Western Australian framework for the prevention and management of work-related musculoskeletal disorders

2020-2025
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Reference


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Foreword

The Western Australian framework for the prevention and management of work-related musculoskeletal disorders 2020-2025 (WMSD framework) is the result of extensive collaboration between WorkSafe WA, WorkCover WA, Arthritis and Osteoporosis WA and Curtin University. The document articulates agreed high level guidance that sets the scene for the Western Australian (WA) community and industry to engage in a collaborative and coordinated state-wide approach to address work-related musculoskeletal disorders. Our commitment is to improve the health and promote thriving of Western Australian workers and industry through tailored and sustainable prevention and injury management strategies that are responsive to the increasing burden of work-related musculoskeletal disorders in Western Australia.

The high prevalence of WMSDs combined with their long-term and persistent nature, and their impact on quality of life, overall health and business operations, places pressure on individuals, families, industry, our communities and the health system.

The WMSD framework is the outcome of thorough consultation with a broad spectrum of stakeholders, including state and territory governments, peak bodies, non-government organisations, clinical experts, health professionals, academics, researchers, industry, consumer representatives (people who have and have not personally experienced a WMSD) and community members.

The WMSD framework builds on existing work and is an important tool to enhance activities already underway and to guide the development of new and innovative policies and approaches. It embraces a systemic centred approach which values the coordinated and collective influence of partnerships to jointly establish a strong foundation for all Western Australians to experience optimal health and business outcomes today, and in the years to come.

Application

The information presented in the Western Australian framework for the prevention and management of work-related musculoskeletal disorders is intended for general use only. It should not be viewed as a definitive guide to the legislation.

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1 Introduction

Musculoskeletal disorders include a wide range of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves, and supporting blood vessels. Musculoskeletal conditions are highly prevalent, affecting 30% (6.9 million) of all Australians in 2014–15. More than half of those Australians with musculoskeletal conditions (61%) are of working age (25–64). This includes 3.7 million people with back problems, 2.1 million people with osteoarthritis, and 0.4 million people with rheumatoid arthritis.

Musculoskeletal conditions are highly prevalent, affecting 30% (6.9 million) of all Australians in 2014–15. More than half of those Australians with musculoskeletal conditions (61%) are of working age (25–64). This includes 3.7 million people with back problems, 2.1 million people with osteoarthritis, and 0.4 million people with rheumatoid arthritis.

Work-related musculoskeletal disorders (WMSDs) are those musculoskeletal disorders that are either borne or aggravated by work factors. WMSDs are associated with exposure to stressors at work but not exclusive to work as personal stressors may contribute to the development and outcome of the disorder.

WMSDs are the most common injury in workers’ compensation claims in Western Australia, accounting for 60% of all serious (5+ lost days) lost-time claims over the period of 2013-14 to 2017-18 (refer to Figure 1).

The most common mechanisms of injury for acquiring a WMSD claim are body stressing (63%) and slips, trips and falls (26%) (refer to Figure 2) (provided by the Department, September 2019). Although slips trips and falls contribute to significant burden in terms of lost time, financial loss and disability in WA, body stressing injuries contribute more WMSD claims at the state and national levels.

Figure 1 Percentage of serious (5+ lost days) lost-time claims by nature injury/disease Western Australia, 2013-14 to 2017-18 combined (provided by the Department, September 2019)
The activity that contributes to body stressing injuries is performing manual tasks. Manual tasks include any activity or sequence of activities that requires a person to use their body (musculoskeletal system) to perform work including manual handling (the use of force in lifting, lowering, pushing, pulling, carrying or otherwise moving, holding or restraining any person, animal or thing), performing repetitive actions; adopting awkward or sustained postures; and using plant, tools or equipment that exposes workers to vibration. The Manual task code of practice is a guidance document that focuses on the prevention of musculoskeletal disorders. This code of practice applies to all workplaces in Western Australia covered by the Occupational Safety and Health Act 1984. The Workers’ Compensation and Injury Management Act 1981 is applicable. The aim of the Injury Management Guide is to assist businesses understand and meet legal obligations. The document focuses on early reporting, rehabilitation and return to work strategies to assist the injured worker make an early and safe return to work.

WMSDs due to body stressing mechanisms include disorders of the back and neck, upper limbs and lower limbs. The burden on the community is significant and has presented in multiple ways including (but not limited to) temporary and permanent disability, lost time work and financial costs to industry and the worker. The majority (60%) of long duration claims (workers’ compensation claims for which the injury or disease results in an absence from work of at least 60 days or shifts) were due to musculoskeletal injuries.

The purpose of the WMSD framework is to serve as an overarching guidance document that provides a strategic direction for relevant stakeholders for the prevention and management of work-related musculoskeletal disorders in Western Australia.

The intention is for the document to serve as a wide-s scoped road map for all stakeholders that have direct and indirect influence on policy development, workplace intervention and service delivery to achieve optimal prevention conditions, improved health and employment outcomes for people who have or are experiencing work-related musculoskeletal disorders.

The framework promotes stakeholder commitment for driving improved health, reducing the burden on individuals, families, industry, communities and the health system and improving business outcomes in Western Australia.

Individuals, industry, the community, researchers, government and non-government organisations and professionals were involved in the development of the WMSD framework, recognising the need for a consistent approach to preventing and managing WMSDs in WA.
## Vision

Western Australians are healthier and more productive as a result of effective prevention and management of work-related musculoskeletal disorders.

## Purpose

The purpose of this WMSD framework is to serve as an overarching guidance document that provides strategic and policy direction for the Department, WorkCover WA and their stakeholders for the prevention and management of work-related musculoskeletal disorders in Western Australia.

## Goals

The Department and WorkCover WA’s overarching goals are:

- To establish a common vision and agreed strategy with WA stakeholders to reduce the suffering, incidence, severity and burden associated with WMSDs for improved health and productivity.
- To recognise, acknowledge and work with the complexities associated with WMSDs.
- To improve, foster and communicate broader and deeper understanding of WMSDs.
- To improve the capacity of stakeholders to optimally prevent and manage WMSDs.
- To develop and prioritise actions relative to the needs of WA workers, industry and community.

By formulating this framework, our aim is to provide a process for meeting positive outcomes as a result of optimal prevention and management of WMSDs.

This initiative aligns with an Australian target to reduce the incidence rate of claims for musculoskeletal disorders that result in one or more weeks off work by at least 30% between 2012 and 2022.

## Timeframe

The timeframe of the WMSD framework is five years (2020-2025), with a review proposed in two years (2022), at a time when the Australia National Strategy (2012-2022) will be revisited.

## Audience

The WMSD framework has been designed to be a useful resource for stakeholders who can directly and indirectly influence improvement in this field, including policy makers/government, consumer advocacy groups and other non-government organisations, professional bodies, service providers, industry bodies, business leaders, employer and employee advocacy groups, health and compensation insurers, academics/researchers, employers and workers.

## Framework concept

The value of formulating an overarching guiding document for a national or regional area, such as a framework or model of care, has shown to be positive. For frameworks to be successful, consultation and ownership of the stakeholders are imperative.

This framework was developed in partnership with Curtin University. Human Research Ethics Committee approval was granted to undertake the research by Curtin University, Western Australia.

The research process utilised for this framework was a combination of quantitative and qualitative in nature, as this has been shown to be beneficial for multi-stakeholder health issues.

A group of WMSD researchers proposed that to obtain the best possible work-related MSD prevention result, we should develop interventions based on an identified problem (step 1), targeting risk factors that appear to be associated with the MSD problem (step 2), possibly with a sound understanding of the underlying mechanisms and pathogenesis (step 3). Moreover, the intervention should be optimally targeted to the specific occupational population and setting (step 4), while proven effective preventive interventions (step 5) should be widely implemented, using evidence-based implementation strategies (step 6). However, implementation of individual controls for MSD hazards or the development of an effective and sustainable prevention program for MSD in the workplace is not a simple task. An array of challenges and barriers exist during the implementation of an intervention to prevent MSD. Therefore, the qualitative aspect of this research also aimed to identify the common barriers experienced by stakeholders during the implementation of MSD prevention activities.
Process for development

The process for the development of this framework occurred in ten main phases:

1. Recognising the need for a framework that addresses risk and injury management.\textsuperscript{16, 17}
2. Identifying government and non-government agencies where their objectives align with the framework and there is agreed and demonstrated interest, commitment and leadership to follow through with this initiative.
3. Securing commitment from these agencies.
4. Defining the scope and objectives of the framework.
5. Identifying key stakeholders.
8. Multi-stakeholder engagement during focus groups (quantitative/multi-stakeholder engagement) to gauge their understanding and beliefs of the risk factors, interventions, barriers, important stakeholders and actions, and priorities to develop best practice principles and guidelines. A thematic analysis was conducted using the information from the focus groups. These constructs were cross-checked by the working group.
9. The information from the three sources were collated and synthesised into a draft framework. The working group met to translate the data from Phases 2 to 6 into a meaningful framework for end users.
10. Subsequently, internal consultation through a high-level meeting with the Executive Advisory Group was undertaken in which information was articulated in a presentation and the outcome was discussed. External stakeholder consultation and mode of delivery/dissemination of the framework were also discussed.
11. External stakeholder consultation and feedback was undertaken through a forum. Invitees were those that attended the focus sessions, the initial list of invitees to focus sessions (key stakeholder group representatives) and the general OSH network list held by the Department. Stakeholder feedback was sought through an email mail out. It was agreed that the framework should serve as a roadmap for stakeholders. Feedback was considered and modifications made by policy teams at the Department and WorkCover WA prior to publication of the framework.
12. The framework was formatted to optimise access, be user-focused, easy-to-follow and serve as a practical roadmap prior to being published on the Department, WorkCover WA and Arthritis Foundation websites.

The WMSD framework aligns with several state and national strategic frameworks and guidance documents.\textsuperscript{18, 19, 20, 21} The conceptual model for this framework was developed by adapting the National Strategic Framework for Chronic Conditions Model\textsuperscript{18} to reflect overarching principles and identified enablers of best-practice, research evidence, stakeholder feedback, occupational safety, health and injury management peak bodies, including the Department, WorkCover WA and Safe Work Australia Strategy 2012-2022\textsuperscript{10}. The conceptual model outlines key elements and their relationships in the WMSD framework, including the vision, priorities, principles, enablers, stakeholders, interventions and measures of outcomes and progress (refer to Figure 3).
Western Australian framework for the prevention and management of work-related musculoskeletal disorders 2020-2025

Figure 3
The WA WMSD framework concept model (adapted from Australian Health Ministers’ Advisory Council 18)

- Stakeholders
  - Government
  - Not-for-profit organisations
  - Private sector and industry
  - Researchers and academics
  - Communities
  - Individuals

- Principles
  - User-centred approaches
  - Sustainability
  - Empowered and improved capacity
  - Technology
  - Holistic
  - Resources
  - Focused
  - Enablers

- Policies, strategies, actions and services
  - Lead and support
  - Implement interventions
  - Partner, engage and collaborate
  - Educate and empower
  - Research and data

- Outcomes and indicators
  - Monitor progress toward meeting the objectives

- Vision
  - Western Australians are healthier and more productive as a result of effective prevention and management of work-related musculoskeletal disorders

- Priority 1
  - Acknowledge complexities and optimise timing of intervention

- Priority 2
  - Build capacity of stakeholders

- Priority 3
  - Focus on high risk areas

- Evidence-based
  - Research and data

- Access
  - Research and partnerships

- Equity
  - Collaboration and partnerships

- Access and intelligence
  - Research and data

- Evidence-based
  - Research and partnerships

- Priority 3
  - Focus on high risk areas
Guiding principles and enablers

The guiding principles and enablers were established through extensive review of literature related to WMSDs, policy development, models of care and frameworks, and stakeholder engagement conducted between the period of 2011-19 in Western Australia, across Australia and internationally.

Principles

These principles have been identified for successful prevention and management of WMSDs in Western Australia. The principles should be evident in the planning, design and implementation of interventions.

Equity — all workers and employers have the right to work in or create a working environment that is healthy and productive; irrespective of industry, occupation, location, background or personal circumstance.

Collaboration and partnerships — stakeholders can identify linkages and act upon opportunities to cooperate and partner responsibly to achieve greater impact.

Access — all workers and employers have equitable access to suitable and affordable high standard and appropriate support and services.

Evidence-based — rigorous, relevant and current evidence will inform best practice and strengthen the knowledge base to effectively prevent and manage WMSDs.

Accountability and transparency — decisions and responsibilities are clear and accountable, and achieve best value with public resources.

Shared responsibility — all parties understand, accept and fulfil their roles and responsibilities to ensure enhanced prevention and management of WMSDs.

Sustainability — strategic planning and responsible management of resources delivers long-term improved health and safety outcomes.

User-centred approaches — the occupational safety and health, and workers compensation and injury management systems are shaped to recognise and value the needs of their stakeholders including industries, workers and their families and service providers to provide holistic support.

Holistic — stakeholders acknowledge and recognise the importance of working at all three levels of prevention (primary (prevent), secondary (early intervention) and tertiary (rehabilitation), while addressing the wide spectrum of recognised and associated risk factors with multi-faceted interventions.

Focused — the approach ensures focused building of awareness and capacity of relevant stakeholders through state-wide initiatives for high risk groups including, high-risk sectors and vulnerable occupational and demographic cohorts.

Enablers

The enablers have been identified as elements that will assist in achieving the vision of the WMSD framework.

Governance and leadership — supports evidence-based shared decision-making, encourages collaboration and sound legislation and enforcement policies.

Research and intelligence — uses available evidence based research; shared applicable best practice methods; consistent, quality and real-time data and quality improvement to achieve better health and business outcomes.

Awareness and health and safety literacy — tailors information and mode of delivery for the variety of audiences, covering topics related to risk management, early intervention, rehabilitation, pain and disability management associated with work-related musculoskeletal disorders.

Empowered and improved capacity — promotes, encourages, educates and supports the workforce within the domains of government, non-government/not-for-profit, occupational health, ergonomics, safety, musculoskeletal health, rehabilitation, human resources and industry and business leaders, to work to their full scope and potential of best practice and is responsive to change.

Technology — supports more effective and accessible prevention and management strategies and offers avenues for new and improved technologically driven initiatives. Uses available media and digital platforms to optimise the access of information and practical tools; and improve networking channels amongst stakeholders.

Resources — in response to identified priorities, appropriate and adequate allocation, distribution and efficient use of resources are secured and distributed for the prevention and management of WMSDs.
3 Key concepts

Stakeholders

The effective prevention and management of WMSDs is strongly influenced by the contributions made by a wide range of stakeholders. Two factors that influence change include readiness for change and targeted engagement and collaboration with high risk groups.

All stakeholders have shared responsibility for outcomes according to their role and capacity within the various realms. Greater cooperation between stakeholders can lead to more successful individual, organisational and community outcomes.

It has been recognised through review of literature and stakeholder focus groups in WA that partners in the prevention and management of WMSDs fall into three primary realms, the community, workplace and individual realms (refer to Figure 4). Figure 4 lists general stakeholders that have been identified, the realms that they would usually function within and their relationship and influence.

The stakeholders identified were:

Community
- Government/policy makers
  - injury management and work rehabilitation
  - occupational safety and health
  - industrial relations and equal opportunity
- Not-for-profit organisations
- Industry peak bodies
- Health services
  - clinical allied health professionals – e.g. physiotherapist, occupational therapist, psychologist, exercise physiologist
  - general practitioners
  - medical specialists – e.g. occupational physician, orthopaedic surgeon, rheumatologist, pain specialist, neurologist, psychiatrist
- Insurers and brokers
- Legal practitioners and registered agents
- Education/vocational/university training
- Intelligence and evidence researchers
- Professional bodies for medical, allied health professionals and others
- Engineers, architects and designers
- Other service providers

Workplace
- Employers
  - top or executive management
  - middle managers and supervisors
  - human resources
  - facilities
  - engineering
  - procurement
  - occupational safety and health professionals
  - injury managers
- Workers
  - at risk
  - safety and health representatives
  - colleagues
- External consultants – ergonomist, occupational safety and health, injury management, rehabilitation, architects and designers

Individual
- Workers – at risk
- Family and friends
- Personal healthcare providers

Western Australian stakeholders that took part in the WMSD framework stakeholder focus sessions identified the group they belonged to, which prevention level they can influence and stated the types of action they can take. Many stakeholders identified the barriers they face and stated where other stakeholders may be able to influence or promote change from their positions. Awareness and subsequent conversation, engagement and appropriate actions have and will be taken in response to this. Stakeholder engagement and collaboration are dynamic processes that will be continuous and combined initiatives will be revisited regularly.

This finding has been applied to formulate a preliminary relationship model that considers the three major realms and stakeholders within them.
Figure 4  The WA WMSD framework multi-stakeholder relationship model
Risk factors

It has been shown that for WMSDs, there is a diverse range and complex interaction between community, workplace and individual borne factors that fall within the physical, psychosocial and organisational realms. Additionally there is a variance between the risk factors and predictors for various outcomes of WMSDs, such as predictors of first time onset versus predictors of early return to work or development of chronic pain; and predictors for occupational back pain versus musculoskeletal disorders in general.

When considering the context by which influencing and risk factors fall within, literature \cite{31,32,33,18} and WA stakeholder focus groups, it was evident that three primary domains exist - community (external), workplace (organisation) and individual (personal) domains. These domains were synonymous with the realms that stakeholders were categorised in. Sub-group contexts were also apparent.

The influencing factor types within the various realms and their sub-groups have been categorised as follows:

Community (external)
- Politics and governance
  - government in power
  - occupational safety and health legislation
  - workers compensation legislation
  - civil or industrial relations legislation
  - equal opportunity legislation
- Social systems and norms
  - insurance and compensation system
  - health system
  - education system
  - social and welfare support
  - employment conditions and labour relations
  - industry and occupational norms
  - professional and expert norms
- Finance and economics
- Technical
- Physical
  - geolocation
  - physical environment

Workplace (organisational)
- Structural

Individual (personal)
- Modifiable
  - behavioural e.g. smoking, poor diet and nutrition, harmful consumption of alcohol, physical inactivity, emotions and/or cognition.
  - biomedical e.g. high blood pressure, high blood cholesterol, overweight or obesity, impaired glucose tolerance, stress, mental illness, trauma.
  - work and social e.g. experience, education level, family support
- Non-modifiable
  - non-modifiable demographic risk factors e.g. age, gender, intergenerational influences.
  - non-modifiable personal trait risk factors e.g. personality or genetics

The working group of the WMSD framework have found though literature review and stakeholder feedback that to prevent and manage WMSD conditions optimally, the influencing stakeholders for risk and injury causation and management are far from being isolated to the individual, and that stakeholders in the workplace and community play a key role. The workplace in particular has been identified as a nexus location for change, and the language of industry and business leaders is imperative as a starting point. Public health, ergonomics, human resources and business leaders have established factor analyses models that demonstrate aligned concepts and common language. This finding has been applied to formulate a preliminary relationship model that considers the three major realms and factors within them (refer to Figure 5).
**Intervention**

Our understanding of the risk factors and effective interventions for the prevention and management of WMSDs are evolving. The burden of WMSDs both nationally and internationally, places demands on existing traditional arrangements. The WMSD framework proposes that Western Australia adopt a long-term, consistent and integrated approach for the effective prevention and management of WMSDs.

There is a significant amount of evidence showing that a multi-faceted approach is best for the prevention and management of musculoskeletal disorders. Applying multi-faceted intervention can take place in the community, workplace and individual realms. Cole et al.\(^{34}\) suggests the application of integrative interventions for MSD, interventions that address both biomechanical and psychosocial aspects, aiming at achieving both primary and secondary prevention, and/or consisting of multiple components versus only a single component.

Interventions by various stakeholders may fall into the following categories (refer to Figure 6) and some are more applicable in certain realms than others:

- lead and support
- educate and empower
- partner, engage and collaborate
- implement systems, interventions or service
- incentivise
- policy, legislate and enforce
- research translation and data intelligence.

Prevention is the key to improving the health of all Australians, reducing health related expenditure and ensuring a sustainable and productive system.\(^ {18}\) Risk and predictive factors, effective interventions and outcome measures, vary between primary, secondary and tertiary prevention levels. The goal during the primary prevention period is to protect people from developing an illness or experience an injury in the first place. The goal during the secondary prevention period is to detect the condition early, treat it and prevent it from getting worse. Tertiary prevention focuses on helping people recover and manage long-term health problems such as chronic musculoskeletal pain. The goals include preventing further physical deterioration and maximising quality of life. Chronic pain management, rehabilitation and optimising function are important during tertiary prevention. Health literacy is the core of all levels of prevention.

Stakeholders consistently expressed during the focus group sessions that WMSDs would best be tackled at the primary prevention level. However, there are a significant proportion of workplaces that are not working at primary prevention levels. Stakeholders believe that for those workplaces, WMSD conditions should be caught early and intervention applied at the workplace and clinically soon after reporting. WA stakeholders expressed during focus sessions that the drive in WA should be to shift industry focus towards primary prevention, triggered by early intervention initiatives. Stakeholder workshops in WA showed that it is strongly believed that prevention and early intervention are timing priorities (refer to Figure 7).
For primary prevention, Safe Work Australia promotes good work design. Good work is healthy and safe work where the hazards and risks are eliminated or minimised so far as is reasonably practicable. Good work is also where the work design optimises human performance, job satisfaction and productivity.

Effective design of good work considers (refer to Figure 8):

The work:
- how work is performed, including the physical, mental and emotional demands of the tasks and activities
- the task duration, frequency, and complexity
- the context and systems of work.

The physical working environment:
- the plant, equipment, materials and substances used, and
- the vehicles, buildings, structures that are workplaces.

The workers:
- physical, emotional and mental capacities and needs.

Primary prevention of work-related MSD focuses often on physical risk factors (such as manual lifting and awkward postures) but has not been too successful in reducing the MSD burden. This may partly be caused by insufficient knowledge of etiological mechanisms and/or a lack of adequately feasible interventions possibly due to limited integration of research disciplines. A research framework has been proposed to link research disciplines thereby strengthening the development and implementation of preventive interventions.

To implement effective primary prevention, stakeholders have to initially understand methods of communication, cultures and influencing elements of industry and business. It has been shown at the organisational level, stakeholder commitment and intervention sustainability are more likely if they are infused and embedded into the organisation’s structure and culture that have been primarily designed for high productivity. It has been shown that the approach has to be sensitive to the preparedness for change by the organisation (stage of change), recommendations pitched at the appropriate level for success and MSD prevention integrated into an organisation’s general management system. There has been wide scoped evidence across several industries showing the benefits of participatory ergonomics. Participatory ergonomics is the involvement of people in planning and controlling a significant amount of their own work activities, with sufficient knowledge and power to influence both processes and outcomes in order to achieve desirable goals. It is practical ergonomics with participation of the necessary actors in problem solving. Harnessing the expertise of the workers who undertake the tasks through a participatory ergonomics process has potential to both ensure that the solutions proposed are optimal, and will be accepted by workers. Successful implementation of such a program requires ongoing management commitment at all levels and genuine participation from workers, internal specialists, and other people affected by proposed changes. Post implementation reports of participatory ergonomics interventions revealed sustained hazard identification and solution development.

In relation to secondary and tertiary prevention, the Health Benefits of Good Work (HBGW) is an initiative from the Australasian Faculty of Occupational and Environmental Medicine of the Royal Australasian College of Physicians (RACP) that promotes the message that work is generally good for health and wellbeing. Long term work absence, work disability and unemployment have a negative impact on health and wellbeing. Work practices, workplace culture, work-life balance, injury management programs and relationships within workplaces are key determinates, not only of whether people feel valued and supported in their work roles, but also of individual health, wellbeing and productivity.

The Clinical Framework for the Delivery of Health Services provides a set of principles for the provision of health services to injured people. These principles include:

1. Measure and demonstrate the effectiveness of treatment.
2. Adopt a biopsychosocial approach.
3. Empower the injured person to manage their injury.
4. Implement goals focused on optimising function, participation and return to work.
5. Base treatment on the best available research evidence.

A healthcare professional adopts a biopsychosocial approach when they consider the biological, psychological and social determinants of health during the assessment and treatment of an injured person. A biopsychosocial approach is based upon the management of the multiple factors that can affect function and participation at home, work and in the community. Current evidence indicates that the biopsychosocial approach to injury management is effective in improving function, facilitating recovery and maximising independence. There is evidence that multidisciplinary biopsychosocial rehabilitation may be better than usual care for people with lower back pain. Individuals receiving multidisciplinary treatment had less pain, less disability, increased likelihood of return-to-work and fewer sick leave days at 12-month follow-up. It has been documented that in a compensable environment, an individual’s perspectives, beliefs and context must be assessed and managed on an individual basis, and managing beliefs and perspectives of multiple stakeholders are fundamental challenges when managing people.
For effective early intervention, the relationship between injured worker, employer and healthcare service providers needs to be one of trust and the communication as seamless as possible. The injured and incapacitated worker would benefit by optimising their health literacy and be in a position where they have choice and are in control of their health management. For clinical management, a multi-disciplinary holistic approach is considered best practice and initiatives for returning to good work sooner than later is beneficial for all, particularly the worker, as engaging in good work in itself is therapeutic, not just a desired outcome.45

Musculoskeletal pain and discomfort are usually the first symptoms presented by workers with WMSDs. This initial symptom should trigger early intervention within multiple realms including risk factor identification and assessment, workplace interventions,46 early clinical intervention, work injury management (restriction and return to work) and early pain management (health literacy in relation to pain and application of biopsychosocial model). The costs and benefits of active case management and rehabilitation for musculoskeletal disorders have been well documented.47

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**Primary prevention**
- Good work design;
- Risk management;
- Participatory ergonomics;
- Health and safety literacy and promotion

**Secondary prevention**
- Early reporting;
- Investigate-control-review;
- Early health intervention;
- Early return to good work;
- Application of biopsychosocial model;
- Health literacy

**Tertiary prevention**
- Work rehabilitation and conditioning;
- Gradual return to good work;
- Alternative work arrangements;
- Optimising function;
- Health literacy

**Legislate and enforce**
- Prevention and early intervention – Occupational Safety and Health Act 1984
- Early interventions, return to work and rehabilitations – Workers’ Compensation and Injury Management Act 1981

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**Figure 6** The WMSD framework multi-faceted intervention model
Western Australian framework for the prevention and management of work-related musculoskeletal disorders 2020-2025

Primary
Before injury

Secondary
Soon after injury (< 3 months)

Tertiary
Rehabilitation (>3 months)

Nexus for change
Shift towards primary prevention

Figure 7  The WMSD framework timely action for prevention and management of WMSDs

Figure 8  Principles of good work design (adapted from: Safe Work Australia)
Priority areas

The following priority areas were identified through multi-stakeholder engagement workshops and extensive review of literature.

Priority 1: Acknowledge complexities and optimise timing of intervention – focussing on prevention and early intervention

- Recognise risk factors to target in primary prevention and early intervention
- Consider multi-faceted, targeted interventions for primary prevention and early intervention
- Identify key stakeholders that can influence change at the primary, secondary and tertiary prevention levels, particularly the priority actions
- Engage and partner stakeholders that have roles in addressing priority actions.

Priority 2: Build capacity of stakeholders – develop and build knowledge and systems

- Lead, engage, collaborate, partner and support stakeholders
- Build knowledge and awareness of stakeholders
- Build capacity for systems, intervention and service delivery
- Build knowledge on work-related musculoskeletal disorders

Priority 3: Focus on high risk areas – lead, support and empower priority industries, workforce and service providers

- Utilise research and intelligence data to identify current and future high risk groups
- Educate, engage and partner stakeholders of high risk industries such as those that demonstrate the presence of high levels of physical and psychosocial risk factors, and lack of high-level multi-faceted interventions
- Educate, engage and partner stakeholders of less resourced organisations: small businesses, limited funds, new businesses
- Educate, engage and partner stakeholders of high risk occupations
- Build knowledge and ensure optimal care for the injured worker
- Build knowledge and ensure optimal care and access for injured regional workers and organisations
- Build knowledge, provide early intervention for pain management and ensure application of biopsychosocial model for workers experiencing pain
- Consider, build knowledge of and ensure optimal care for workers with comorbidities such as mental health, previous MSD, morbid obesity, diabetes and cardiovascular problems
- Consider and build knowledge of vulnerable workers such as the ageing, young, disabled, migrant status, literacy/culturally challenged and physically inactive workers
- Consider and build knowledge of future workers such as apprentices, professionals in-training and school students
- Educate and promote wellness of the healthy worker and community particularly in relation to physical activity, diet, mental wellbeing, smoking and alcohol consumption.
5 Outcomes and measuring progress

Outcomes of the framework

The application and value of this framework will be measured by:

- Accessibility
- Stakeholder’s awareness of the WMSD framework
- Application of the WMSD framework
- User-friendly
- Easy to understand
- Serves as a roadmap (provides process)
- Accepted concepts
- High risk groups are considered

Baseline to date

Western Australia’s progress towards reducing the incidence rate of serious non-fatal musculoskeletal disorder (MSD) claims by at least 30 per cent by 2022 is improving. A 15.3 per cent improvement has been recorded in the latest three year rolling average period of 2015–16 to 2017–18 (preliminary) compared to the base period. However, more work is required to reach the target in 2022.

Figure 9 illustrates Western Australia’s progress in achieving Australian Work Health and Safety Strategy 2012–2022 incidence rate target for serious MSD claims.

Baseline to date

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Figure 9 illustrates Western Australia’s progress in achieving Australian Work Health and Safety Strategy 2012–2022 incidence rate target for serious MSD claims.

Measuring progress of WMSDs

The outcome of the vision to improve WMSDs in the occupational context will align with those indicators currently utilised by Safe Work Australia. Key WMSD indicators which will be measured regularly for progress include:

- Types of WMSDs
- Frequency rates of serious WMSDs
- Costs and days lost as a result of serious WMSDs
- Age group

Figure 9 Australian Work Health and Safety Strategy 2012–2022 indicator, Western Australia incidence rate of serious non-fatal MSD claims (LTI/Is 5+ days/shifts lost) - 3yr rolling average
6 Future work

The WMSD framework will form a basis for agreed future work. This will include:

- forming alliances and focus groups
- identifying practicable individual and collaborative stakeholder actions
- planning simple and multi-phasic initiatives
- delivering multi-faceted interventions
- measuring progress
- ongoing review

For this framework to be practical, stakeholders will have to identify the nature of interventions that can be applied through collaborative and individual approaches, at any one time or in progressive phases. Some examples of interventions that were articulated by stakeholders at the WMSD framework development workshops have been provided in Appendix 1.
References


Appendix 1 Examples of multi-faceted interventions

For WMSD prevention and management, the following suggestions were made by some relevant stakeholders from the community, workplace and individual realms during focus sessions.

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority and type of intervention</th>
<th>Potential actionees or collaborators</th>
<th>Target audience</th>
<th>Case study</th>
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</thead>
</table>
| Create an alliance comprising of key stakeholders that meet quarterly to discuss progress in their areas. These groups may subsequently be broken into working parties for focused actions | Addresses priorities 1, 2 and 3                                                                 | • Government – DMIRS, WorkCover WA  
• Not-for-profit organisations – Arthritis and Osteoporosis WA  
• Expert groups  
• Academic – Curtin University  
• Worker representatives  
• Employer representatives | All stakeholders – background work to establish sound foundation for current and future works | New South Wales: Musculoskeletal disorder strategy 2017-2022  
Queensland  
Victoria |
| Establish a collaborative WMSD prevention and management program/initiative – hosted by a WA peak body | Addresses priorities 1, 2 and 3                                                                 | • Government – DMIRS, WorkCover WA  
• Not-for-profit organisations – Arthritis and Osteoporosis WA  
• Expert groups  
• Academic – Curtin University | All stakeholders – Website designed to be easy to navigate to cater for multiple audiences at all levels of prevention | Canada: Work shouldn’t hurt campaign (www.msdprevention.com)  
Europe: Prevent4Work (P4W) is the European project developed within the Erasmus + Programme that offers innovative e-learning courses focused on improving the prevention of work-related musculoskeletal disorders (www.p4work.com) |
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<tr>
<td>Prevention: Develop workshops on approaches to promote risk management and ergonomic intervention</td>
<td>Primary and secondary prevention</td>
<td>Government – DMIRS WorkCover WA, Expert groups</td>
<td>Canada MSD prevention guideline for Ontario (<a href="http://www.msdprevention.com">www.msdprevention.com</a>)</td>
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<td>Early Intervention: Promote early health intervention with face-to-face workshops with GP or webinars</td>
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<td>Tools: Develop tools to facilitate prevention and early intervention activities, for example:</td>
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<td>• development of sample policy and job dictionaries that can be completed by injured worker, and supervisor soon after injury is reported, to share with GP</td>
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<td>• Human resources professionals</td>
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<td>• Rehabilitation providers – ARPA</td>
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<td>Industry and service providers at all levels of prevention</td>
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<td>Arthritis WA Manual tasks guide for carers (to be revised)</td>
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<td>High risk industry employers</td>
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<td>High risk industry workers (e.g. carers, truck driver, storeperson, ageing, young)</td>
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| Build on existing guides about experiencing, addressing and managing WMSD discomfort and pain | Addresses priorities 1 and 3  
Primary and secondary prevention  
Interventions:  
• Lead and support  
• Partner, engage and collaborate  
• Educate and empower  
• Research and intelligence | • Government – DMIRS, WorkCover WA  
• Not-for-profit organisations – Arthritis and Osteoporosis WA  
• Education/vocational/university training providers  
• Expert groups  
  – General practitioners  
  – Medical specialists, e.g., occupational physician, orthopaedic specialist, rheumatologist, pain specialist  
  – Human Factors and Ergonomics Society Australia (HFESA)  
  – Physiotherapy – APA  
  – Rehabilitation providers – ARPA | All workers | Western Australia: painHEALTH (painhealth.csse.uwa.edu.au) |

| Focussed project on high risk manual tasks industries- conduct investigations, education and enforcing where applicable. Carry message of ergonomics risk management and early intervention  
Provide feedback into legislative processes recommending WMSD are addressed in new legislation related to prevention and management of OSH injuries or diseases | Addresses priorities 1, 2 and 3  
Primary and secondary prevention  
Interventions:  
• Lead and support  
• Partner, engage and collaborate  
• Educate and empower  
• Enforcement | • Government – DMIRS, WorkCover WA | High risk industries  
High risk working groups | |