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Service model for community-based musculoskeletal health in Western Australia

Musculoskeletal Health Network

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Support for the policy

The following external agencies have officially endorsed or supported this policy.

- Arthritis and Osteoporosis WA^
- Arthritis Australia#
- Australian and New Zealand Bone and Mineral Society^
- Australian Orthopaedic Association (WA Branch)^
- Australian Pain Management Association Inc.#
- Australian Pain Society^
- Australian Physiotherapy Association (WA Branch)#
- Australian Rheumatology Association (WA Branch)^
- Chiropractic and Osteopathic College of Australasia^
- Chiropractors' Association of Australia (WA)#
- Endocrine Society of Australia^
- Exercise and Sports Science Australia#
- Osteoporosis Australia^
- Pain Australia^
- Rheumatology Health Professionals Association^
- Royal Australian College of General Practitioners (WA Faculty)^
- Western Australian Practice Nurses Association Inc.#

^ endorsement; # support

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1. Introduction

The burden of musculoskeletal disorders, including pain of musculoskeletal origin, in Australia is substantial on the individual and the community and is expected to become more significant in coming years, highlighting the need for contemporary policy to inform service design and planning [1]. National and State data highlight the magnitude of the problem and point to the need for ongoing community-based services for consumers with musculoskeletal health conditions and their carers [2]. Musculoskeletal conditions, specifically **osteoarthritis (OA)**, **rheumatoid arthritis (RA)** and **osteoporosis (OP)**, have therefore been recognised as Australian National Health Priority Areas since 2002, while the burden of **musculoskeletal pain** is emphasised in the Australian National Pain Strategy [3] and supported by recent reports [4,5]. The burden of musculoskeletal health conditions is further compounded by the strong relationships between chronic pain and co-morbid health conditions [6] . Moreover, the disability experienced from musculoskeletal conditions inhibits the effective management of risk factors for other chronic health conditions such as heart disease, type II diabetes, COPD and depression.

Currently, service delivery in Australia for complex and/or chronic musculoskeletal health conditions is inadequate [4,6-9] and a similar situation has been reported in the United Kingdom [10]. Coupled with an increasing prevalence of musculoskeletal conditions, the gap appears to be widening between timely provision of patient services by health care systems and increasing demand, while maintaining service quality.

2. Purpose and scope

The purpose of the Service Model is to articulate the common service delivery recommendations across the existing Models of Care for musculoskeletal health and describe a model of coordinated and interdisciplinary care for consumers in WA with musculoskeletal health conditions.

The Service Model is applicable to people of any age living with any one or more complex or chronic musculoskeletal health condition(s) where consumer outcomes could be optimised using a coordinated and interdisciplinary model of service delivery. Importantly, the Model recognises that many musculoskeletal health conditions can be managed effectively in the primary care sector by individual health practitioners (e.g. GPs, allied health professionals) in a mono-disciplinary model (e.g. acute musculoskeletal conditions) and may not require assessment and management from a dedicated, interdisciplinary service or coordination of service delivery from multiple providers or organisations. However, for people with complex and chronic musculoskeletal conditions (e.g. complex and persistent pain syndromes, inflammatory arthritis, severe osteoporosis; or a combination of these), evidence and clinical guidelines point to the consumer and system benefits of providing health services in a co-ordinated and interdisciplinary model, ideally with co-location of services and providers, in cooperation with a consumer's primary care practitioner. For the rural and remote sector, the use of telehealth may be appropriate. This service model is aimed at this group of consumers

The Model is aimed at those individuals tasked with planning and developing services for musculoskeletal health conditions, especially in community-based settings.

3. Existing Models of Care for musculoskeletal health in WA

In recognition of the burden of musculoskeletal disorders in WA and to ensure best-practice models of service delivery are implemented for the benefit of consumers, the WA Musculoskeletal Health Network has developed a suite of evidence-based policies (Models of Care), which describe how health services should be delivered to consumers, to ensure the *right care* is delivered at the *right time*, by the *right team*, in the *right place*. These Models of Care Include:

- WA Spinal Pain Model of Care*
- WA Inflammatory Arthritis Model of Care
- WA Elective Joint Replacement Service Model of Care
- WA Osteoporosis Model of Care^

* Developed in collaboration with the Neurosciences and the Senses Health Network.

These Models of Care are accessible from the WA Health Networks website at http://www.healthnetworks.health.wa.gov.au/modelsofcare/index.cfm. Each Model of Care provides an overview of the condition while the best evidence available at the time of writing is used to develop evidence-informed recommendations, appropriate to the WA context, for optimising the delivery of health services for consumers in WA. A summary of the common recommendations across the Models is provided in Appendix 1.

4. Rationale for a community-based service model for musculoskeletal health in WA

Recently, the WA Health Networks developed the WA Chronic Health Conditions Framework 2011-2016 (the Framework) [12]. The purpose of the Framework was to synthesise and integrate the common health service delivery recommendations from the existing WA chronic health conditions (condition-specific) Models of Care. The Framework now serves as a platform for implementation of these recommendations across chronic health conditions and the continuum of care. Similarly, the WA Chronic Conditions Self-Management Strategic Framework 2011-2015 [13] provides a focus for planning and delivery of self-management support and programmes in WA. Other strategic polices which have been informed by Models of Care include the WA Primary Health Care Strategy [14] and the WA Health Promotion Strategic Framework 2012-2016 (draft) [15]. These strategic policies provide an overarching strategic direction to support the implementation of Models of Care.

Each existing Model of Care is a comprehensive document detailing condition-specific information and evidence-informed recommendations. Individuals tasked with planning or developing service delivery across a suite of musculoskeletal conditions, are often faced with the challenge of reviewing a large volume of detailed information in each Model of Care.

The application of common, evidence-informed service principles for service delivery in musculoskeletal health is important for the following reasons:

1. Individuals with musculoskeletal health conditions commonly experience more than one musculoskeletal condition (i.e. co-morbidity within a disease cluster) [16]. In particular, musculoskeletal pain is a common symptom across the suite of conditions.
2. Musculoskeletal co-morbidities are common in other chronic health conditions (i.e. co-morbidity across a disease cluster) [17-19].
3. Service quality, efficiency and cost effectiveness may be optimised where service models address co-morbidity within a disease cluster, rather than single conditions in isolation. At the primary care level, where the majority of musculoskeletal conditions are managed [20], a multi-condition service model may be most appropriate. This may have bilateral benefits for both

^ Developed in collaboration with the Diabetes and Endocrine, Falls Prevention, and Aged Care Health Networks.

the workforce and consumers – providing opportunities for expanding skills and knowledge of the workforce and for consumers, the opportunity to have more than one health condition addressed.

4. While service delivery for consumers with less common musculoskeletal health conditions may be most appropriately delivered in a tertiary centre, a description of an integrated model of delivery where tertiary and primary care services articulate, based on generic services principles, is important for consumers and for rationalisation of health resources.
5. In order to meet the escalating needs for health services, WA Health and its partners [14] need long-term plans which describe how clinical services should be established across a suite of musculoskeletal conditions.

The **Service Model for community-based musculoskeletal health in WA** aims to implement service recommendations across the existing, evidence-based musculoskeletal disease-specific Models of Care (see Appendix 1) and is informed by strategic policies for chronic health conditions and strategic health service frameworks for WA, including Activity Based Funding and the Clinical Services Framework [21] (Figure 1). The Service Model should be interpreted as a *guide* to implementing health services for musculoskeletal health conditions, ideally based in the community, and should be flexible to suit the operational and community needs of site where it is established. The specific operational details of the proposed Model should be decided by the implementation site(s), in consultation with the community, appropriate Health Service and local health providers.

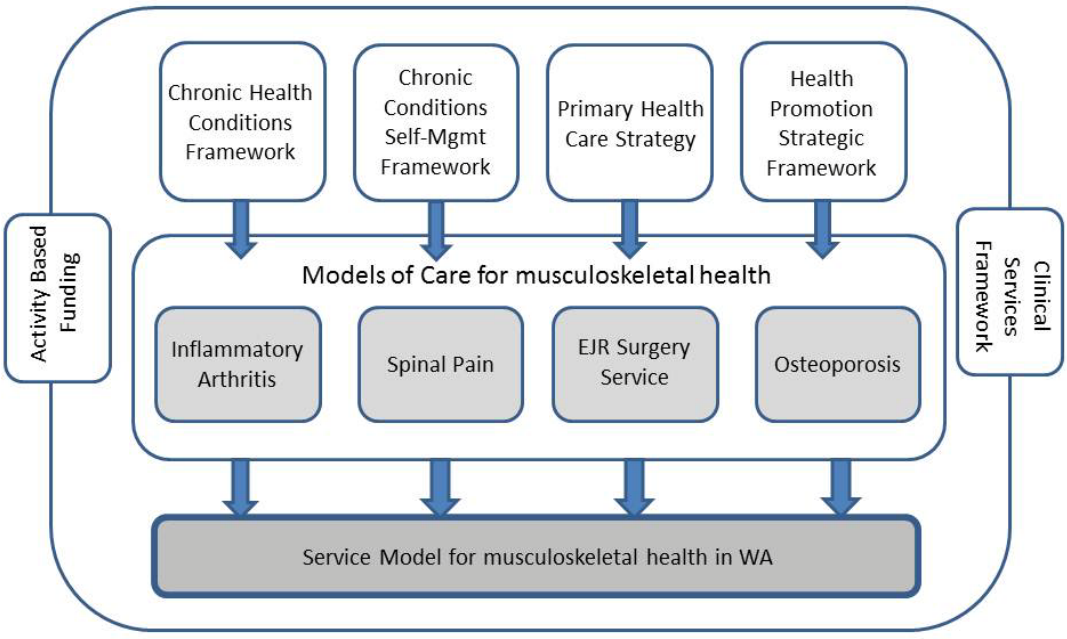


Figure 1: Schematic of how Models of Care, strategic policies and strategic directions in WA Health integrate with the Service Model. The Models of Care and strategic policies have been used to inform the Service Model.

The Service Model is underpinned by the following principles, consistent with the principles of Models of Care in WA [12], the European Board of Rheumatology [22], the National Pain Strategy [3] and RACGP clinical guidelines for musculoskeletal disease.

- Enable timely access to assessment, diagnosis and best practice management of musculoskeletal conditions, including investigative methods and therapeutic techniques.
- Provide education, counselling and self-management support to consumers (and their carers) with musculoskeletal health conditions.
- Provide access to a team of professionals trained in the management of musculoskeletal health conditions to enable effective shared care.
- Provide access to appropriate inpatient facilities for treatment and management of severe conditions.
- Provide linkage with other specialist clinics that deal with rarer conditions, for example those provided at tertiary centres.
- Provide opportunities for education, professional development and research.
- Provide services and/or implement service delivery strategies to address service disparities for consumers between metropolitan locations and rural and remote locations.

While the service model focuses on the delivery of health services to consumers with established musculoskeletal health conditions, the importance of evidence-based health promotion is recognised, as detailed in the WA Health Promotion Strategic Framework [15]. Further, the importance of addressing the social determinants of health is acknowledged.

5. Methods

An interdisciplinary working group was convened from the WA Musculoskeletal Health Network to inform the content of the Service Model. Together with priorities identified in a stakeholder forum in 2011 [23] and a dedicated workshop held in May 2012, the working group reviewed recommendations across the existing Models of Care (Appendix 1) for musculoskeletal health to develop a detailed description of a Service Model for consumers with musculoskeletal health conditions in WA.

The draft Model was released for broad consultation over 5 weeks during July and August 2012, following standard procedures employed by the WA Health Networks. Feedback was received from 28 individuals and 17 organisations, representing 152 free-text comments. The working group considered all feedback in preparing the final policy.

6. The Service Model and Priority Areas

The Service Model is applicable to consumers of any age and background, and their carers, who live with a complex or chronic musculoskeletal disorder that requires coordinated and interdisciplinary care and could not otherwise be effectively managed by individual practitioners in primary care. The setting for the service model may vary according to local needs and operational circumstances. For a large proportion of musculoskeletal health conditions, clinical services may be safely and effectively delivered in community-based settings. These facilities may include, but not be limited to:

- Non-government organisations, e.g. Arthritis and Osteoporosis WA.
- Interdisciplinary University clinics
- Aboriginal Medical Services
- Medicare Locals and organisations supported by them
- GP clinics or Super-clinics
- Community-based clinics and health centres
- Non-tertiary hospitals

Where possible, a musculoskeletal service should be co-located or integrated with existing initiatives, resources or programs that provide health services for consumers with chronic health conditions in order to provide streamlined access to services and promote a Community of Practice model [24-26]. Where this is not possible, e.g. in rural and remote sectors, other strategies such as telehealth should be used to provide access to coordinated services.

People with musculoskeletal health impairments need a range of services in order to access appropriate care. Whilst the majority of the services may be accessed in the community, and at non-tertiary hospitals, some people will need access to tertiary services for management of acute and complex care, such as progressive rheumatoid arthritis and connective tissue diseases or complex musculoskeletal pain. Further, tertiary facilities may be required for the management of less common conditions, e.g. connective tissue diseases, severe vasculitis and less common or complex bone diseases. In some circumstances, access to inpatient facilities will also be required, particularly for orthopaedic surgery.

This Section 6 has two components:

1. Service Model: a community-based service model for consumers with musculoskeletal health impairments.
2. Priority areas: key priority areas for promoting and facilitating good musculoskeletal health in the WA community. This section should be considered in parallel with the Service Model.

6.1. A service model for community-based musculoskeletal health in WA

Table 1 provides an overview of the key components required in order to deliver a community-based, interdisciplinary musculoskeletal health service, consistent with the Models of Care, and pending accreditation. While it is recognised that it may not be possible to provide all these components, the Table below outlines a 'best case' scenario. Underpinning all these components is effective engagement and integration with GPs, who already provide a primary care service for consumers with musculoskeletal conditions, and a focus on disseminating and reinforcing messages about health promotion.

Table 1 Features of a comprehensive community-based musculoskeletal health service.

Component	Description
Location	• Determine site locations based on identified areas of need (e.g. lower socio-economic areas or population groups) • Adjacent to public transport services/routes, including local government-sponsored transport services • Close proximity to parallel clinical services including community pharmacy, medical imaging, bone densitometry, pathology, and allied health services. • Car parking with adequate reserved bays and access opportunities for consumers with physical disabilities
Infrastructure and physical resources	• Accessible for people with physical disabilities (e.g. use of ramps). • Multiple consulting suites/spaces to accommodate an interdisciplinary clinic • Private meeting rooms for interdisciplinary clinical meetings and meetings with families and carers* • Infusion suite* • Secure telehealth capabilities • Secure access to private and state health clinical systems (e.g. to access pathology and radiology and disease-specific databases). Partnering with mobile DXA services may enable more timely access to bone densitometry services. • Image viewers* • Injection trolley

	• Equipment sterilisation system • Biological waste capabilities • Examination tables • Ultrasound imaging* • Appropriate facilities for paediatric clients* • Incorporate a consumer-centred health resources area (e.g. pamphlets, an interactive web kiosk) where consumers can learn about healthy lifestyle choices and gather evidence-based information about effective prevention and management approaches for musculoskeletal health
Referral system	• Adopt e-referral system, where practical • Establish protocol-driven triage to ensure timely access • Include screening tools for certain clinical conditions • Shared electronic referral system within and outside the service
Workforce (as appropriate to the needs of the service)	• Availability of appropriate health care professionals, where there is evidence for the effectiveness of discipline-specific interventions for particular clinical conditions, and other workforce including: - Service coordinators (e.g. appropriately qualified health professionals such as allied health professionals, medical practitioners, or nurses/nurse practitioners) - Medical specialists and registrars (e.g. rheumatology, pain, orthopaedics, endocrinology, gerontology) - Physiotherapists and specialist physiotherapists - Nurses / nurse practitioners - Occupational therapists - Podiatrists - Psychologists / clinical psychologists - Social workers - Administration/support staff - Dieticians - Falls prevention specialists - Chiropractors

	- Exercise physiologists - Therapy assistants • Provide opportunities for interdisciplinary training to up-skill the workforce in best-practice management of complex and/or chronic musculoskeletal conditions using a range of educational platforms. • Peer support workers, e.g. from community organisations such as Arthritis and Osteoporosis WA and workers from culturally and linguistically diverse backgrounds*. These workers should be defined according to the client demographics for individual service localities. • Access to interpreter services
Possible Clinical services	• Orthopaedics (pre-surgical assessment, pre-surgical conditioning (e.g. exercise, education) and post-surgical follow-up of joint replacement) • Musculoskeletal pain (including services for spinal surgery/pain, pain medicine, education for safe pain medicine use) • Rheumatology (osteoarthritis, biologics clinics, early synovitis clinic, inflammatory arthritis) • Osteoporosis / fragile bone clinics • Paediatric rheumatology / musculoskeletal clinical services • Hand clinics • Medication reviews in collaboration with community pharmacies

*preferable feature, not essential

Figure 2 illustrates a proposed model and its enablers for community-based delivery of musculoskeletal health services. In the initial stages of establishment of a service, engagement with Medicare Locals, General Practitioners (GPs) and their practice staff, and Aboriginal Community Controlled Health Services will be critical to developing effective working relationships and communication strategies. Liaison with GPs is particularly important for enabling consumers to access Medicare-funded allied health and mental health services in the community through the Medicare Chronic Disease Management and Access to Better Mental Health initiatives. Providing education to practice nurses about a service will also be imperative and may be facilitated through a range of organisations, e.g. the WA Practice Nurses Association.

The key features of the musculoskeletal service model include:

- **Entry and exit criteria**. Consumers may enter the service via referral to the service by their GP in order to access Medicare-subsidised services. In some cases, referrals from Nurse Practitioners or other health professionals (e.g. community pharmacists) may be possible and these operational criteria should be determined by individual sites. The Model recognises patient choice and supports patients discussing management options and service providers with their GP and other existing primary care providers. Ultimately, a central referral centre may be established if multiple musculoskeletal health services are established across WA Health Services. Where appropriate, the central referral centre may also redirect referrals to community-based services or other health services in situations where the musculoskeletal service(s) cannot meet the needs of the consumer. To ensure ongoing management by the GP, and a sustainable capacity to assess and develop management plans for new referrals, flexible criteria for discharge from the service should also be developed. Such criteria might include, but not be limited to:
  - ✓ Development of an interdisciplinary care plan for implementation in the primary care sector.
  - ✓ Implementation of the care plan with a specified time frame (e.g. within 18 weeks of referral).
  - ✓ A 6-12 month review of the care plan.
  - ✓ A capped number of visits to the service.
- **Processing and triage of referrals** to ensure timely access to services for those consumers in greatest need. Triaging should be protocol-driven by an appropriately qualified health professional and may be facilitated through the use of validated, disease-relevant screening tools or ensuring referrals are accompanied by referral criteria information, such as the CPAC concept used by WA Health. The aim of the triage component is to ensure those consumers with the most urgent clinical need may access care in the timeliest manner. For example, the Elective Joint Replacement Service Model of Care recommends the use of pre-clinic screening tools such as the Oxford Scales or the Multi-attribute Arthritis Prioritisation Tool (MAPT) [27]. Ideally, screening tools should be sent to the service electronically with a referral and associated information (for example

pathology and imaging results), compliant with national and state *e*Health initiatives.

- **Pre-clinic assessment and data collection** to identify relevant health issues and co-morbidities and collect standardised data to prospectively track patients and monitor trends and demographics of the users of the service, for both quality assurance and research purposes. For example, prognostic screening of risk factors for disabling low back pain have been shown to deliver both clinical and economic benefits [16,28,29]. Permission to share health information among the care team within and outside the service should also be sought. This would provide a data bank to facilitate quality research and ongoing investigation into high standards of evidenced based health care.
- **Service coordinators** should be appointed to:
  - Link consumers with services providers at the site, based on the specific musculoskeletal health issue for which they were referred to enable timely access to team-based assessment and care planning (where indicated). For example, patients referred for assessment and management of osteoporosis may be linked with a falls risk screening and prevention programme.
  - Link consumers with community-based services, relative to the specific musculoskeletal health issue for which they were referred.
  - Coordinate telehealth services (where available) to provide rural consumers and health professionals with access to assessment and management expertise from any metropolitan-based service.

  Importantly, these activities should be undertaken in consultation with the referring GP or health provider. While the coordinator's role relates to the principles of coordinated, interdisciplinary care, the specific job descriptions and operational aspects of these roles would ultimately be decided by individual sites, in consultation with service providers.

  Timely access to assessment is the most important aspect of a musculoskeletal health service in order to minimise morbidity later in the disease course. Importantly, the role of service coordinators is not to undertake case management, but rather to ensure pathways of care are established for individual clients. Service coordinators have a critical role in linking consumers with health professionals within and outside the service site, the referring GP (or health professional) and other health services (e.g. tertiary hospitals, other hospitals, pharmacy services, community-based services). Service coordinators should be established for both adult services and paediatric services to facilitate appropriate transition pathways for adolescents to enter adult service models.

The efficacy of care coordination is now established. The clinical and economic benefits of care coordination (e.g. fracture liaison) positions for individuals who sustain low trauma fractures due to osteoporosis is now unequivocal, both in Australian and international settings [9,30-33]. In Australia, effective models of care have been established at the Concord and John Hunter Hospital [30,34,35]. Consequently, the potential benefit of such positions for consumers and the health system in WA has been promoted [9,33]. In NSW, preliminary evaluation data from the recently introduced osteoarthritis chronic care programme (OACCP) points to the clinical and economic benefits of implementing a coordinated, multidisciplinary service for consumers with hip and/or knee osteoarthritis (OACCP quarterly report 10/11-12/11) [36]. The Metro North Brisbane Medicare Local has established a nurse-led Team Care Coordination programme to develop and implement interdisciplinary care plans for local consumers with chronic health conditions, including musculoskeletal health conditions. Evaluation of the programme has demonstrated clinical and economic benefits. Co-ordinated care for consumers with low back pain has also been demonstrated [37,38]. Care coordination is particularly important in enabling effective and supportive transition of adolescents from paediatric services to adult services [39,40].

- **Health professionals** including medical practitioners, allied health professionals and nurses who work in an interdisciplinary manner to provide clinical services to assess and develop management plans for consumers, e.g. 12 month management plans. This team will also be critical in reinforcing health promotion and prevention messages, particularly around physical activity and healthy lifestyle habits. For some clinical services a medicines review may be indicated and the involvement of community pharmacists appropriate. The employment arrangements for these staff may be flexible to suit the operational needs of the service, for example, private consultants and allied health professionals may be contracted to work in the service. Further, different staff may be used for different clinics. For example, a spinal pain service may operate with a surgeon, rheumatologist or pain specialist, a specialist musculoskeletal physiotherapist and a clinical psychologist while an inflammatory arthritis clinic might operate with a rheumatologist, an occupational therapist and a nurse with advanced training in rheumatology[§]. Key roles of the inter-professional team may include, but not be limited to:
  - Assessing patients to develop, where appropriate a comprehensive interdisciplinary management plan that could be implemented either at the service site or outside the service site by other local health professionals.
  - Liaising with service coordinators to plan care pathways.
  - Training of junior medical and allied health staff and nurses through formalised linkages with WA universities and training schemes.

  Ideally, a Community of Practice model of working would be promoted [24-26].

[§] Advanced mmusculoskeletal training for nurses is now available as an online course, offered through the Australian College of Nursing.

Implicit in the Service Model is that patients will take an active role in the management of their health condition, that is, to work in a co-management model with their healthcare team to improve their health outcomes. This principle is consistent with the WA Chronic Health Conditions Framework [12]. In order for consumers to engage in co-management by seeking information, making decisions and taking action, members of the healthcare team need to provide evidence-based self-management support and consider a consumer's health literacy (see Enablers, Figure 2) [41-43]. Up-skilling consumers in self-management can be facilitated through both generic and disease-specific self-management programmes delivered in the community. Self-management support involves helping consumers (patients, carers, parents) take a central role in managing their conditions, make informed decisions about treatment and management options, and make healthy behaviour choices [44].

WA example of the Service Model

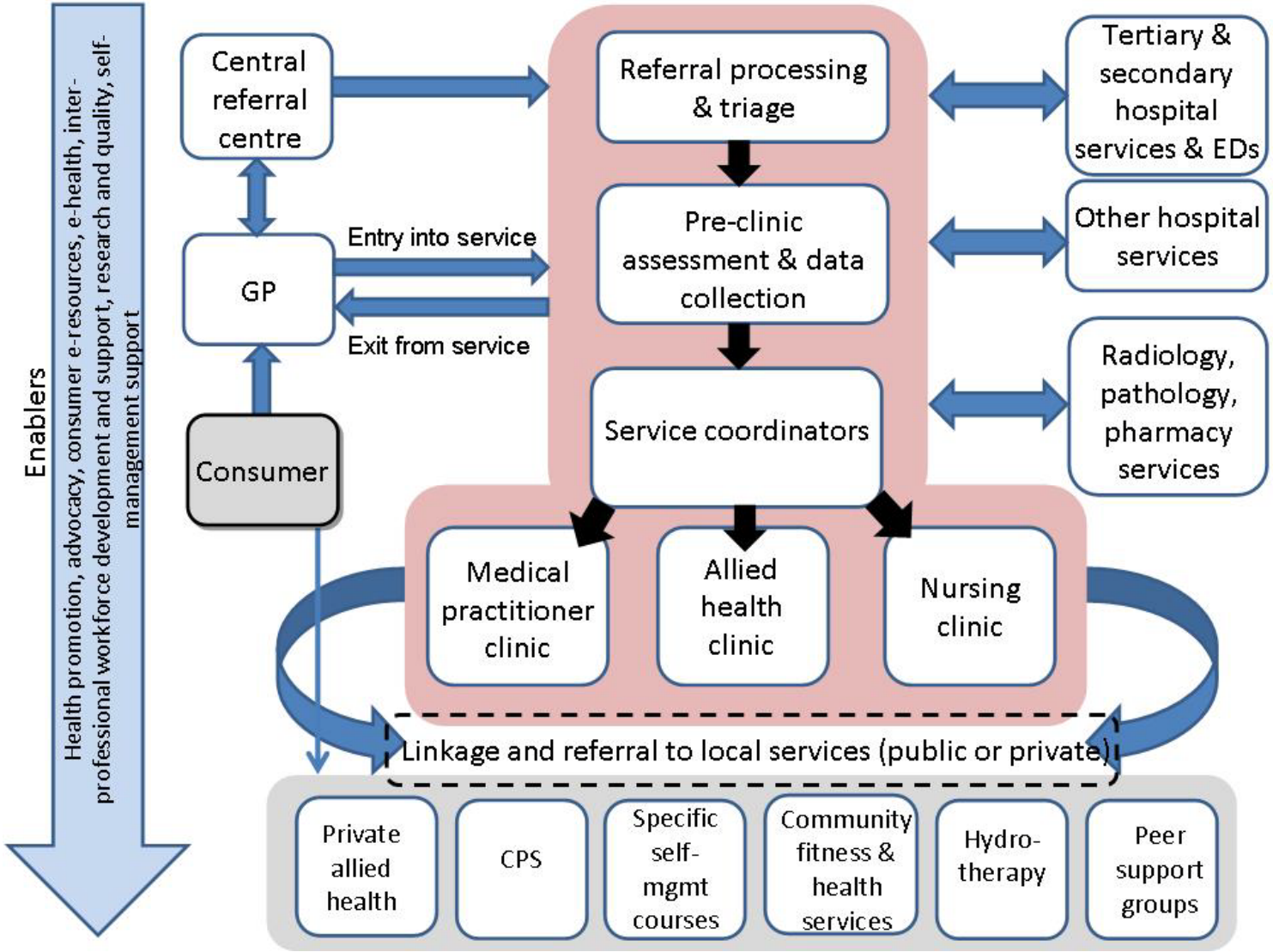
A working example demonstrating components of the proposed model is seen in the Self Training Educative Pain Sessions (STEPS) program. The aim of the STEPS program is to provide earlier self-management advice to patients referred to a pain service. A systems redesign from a 'traditional' model of initial individual medical appointments to a model that delivers group education sessions prior to individual appointments was implemented and subsequently evaluated. The pre-clinic program comprises an eight-hour group education session that is provided by a multidisciplinary team including pain medicine specialists, clinical psychologists and physiotherapists. Following the program, participants are given the option of nominating to attend an outpatient clinic appointment. The outcomes evaluation demonstrates considerable reduction in reliance upon tertiary services. For example:

- Measure: Patients completing STEPS and subsequent request for outpatient appointment
  Outcome: Requests for outpatient appointments reduced by more than half (52%).
- Measure: Waiting times to outpatient appointment
  Outcome: Waiting times reduced from 37 and 106 weeks to 15 and 16 weeks.
- Measure: Unit cost per new patient referred to a pain medicine service
  Outcome: Unit cost reduced from AUD$1,803 to $881 (to provide the pre-existing service and the new STEPS service); or AUD$541 per new patient booked for STEPS, which includes the cost of optional patient-initiated pain team individual follow-up appointments[47].

To effectively contribute to the provision of best-practice musculoskeletal health services to the population of WA, evaluation must be collaborative and ongoing.

Figure 2: Proposed service model.

GP: general practitioner; HCP: healthcare professional; CPS: Community Physiotherapy Services; EDs: Emergency Departments.



6.2. Key priority areas for promoting and facilitating good musculoskeletal health in the WA community

A range of priority areas for a musculoskeletal health service have been identified and summarised in Table 2. Strategies to address these priorities have been included.

Table 2 **Priority areas for promoting and facilitating good musculoskeletal health in the WA community and strategies to address these priority areas. System-based enablers to implementing these strategies have been outlined in the WA Chronic Health Conditions Framework 2011-2016 [12].**

Priority Areas	Strategies
Service delivery in the rural and remote sectors	• Limited health service delivery in rural and remote areas is well recognised. While it may not be feasible to implement the proposed service model in its entirety across multiple rural and remote sites, strategies to facilitate access for consumers and health professionals in these locations to comprehensive and best-practice care are critical. These may include: o Utilising telehealth services between Perth-based sites and rural/remote sites as a sustainable outreach service. For example, the Australian Rheumatology Association has established a regional rheumatology project to provide guidance on the use of telehealth in clinical rheumatology. o Working with organisations to develop practice skills of the workforce and self-management skills of consumers in rural and remote locations (e.g. Medicare Locals, accredited training organisations, Farm Safe WA) [45]. o Identifying rural and remote areas where community need for service delivery for complex/chronic musculoskeletal health conditions is substantial.
Promotion of musculoskeletal health and injury prevention to facilitate community awareness and prevention	• Promotion of work health and injury minimisation (including sports injury) in collaboration with WorkCover WA, ICCWA, WorkSafe WA. For example, the NSW Model of Injury Prevention for Musculoskeletal Disorders in the mining and extractives industry. • Dissemination of and promotion of healthy lifestyles across the life-course, specifically - Engage in regular physical activity, especially activity targeted at falls prevention in the elderly - Maintain healthy weight - Adopt a diet in line with recommended calcium and vitamin D intake - Avoid smoking and excess alcohol. These messages should be conveyed at the mass media level to the general community, integrated with existing health promotion campaigns and be promoted as routine clinical practice among health professionals. The WA Health Promotion Strategic Framework sets the priorities for WA Health in this regard, and recognises musculoskeletal health as a key area for health promotion. • Maintain and extend public awareness regarding the significance of musculoskeletal, raised through advocacy initiatives at both state and national levels, for example led by Arthritis Australia (national), Osteoporosis Australia (national) and Arthritis and Osteoporosis WA (state).

	• Identification of current gaps in positive musculoskeletal health messages in current and future mass media campaigns for health promotion. • Establishment of partnerships with health promotion bodies, including local government organisations, to disseminate positive musculoskeletal health messages. • Identification of funding opportunities to develop and disseminate musculoskeletal health promotion activities, e.g. through Healthway and the National Preventive Health Agency.
Self-management for musculoskeletal health conditions	• Delivery of evidence-based, generic self-management programmes to equip consumers with practical self-management skills before undertaking disease-specific self-management training. Generic self-management courses could be delivered locally by community-based organisations such as Medicare Locals. These courses should cater for people of all ages in different environments, including schools, hospitals, community centres and lifestyle villages. • Develop evidence-based self-management courses across the scope of musculoskeletal health conditions (e.g. for osteoarthritis, inflammatory arthritis, osteoporosis, and musculoskeletal pain/chronic pain). In WA, many courses have already been developed and are underpinned by a strong evidence base, such as the OAK programme [46] and STEPS [47]. These courses should be maintained and resources made available to ensure their content and modes of delivery reflect best evidence and are applicable to consumers in metropolitan and rural WA. • Delivery of evidence-based and disease-specific self-management programmes through community-based organisations; for example the evidence-based courses delivered by Arthritis and Osteoporosis WA. • Undertake high quality research to establish the evidence base for condition-specific self-management programmes. • Develop and implement simple referral systems, particularly for primary care providers, to ensure that access to self-management programmes is simple for health professionals and patients. • Educate consumers about their role in effective management, i.e. co-care, and provide support and strategies to empower them to actively participate in their care [44]. Where possible, beliefs and perceptions of disability associated with these conditions should be improved.
Community based, interdisciplinary health services	• Establish a community-based musculoskeletal health services, supported by an interdisciplinary team, in areas of need across the metropolitan area (e.g. north, south, south-east and east). For rural services, rheumatology clinics are currently coordinated across the state by Arthritis and Osteoporosis WA. - Engage with local GPs, Medicare Locals, private medical specialists, private allied health providers and local pharmacists - Engage with Community Physiotherapy Services

	- Engage with community organisations (Arthritis and Osteoporosis WA; Local Government facilities). - Engage with Aboriginal Community Controlled Health Services. • Engage with local government and private providers to enable access to hydrotherapy services. • Integrate with existing services for management of chronic health conditions and ensure capacity to cross-refer.
Building workforce capacity	• Up-skill the emerging primary care workforce (e.g. students: undergraduate and postgraduate) in best practice management of musculoskeletal health conditions, including musculoskeletal pain, and chronic conditions self-management. Ideally, education should be delivered in an interdisciplinary framework with flexible learning options (e.g. e-resources) for practitioners based in rural WA. Formal linkages with WA universities will be critical to addressing this issue. It will also be important for Universities to work in partnership to ensure a consistent approach across the sector. • Provide professional development opportunities for practising clinicians, Aboriginal Health Workers and practice nurses in best-practice management of musculoskeletal health conditions and chronic conditions self-management. For GPs, the RACGP offers curriculum in musculoskeletal medicine and has produced a suite of clinical practice guidelines for musculoskeletal health conditions, applicable to all health professionals. • Promote and disseminate professional development opportunities to clinicians in WA, such e-resources for specific musculoskeletal conditions (e.g. evidence-informed management algorithms), forums, and post-graduate training. Establishment of partnerships between WA Health and professional bodies (e.g. Australian Rheumatology Association and Rheumatology Health Professionals Association) may facilitate this initiative. • Up-skill clinicians in self-management support and disease-specific self-management programmes for consumers with musculoskeletal health conditions. • Support clinical leaders to build workforce capacity in their clinical discipline by developing professional development initiatives. • Encourage clinicians to join the WA Musculoskeletal Health Network to foster the establishment of an interdisciplinary community of practice.
Service coordination	• Encourage the use of telehealth and eHealth modes of engagement with other team members and consumers. • Establish dedicated roles to coordinate pathways of care for people with musculoskeletal health conditions such that transition of care between hospital and community-based providers, and public and private providers is seamless for patients. • Ensure all patients have a care plan developed, for example the Medicare Chronic Disease Management Care Plan • Ensure liaison between the proposed service and GP practice nurses.

	• Encourage the use of Medicare Benefits Schedule item numbers for development, coordination and review of care plans, interdisciplinary team meetings, access to allied health and mental health services (e.g. http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement). • Develop and describe optimal, evidence-based service pathways for consumers with musculoskeletal health conditions to inform Activity Based Funding models. • Implement the use of screening tools to identify individuals at risk of developing persistent or complex syndromes, e.g. the STarT Back tool for back and musculoskeletal pain [48]. • Procure funds, where possible to purchase services or equipment to enable low-income earning consumers to access health services where no other subsidies (e.g. DVA) may apply. This model has been used successfully by the Metro North Brisbane Medicare Local in a team care coordination programme http://www.mnbml.com.au/page/Programs/team_care/ and reported here http://www.mnbml.com.au/content/Document/report_teamcare.pdf.
Adopting an evidence-based approach	• Promote and maintain a musculoskeletal health research agenda in WA, including basic, clinical, epidemiologic and translational research. • Evaluate the clinical efficacy, cost effectiveness and consumer satisfaction of service models for musculoskeletal health in WA. • Encourage the use of evidence-based clinical guidelines among health professionals contributing to the care of people with musculoskeletal health conditions. • Align training of the emerging workforce with evidence-informed service frameworks, such as Models of Care and national standards (e.g. National Pain Strategy).
Tailor service delivery to particular groups	• Ensure care coordination roles include transition and transfer planning for adolescents to access adult health services. • Ensure information resources and self-management programmes accommodate the linguistic and cultural needs of individuals from culturally and linguistically diverse (CALD) backgrounds, including Aboriginal people. In this context, it will be important to engage with Medicare Locals and Aboriginal Community Controlled Health Services, particularly around Aboriginal and CALD healthcare teams. The NHMRC guide for health professionals on strengthening cardiac rehabilitation and secondary prevention for Aboriginal and Torres Strait Islander Peoples provides a useful framework for tailored service delivery in this context [49]. • Recognising that inter-disciplinary health service delivery to residential aged care facilitates (RACFs) is often limited; consideration should be given to providing an outreach service to consumers in RACFs.

7. Background to the Service Model

Data from the 2007-08 Australian National Health Survey indicate that more than 6.3 million Australians (>31%) have a long term musculoskeletal condition, most commonly arthritis [50]. This figure is likely to underestimate the true prevalence as it does not include individuals living in residential aged care. Musculoskeletal conditions account for the greatest proportion of long term health conditions in Australia, other than long term eye disorders. In 2009, 6.5% of Australians reported a disability due to a musculoskeletal condition – almost 1 in 3 people who reported a disability [51]. An older report from Canada suggested that 5.1% of Canadians reported a disability due to a musculoskeletal condition [52]. Data from the USA demonstrate that musculoskeletal conditions dominate the national illness burden and are expected to affect 22% of the population by 2030 [53]. In Western Australia, musculoskeletal disorders were within the top 10 leading causes of disease burden in 2003 as measured by years lost to disability [54].

Although mortality associated with musculoskeletal conditions is low relative to other chronic conditions (apart from osteoporotic hip fractures), morbidity is significant due to the common sequelae of chronic pain and functional disability. For example, the burden of disease, expressed in disability-adjusted life years, is greater for osteoporotic fractures than for many other chronic conditions, including common cancers [55] and affects more women than myocardial infarction, stroke and breast cancer combined [56]. These factors lead to substantial public health costs associated with health service delivery for musculoskeletal conditions [57], substantial physical and mental strain placed on carers [2], and a significant population need for community-based health services. The prevalence and burden of impaired musculoskeletal health is also substantial among Aboriginal people [58-61]. For example, recent data point the profoundly disabling experience of chronic low back pain among Aboriginal adults in WA [62], refuting earlier suggestions around non-disabling experiences. Further, data from the Australian Institute of Health and Welfare which represent hospitalisations for osteoporotic hip fractures between 2005-07, indicate that Aboriginal males are twice as likely to sustain an osteoporotic hip fracture and Aboriginal females are 26% more likely to sustain an osteoporotic hip fracture than non-Aboriginal Australians [63]. The prevalence of OA and RA among Aboriginal Australians is significantly higher than non-Aboriginal Australians (rate ratio 1.42-1.96) [64] while age-standardised prevalence of doctor-diagnosed osteoporosis is significantly higher in Aboriginal males (1.8 times) [65]. Aboriginal people may be disinclined to attend hospitals for healthcare; therefore community-based models of service delivery may be more appropriate for Aboriginal people who experience chronic musculoskeletal conditions.

Healthcare expenditure related to musculoskeletal conditions, particularly arthritis and back pain is significant. Arthritis and musculoskeletal conditions account for almost a third of new drug approvals in National Health Priority Areas over the last ten years. In 2004-05 directed healthcare expenditure related to these conditions amounted to $AU4.6 billion (7.5% of total allocated health expenditure) [57] while total societal costs attributable to arthritis are estimated to amount to $AU24 billion per annum [66], although this figure is likely to be an underestimate since the true cost is difficult to estimate due to the paucity of data in the primary care sector [67]. In the UK, musculoskeletal disorders cost the NHS £4.76 billion per annum (£13 million per day), representing the fourth highest area of NHS spending, largely attributable to an increase in expenditure of 52% over the last six years [68]. Musculoskeletal conditions also impose a profound burden on human capital. For example, rheumatoid arthritis and ankylosing spondylitis affect people during income earning years and impose a significant impact on work and

therefore earning capacity [69]. Similarly, back pain and osteoarthritis impose a significant burden on workforce productivity [5], since more than 50% of people with these conditions are of working age. For example, a recent report from the Netherlands identified that of the total costs associated with knee OA, 83% were attributable to productivity costs, most of which was related to lost work productivity, equating to 722 Euro per patient, per month [70].

Considering the increasing prevalence of musculoskeletal conditions in Australia, which may be explained by an aging population, increased rates of overweight and obesity, and reduced physical activity, the projected healthcare costs for this suite of conditions is expected to rise exponentially, particularly for osteoarthritis (OA) [71] and rheumatoid arthritis (RA) [72,73]. A recent report estimates that 2.2 million Australians have an osteoporosis-related condition and the prevalence is expected to rise to 3 million by 2021. Similarly, projections for an increased prevalence pain have been reported, such that 5 million Australians (16.9% of projected population) will live with chronic pain by 2050 [66]. Of even greater concern is the significant evidence-practice gap which exists for the management of consumers with osteoporosis [74], resulting in Western Australians not receiving *the right* care at the *right time*. The evidence-practice gap is largely around conducting appropriate assessments (e.g. bone mineral density, falls risk screening) and implementing appropriate treatments such as anti-resorptive therapies, nutritional supplements, targeted physical activity and self-management [9]. This lack of adherence to best practice results in the under-treatment of osteoporosis in Australia [75,76].

7. Appendices

Appendix 1: Common recommendations across the existing Models of Care

The common recommendations across the existing Models of Care for musculoskeletal health in WA [27,77-79] include:

1. Promote consumer self-management strategies, especially active management strategies.
2. Deliver clear public health messages about prevention (e.g. osteoporosis) and management (e.g. arthritis) of musculoskeletal health conditions. Information and services should be available to suit consumers with culturally and linguistically diverse backgrounds.
3. Develop workforce capacity through inter-professional education across musculoskeletal health conditions (training, practice behaviours). This may involve formal training and accreditation of health professionals.
4. Support timely access to appropriate multidisciplinary assessment and management services, in particular the establishment of community-based services with parallel support from non-government organisations. This may involve expansion of ambulatory care services, or better integration with existing primary care providers.
5. Support the use of appropriate referral pathways, including screening tools, which facilitate targeted interdisciplinary care, as appropriate, and enable timely and informed communication between those involved in co-management.
6. Promote best practice (guideline-consistent) assessment and management, particularly the use of valid and reliable screening tools in primary care.
7. Develop ICT solutions to support self-management by consumers (e.g. web portal), referral (specifically e-referrals) systems and consultations.
8. Develop and maintain a research strategy for musculoskeletal health in WA.
9. Establish coordinator positions to facilitate access to timely assessment and management in an interdisciplinary and best practice model.

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