

Advanced Musculoskeletal Physiotherapy Clinical Education Framework

The Advanced Musculoskeletal Physiotherapy Clinical Education Framework has been developed to support advanced musculoskeletal physiotherapy services operating across outpatient departments and emergency departments of public health services in Victoria.

The framework includes a competency-based learning and assessment resource that has been developed and adapted from the allied health competency framework used at Monash Health. It is divided into a generic manual and a workbook specific to the following area of advanced musculoskeletal physiotherapy practice:

- Post-arthroplasty review clinics
- Orthopaedic and neurosurgical screening clinics
- Osteoarthritis hip and knee services (OAHKS)
- Advanced musculoskeletal physiotherapy services in emergency departments
- Specialist physiotherapy pain services.

5.7.7 Pain management for health professionals

ACI Quicksteps to Manage Pain in Primary Care

This resource from the ACI Pain Management Network provides information and tools for health professionals in primary care to assist them to develop a pain management plan for their patients. [Pain Management Network \(<http://www.aci.health.nsw.gov.au/chronic-pain/health-professionals/quick-steps-to-manage-chronic-pain-in-primary-care>\)](http://www.aci.health.nsw.gov.au/chronic-pain/health-professionals/quick-steps-to-manage-chronic-pain-in-primary-care)

Better Pain Management education modules

The Faculty of Pain Management's *Better Pain Management* program has been designed for specialist and general medical practitioners, medical students, nurses and allied health practitioners engaged in the care of people with persistent pain. It consists of 12 online education modules each designed to be completed in one hour.

6 Research and data

6.1 Research funding

6.1.1 National Health and Medical Research Council (NHMRC).

The NHMRC is the major source of research funding for arthritis and musculoskeletal conditions. In 2017, \$17.1 million was awarded for arthritis and osteoporosis research, a decline of 35% over the last five years [17]. The 2017 allocation to arthritis and osteoporosis research was 3% of the total NHMRC funding allocated to National Health Priority Areas.

6.1.2 Medical Research Future Fund

The Medical Research Future Fund (MRFF) is a \$20 billion investment fund. Earnings from the MRFF are available to fund health and medical research and innovation. A number of targeted research grants and 'missions' have been announced since the inception of the MRFF. Research missions are programs of research with ambitious objectives that are only possible through significant investment, leadership and collaboration.

Missions or targeted funding allocations have been announced in a number of areas including genomics, stem cell research, brain cancer, rare cancers and conditions, cardiovascular disease, mental health, dementia, Parkinson's disease and type 1 diabetes. There has been no targeted allocation of MRFF funds for arthritis and musculoskeletal conditions.

6.1.3 Arthritis Australia Research Grants Program

Arthritis Australia conducts an annual research grants program for arthritis and related musculoskeletal conditions which is open to both national and international researchers. Arthritis Australia also funds the chair of rheumatology at the University of Sydney, currently held by Professor David Hunter.

In 2018, about one million dollars was awarded from the research grants program.

As well as the national research program, some of Arthritis Australia's State Affiliate offices provide financial support for local research projects and academic rheumatology initiatives. These include the Chairs of Rheumatology at Queensland University and the University of Western Australia.

6.1.4 Medibank Better Health Foundation

The Medibank Better Health Foundation supports projects with an area of focus addressing musculoskeletal conditions, with a particular emphasis on osteoarthritis. In 2017-18, the Foundation awarded \$660,000 to research into musculoskeletal conditions, of which \$500,000 went to osteoarthritis research and initiatives.

6.1.5 Australian Orthopaedic Association (AOA) Research Foundation

The AOA Research Foundation promotes and supports research into musculoskeletal disorders. Over the last 12 years the Research Foundation has given approximately \$1.5 million to support 50 research projects.

6.2 Centres of research excellence

6.2.1 Australia and New Zealand Musculoskeletal Clinical Trials Network (ANZMUSC)

ANZMUSC is a multidisciplinary collaborative clinical trials network composed of clinicians, consumer groups, consumer representatives, policy makers, professional associations and funders with an interest in investigator-initiated clinical trials focusing on musculoskeletal conditions. Its vision is to optimise musculoskeletal health through high quality, collaborative clinical research.

ANZMUSC was established in 2015 and was awarded an NHMRC Centre of Research Excellence in 2017.

ANZMUSC focuses on conducting large-scale clinical trials to answer the most critical questions for common musculoskeletal conditions. By focusing on large evidence and evidence-practice gaps, ANZMUSC research supports more cost-effective and evidence-based care for people with these conditions, with the potential for significant long-term savings for the health system.

More information can be found at [ANZMUSC \(http://anzmusc.org\)](http://anzmusc.org)

6.2.2 Centre for Research Excellence in Total Joint Replacement: (OPUS)

OPUS is focused on optimising outcomes, equity, cost effectiveness and patient selection for total joint replacement surgery. It aims to transform the research and practice landscape of joint replacement surgery, and promote critically needed stewardship to optimise management for better outcomes and reduced costs for this high volume and expensive procedure.

OPUS draws together Australian and international experts in clinical care, health economics, outcomes modelling, and implementation research to address rising demand for joint replacements, burgeoning costs and high rates of patient dissatisfaction post-surgery.

6.2.3 Centre for Research Excellence in Translational Research in Musculoskeletal Pain

The aim of this Centre is to improve outcomes for people with osteoarthritis and low back pain and reduce the economic burden of these musculoskeletal conditions. Its focus is on implementation research into the effectiveness of innovative models of care for osteoarthritis and low back pain to address evidence-practice gaps. It has three research streams: improving primary care management of osteoarthritis; empowering and supporting consumers; and improving uptake and adherence to exercise and physical activity.

6.3 Registries and databases

6.3.1 Australian Orthopaedic Association National Joint Replacement Registry

The Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR) is an initiative of the Australian Orthopaedic Association. The purpose of the AOANJRR is to improve and maintain the quality of care for individuals receiving joint replacement surgery. Data on hip, knee, shoulder, elbow, wrist, ankle and spinal disc replacement are collected from all hospitals in Australia undertaking joint replacement surgery. The data collected includes patient characteristics, prosthesis type and features, method of prosthesis fixation and surgical technique used. The AOANJRR is funded by the Commonwealth Department of Health. The AOANJRR publishes statistics on the number of joint replacement procedures undertaken in Australia and produces annual and supplementary reports which include information on hip, knee and shoulder replacements, surgeon and hospital variation, outcomes data, and prostheses with higher rates of revision. The latest report is from 2018. Further information can be found at [AOANJRR \(https://aoanjrr.sahmri.com\)](https://aoanjrr.sahmri.com)

The AOANJRR is currently expanding its data reporting initiatives including

- Individual surgeon reports are now being provided annually.
- Industry has been provided with access to real time automated reports on the performance of individual prostheses.
- A pilot project to test the feasibility of collecting patient reported outcome measures (PROMs) is currently underway in 50 hospitals across the country.
- Major data linkage projects have commenced linking core AOANJRR data sets with MBS and PBS data as well as data from other national registries and data sources.

6.3.2 Australian Rheumatology Association Database (ARAD)

ARAD is a national Australian database which collects important health information from individuals with inflammatory arthritis including rheumatoid arthritis, ankylosing spondylitis, juvenile arthritis and psoriatic arthritis. De-identified data from ARAD is available via request to the ARAD Steering Committee. By collecting long-term information about people's arthritis management, and their health and quality of life, ARAD aims to provide reliable and valid outcome data to Australian clinicians, consumers, policy makers, drug development companies and approval agencies. The project focuses on the impact of living with arthritis, and on the long-term safety and efficacy of established and new generation 'biological' drugs. ARAD has data linkage capabilities, linking to the National Death Index, cancer registries, and data from Medicare and the Pharmaceutical Benefits Scheme.

ARAD produces an annual report for participating rheumatologists, including information on changes in quality of life, self-reported side effects and infections. A number of manuscripts based on ARAD data have been published. The most recent publications have been on oral glucocorticoid use in rheumatoid arthritis; risk of malignancy in patients with rheumatoid arthritis treated with tumour necrosis factor inhibitors; and risk factors for herpes zoster in rheumatoid arthritis. More information can be found at [ARA Database \(https://aradwebsite.wixsite.com/arad/about-arad\)](https://aradwebsite.wixsite.com/arad/about-arad)

ARAD has been assessed by the AIHW as a data source with the potential to provide useful information for population health monitoring of inflammatory arthritis [18].

ARAD is currently being upgraded and expanded as part of the development of the Australian Arthritis and Auto-immune Biobanking Collaborative Project (see 6.3.3)

6.3.3 Australian Arthritis and Autoimmune Biobanking Collaborative (A3BC)

The A3BC is a major new initiative to establish a national collaborative network of state-of-the-art biobanking, data collection/linkage and big data analytics/machine-learning for enabling and translating research discovery. It integrates a broad range of 'omic' (genomic, microbiomic etc), patient-reported (demographics, treatment, quality of life, diet etc), medical and administrative health data from people with arthritis and autoimmune disorders across Australia. The A3BC seeks to:

- Establish a national, best-practice, open-access (ethics-approved) biobank network to collect, process and store a broad range of high-quality biospecimens for innovative multi-omic arthritis and autoimmune research.
- Integrate multi-omic data with multiple national datasets, including patient-reported outcome/ experience data (Australian Rheumatology Association Database - ARAD),

electronic medical records (~40 hospitals), Commonwealth data (i.e. MBS, PBS) and cancer/death registries.

- Apply cutting-edge visualisation (dashboards), big-data analytics and machine-learning tools to interrogate these integrated datasets for potential associations/patterns of patient and population significance.
- Enable the translation of research discoveries into a comprehensive evidence base for improved musculoskeletal policy/practice across precision and preventive medicine - to give the right care, to the right patient, at the right time.

So far, more than 50 public and private hospitals, 50 clinicians/researchers and nearly 20 research organisations have agreed to contribute to the A3BC. Discussions are also being held with a range of international collaborating partners.

Initially the A3BC will focus on rheumatoid arthritis, juvenile idiopathic arthritis, psoriatic arthritis, ankylosing spondylitis and vasculitis. These conditions currently affect around 600,000 Australians. Once national operations are mature, additional conditions such as Sjogren's syndrome, lower back pain, gout, scleroderma and osteoarthritis will be added.

More information can be found at [A3BC \(https://a3bc.com.au\)](https://a3bc.com.au)

6.3.4 Optimising Patient Outcomes in Australian Rheumatology (OPAL)

OPAL Rheumatology Ltd is an independent clinician owned and operated, not-for profit, Australian clinical research organisation. OPAL's vision is to enhance the understanding of rheumatic diseases through audit and research using data captured at the point of care.

OPAL is the custodian of one of the largest databases of patients with rheumatic diseases in the world, containing 155,000 unique patients and more than 250,000 patient years of real world clinical data. De-identified data is regularly extracted and aggregated from the electronic medical records (EMR) of consenting patients treated by approximately 100 rheumatologists around Australia, mostly those in private practice.

The EMR shared by OPAL clinicians was specifically customised for rheumatology and collects comprehensive information on demographics, co-morbidities, pathology, disease history and severity, and medication use. In addition, OPAL captures multifaceted outcomes data from both the physician and the patient perspective through a novel patient-reported outcome mechanism which allows for quality of life to be matched with disease severity and medication usage. Since inception in 2009, OPAL has completed 16 research questions and produced 41 publications and abstracts. In addition, OPAL provides real world evidence to guide medical affairs and commercial strategy, and to support regulatory and reimbursement submissions.

6.3.5 Genetics of ankylosing spondylitis (AS) study biobank

The Genetics of AS study biobank is both a biobank and clinical registry currently held at Queensland University of Technology in Brisbane. It holds a global collection of data and samples including clinical details on about 30,000 AS cases, as well as DNA, radiographic and genotype data on subgroups within the collection.

The biobank and registry supports international collaborative research into the genetics of AS by the Australo-Anglo-American Spondyloarthritis Consortium. The aim of this research is to improve treatment and potentially prevention of AS by identifying novel therapeutic targets, and developing

methods to improve early diagnosis of the disease, which currently has a mean 10 year diagnostic delay.

6.3.6 Australian Lupus Registry and Biobank (ALRB)

The ALRB is a collaboration between centres and institutes across Australia that aims to improve treatment and outcomes for people with systemic lupus erythematosus (lupus) and support collaborative research into the condition. It is also the regional hub, and headquarters, of the Asia Pacific Lupus Collaboration, the largest lupus contemporary registry worldwide.

The ALRB builds on Australia's first lupus registry, the Monash Lupus Database and serum bank, at the Monash University School of Clinical Sciences at Monash Health.

The ALRB is an online platform that enables the longitudinal collection of systematic and comprehensive data from patients at 10 institutions across Victoria, New South Wales, South Australia and Western Australia. In addition to biological samples, the information collected includes visit-to-visit disease activity, medication exposure and patient reported outcomes.

The ALRB supports world-class research of global impact, as well as being the only source of Australian data on disease burden, treatment patterns, and outcomes.

6.3.7 Australian and New Zealand Childhood Arthritis Risk Factor Identification (ANZ CLARITY) study and biobank

The ANZ CLARITY study is a national biobank of biological samples and questionnaire data obtained from cases of children with juvenile idiopathic arthritis and healthy control children in Australia. The broad aim of the study is to identify genomic and environmental risk factors for the disease in order to improve treatment, identify causes and, eventually, find a cure.

The biobank collects biological samples and clinical and environmental data, including retrospective life course data at the time of patient enrolment, information on pregnancy and birth and biological samples from newborn (Guthrie) screening cards. The biobank is held at the Murdoch Children's Research Institute in Melbourne.

6.3.8 The Australian Scleroderma Interest Group (ASIG) and biobank

ASIG is a special interest group of the Australian Rheumatology Association established in 2007. The aim of ASIG is to improve the care of patients with scleroderma (systemic sclerosis) through clinical research and the development of guidelines for the investigation, monitoring and management of patients with the condition.

ASIG undertakes a screening program for serious complications associated with scleroderma at designated centres around Australia, runs the Australian Scleroderma Cohort Study and maintains a blood biobank which collects samples from most centres across Australia for storage in Adelaide.

6.3.9 Arthroplasty Clinical Outcomes Registry (ACORN)

ACORN was established in 2012 to provide information on the patient-relevant outcomes of joint replacement surgery. ACORN collects information directly from patients about their expectations of surgery and the actual outcomes of their hip or knee replacement. Specifically, ACORN was designed to provide standardised, reliable and near-complete information from multiple hospitals, and to use this information to drive improvement by informing future decision making by the public, surgeons, and hospitals.

ACORN covers all hip and knee replacement (arthroplasty) surgery performed as an elective procedure in participating institutions. The outcomes measured include general health and measures of pain and function in the hip or knee. The registry also reports on complications (such as readmission, reoperation, infection and blood clot), patient satisfaction and patient-rated recovery

The majority of ACORN participants are located in NSW. For further information see [ACORN \(http://www.acornregistry.org\)](http://www.acornregistry.org)

6.3.10 St Vincent's Arthroplasty and Outcomes (SMART) Registry

The St Vincent's Arthroplasty and Outcomes (SMART) Registry was developed in 1998 to hold demographic and clinical outcomes on over 11,000 patients undergoing arthroplasty, providing meaningful data to show clinical outcomes.

6.3.11 The Australian Spine Registry

The Australian Spine Registry (ASR) established in 2018, is an initiative of the Spine Society of Australia. It aims to improve the quality of care provided to individuals undergoing spine surgery in Australia. For further information, see [Australian Spine Registry \(https://www.spineregistry.org.au/\)](https://www.spineregistry.org.au/)

The information collected by the ASR will provide an important resource for surgeons who perform spine surgery, as well as for hospitals and the community.

6.4 Research institutes and universities

There are a number of research institutes, hospitals and universities that support research into arthritis and musculoskeletal conditions. These include, but are not limited to, the following:

The Institute of Bone and Joint Research (IBJR)

IBJR is an Institute devoted to advancing our understanding of the disorders and diseases of the musculoskeletal system, their diagnosis and treatments. IBJR consists of 5 different units that carry out extensive research in the musculoskeletal field, including Basic Research Groups (Murray Maxwell Biomechanics Laboratory, Raymond Purves Bone and Joint Research Laboratories and Sutton Arthritis Research Laboratory) and Clinical Research Departments (Department of Rheumatology and Department of Orthopaedics). It aims to advance research in diseases of the musculoskeletal system and bring the latest evidence-based information back to the community. IBJR is part of the Kolling Institute of Medical Research

Australian Institute for Musculoskeletal Science (AIMSS)

AIMSS is a collaboration between The University of Melbourne, Victoria University and Western Health, which focuses on performing high-quality, multi-disciplinary and translational research on ageing and musculoskeletal diseases.

The Australian Institute of Musculoskeletal Research (AIMS)

AIMS undertakes clinical research into musculoskeletal disorders, with a focus on orthopaedics. It also sponsors and administers high quality post graduate sub-specialty fellowship training programmes which enable surgeons to develop both their surgical and research skills.

Institute for Musculoskeletal Health

The recently launched Institute for Musculoskeletal Health is a collaborative research hub developed by the University of Sydney and the Sydney Local Health District which brings together musculoskeletal healthcare researchers from both academia and clinical practice.

The Institute will promote translational research, foster the development of a highly skilled musculoskeletal research workforce, and contribute to developing sustainable, equitable, and cost-effective health care services. It has three major research streams. These are: back pain and musculoskeletal conditions; physical activity ageing and disability and; evidence and equity.

The Sydney Musculoskeletal, Bone & Joint Health Alliance (SydMSK)

SydMSK is a University of Sydney multidisciplinary initiative to expand research strength in Musculoskeletal Health across the University and affiliated institutions, and improve research translation with the Local Health Districts and Primary Health Networks in collaboration with Sydney Health Partners. Membership is drawn from four of the university faculties, nine research institutes and four Local Health Districts.

Centre for Health Exercise and Sports Medicine (CHESM)

CHESM research focuses on the role of conservative strategies, particularly exercise, in promoting overall health and well-being and in preventing and managing the public health problems that are currently facing society, with a particular focus on the prevention and management of musculoskeletal conditions such as osteoarthritis.

Other Institutes and universities

A range of other research institutes and universities support research into arthritis through rheumatology, immunology or musculoskeletal research streams. These include but are not limited to:

- The Garvan Institute of Medical Research
- The Menzies Institute for Medical Research
- Murdoch Children's Research Institute
- The University of Queensland Diamantina Institute
- Walter and Eliza Hall Institute of Medical Research
- Translational Research Institute Australia
- University of Sydney – Arthritis and Musculoskeletal Research Group
- University of New South Wales – Arthritis Research Group
- The Hospital Research Foundation.

6.5 Advanced Health Research and Translation Centres (AHRTC)

NHMRC-recognised AHRTCs aim to encourage excellent health research and translation in Australia by bringing together researchers, healthcare providers, education and training to improve the health and well-being of patients and the populations they serve.

There are seven recognised AHRTCs. Of these, two have a dedicated musculoskeletal research stream. These are Sydney Health Partners and the Sydney Partnership for Health, Education, Research and Enterprise (SPHERE). In addition, Brisbane Diamantina Partners AHRTC has an

Immunity, Inflammation and Infection stream, which includes some research relating to auto-immune arthritis.

6.6 Data sources

6.6.1 Government agencies

Australian Institute of Health and Welfare

The AIHW is the main provider of national information and statistics on arthritis and musculoskeletal conditions, including prevalence, condition specific information for most common types of arthritis, health system expenditure, some aspects of treatment and management, particularly management in hospitals, and burden of disease.

The Australian Bureau of Statistic (ABS)

ABS has a number of data collections which include information relevant to arthritis. These include the National Health Survey, the Australian Health Survey, the National Aboriginal and Torres Strait Islander Health Survey and the Survey of Disability, Ageing and Carers.

The Australian Commission on Safety and Quality in Healthcare (ACSQHC)

Since 2015, the ACSQHC has published the Atlas of Healthcare Variation. Each Atlas has included information on healthcare variation related to one or more treatments commonly used for arthritis, including joint replacements, knee arthroscopies in people aged over 55 years, and opioid use.

6.6.2 Other data sources

Bettering the Evaluation and Care of Health Survey of General Practice (BEACH)

The BEACH survey looked at the clinical activities of general practitioners. BEACH began operating in April 1998 and ceased data collection in early 2017. It contains almost 1.8 million GP-patient encounter records. More information can be found at [Family Medicine Research Centre \(http://sydney.edu.au/medicine/fmrc/beach/\)](http://sydney.edu.au/medicine/fmrc/beach/)

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