THE WORK FOUNDATION
PART OF LANCASTER UNIVERSITY

Fit For Work?

Musculoskeletal Disorders and the New Zealand Labour Market

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Contents

List of Boxes, Figures and Tables

Glossary

ACC	Accident Compensation Corporation	**NOHSAC**	National Occupational Health and Safety Advisory Committee
AS	Ankylosing Spondylitis	**OECD**	Organisation for Economic Co-operation and Development
CBT	Cognitive behavioural therapy	**QALYs**	Quality adjusted life years
DPI	Discomfort, Pain and Injury	**PsA**	Psoriatic arthritis
DALYs	Disability adjusted life years	**RA**	Rheumatoid arthritis
DMARDS	Disease-modifying anti-rheumatic drugS	**RACP**	The Royal Australasian College of Physcians
EU	European Union	**ReA**	Reactive arthritis
ETUI	European Trade Union Institute	**SpA**	Spondyloarthropathy
GDP	Gross domestic product	**USpA**	Undifferentiated spondyloarthropathy
GPs	General practitioners	**WHO**	World Health Organisation
IBD	Inflammatory bowel disease	**WRULDs**	Work-related upper limb disorders
MSDs	Musculoskeletal disorders		

1. Executive summary

One of the most significant drivers for future workplace participation and productivity in New Zealand will be workforce health and wellbeing. Musculoskeletal disorders (MSDs) are currently the leading cause of disability in New Zealand. Among the working age population they are the second largest category of conditions resulting in sickness and invalid's benefit payments and are thought to make up a large proportion of workers' compensation claims. Together this is draining New Zealand's labour market of valuable skills. It is placing a significant burden on the individuals themselves, their employers and the national health care and welfare systems.

Much is already done to protect and support New Zealand workers whose health has been explicitly damaged through work-related injury. However, significantly less attention is paid to those conditions not caused by work, but are nevertheless exacerbated by, and impacted on by work-related activities. At the same time adopting a reactive approach to the management of MSDs, which leads to delays in early diagnosis and rehabilitation, can hinder an individual's prospects of job retention.

As the numbers of people with chronic conditions are projected to soar across the globe, New Zealand needs to ensure that strategic, joined-up policies are in place to support the primary prevention of MSDs through early detection and intervention. A National Action Plan for tacking the burden of MSDs is needed to raise awareness about the impact of these conditions and engage individuals, employers and health care professionals to take a more efficient, proactive and joined-up approach in the management of MSDs.

The 'Fit for Work?' project

This project has looked in some detail at the impact that MSDs have had on the working lives of millions of New Zealanders. It has examined the adequacy of the treatment and support workers receive, their experiences at work, the effect of their condition on their family and colleagues, and the human and financial costs involved. Specifically we have looked at back pain and work-related upper-limb disorders (WRULDs) such as regional pain syndromes or non-specific forearm pain – two groups of conditions which are usually characterised by non-specific and short episodes of pain and incapacity and rheumatoid arthritis (RA) and spondyloarthropathy (SpA) – specific conditions that are often progressive and increasingly incapacitating. We conducted a review of recent academic and practitioner research on the relationship between these MSDs and labour market participation and conducted interviews with acknowledged experts in this field.

The Impact of MSDs on the New Zealand workforce

MSDs have a significant impact on people's ability to work; not only on an individual but also on an aggregate basis. Together they affect the productivity and labour market participation of thousands of New Zealand workers. Evidence suggests that:

- MSDs affect nearly 1 in 4 adults in New Zealand.
- In 2010 15.2 per cent of New Zealanders aged 15 and over were living with at least one type of arthritis. By 2020 the prevalence of arthritis is expected to reach 16.9 per cent, which is equivalent to 120,000 people. RA is the second most common form of arthritis in New Zealand, affecting 3.5 per cent of the population. In 2008 this was equivalent to more than 149,000 people.
- The odds of participating in the labour force in New Zealand are 31.5 percentage points lower for those people with a chronic condition, such an MSD. In 2005, for example, 25,440 people were not participating in the labour market because of their arthritis.
- In 2009/2010 the Accident Compensation Corporation of New Zealand (ACC) spent NZ$ 147,452,564 on work-related musculoskeletal entitlement claims.
- At the end of 2010 14.5 per cent of all accepted claims for sickness benefit and 11.7 per cent of all accepted claims for invalid's benefit were for MSDs. Behind psychological and psychiatric conditions, MSDs represented the second largest category of conditions resulting in claims for sickness benefit.
- The direct cost of work-related injuries and disease (which are thought to be largely made up of MSDs) to the New Zealand's economy was between 4 and 8 per cent of GDP in 2002.

The effects of incapacity and pain from these and other MSDs can impact on several aspects of an individual's performance at work, including:

- Stamina;
- Cognitive capacity or concentration;
- Rationality/mood;
- Mobility;
- Agility.

It is becoming clearer that people with MSDs are also likely to have depression or anxiety problems related to their conditions. This can affect the severity of the condition, the ability of the individual to remain at work, the length of time they spend away from work and the ease with which they can be rehabilitated. Research suggests that a significant proportion of general practitioners (GPs), employers and even individuals with MSDs do not fully appreciate the impact of 'stress' on the severity of physical incapacity. The **biopsychosocial model** of health emphasises the interplay between the **biological** (eg disease, strain, joint damage), the **psychological** (eg disposition, anxiety, stress) and the **social** (eg work demands, family support) and represents a helpful way of assessing the causes of some MSDs, of planning treatment and management and of approaching rehabilitation in the workplace. This model is not been adopted as widely as it should, however, because many clinicians and employers find it difficult to look beyond the immediate physical symptoms.

Work can be both cause and cure. Whilst the physical conditions of work may cause or aggravate musculoskeletal symptoms, the impact or outcome on individuals (absence from work and disability) is strongly associated with psychosocial factors. Evidence suggests that work can help ameliorate the deterioration of many conditions and help recovery from MSDs. However, many health care professionals and employers mistakenly believe that workers with MSD must be 100 per cent well before any return to work can be contemplated.

Looking to the future with prospects for an ageing workforce, increasing levels of obesity, a fall in physical activity and exercise among the general population, it is likely that the growing incidence and effects of MSDs will adversely affect the productive capacity of the New Zealand workforce at a time when we need it to be top form.

What can be done?

There are four main principles which GPs, employers, employees and the government should focus on if we are to improve the working lives of workers with MSDs.

- **Early diagnosis and intervention are essential**. The overwhelming evidence is that long periods away from work are usually bad for MSD patients – the longer they are away from work the more difficult it is for them to return. Early detection of MSDs and referral to appropriate care, such as physiotherapists and occupational therapists, and preferably in partnership with the patient and their employer, will help individuals to return to work as soon as possible and avoid work incapacity in the long term. This in turn will reduce the burden on MSDs and resulting comorbidities on the wider economy and society.
- **Identify where work is good**. It is easy to assume that work is unambiguously bad for people with MSDs, especially if some aspects of their jobs have the potential to make their symptoms worse. With some adjustments, staying at work on lighter duties or with adjusted hours might still be a better option than a prolonged absence from work.
- **Thinking beyond the physical symptoms**. Health care professionals should bring to bear their understanding of the biopsychosocial model and the limitations of the biomedical model in their diagnosis and treatment of the patient and – most importantly – their assessment of the role that a job might play in helping someone

to say active and avoid isolation. Occupational therapists and GPs are ideally placed to identify the early presentation of many MSDs. Where appropriate they should refer patients to specialist teams or allied health professionals, such as physiotherapists and occupational therapists, as early as practicable to enable the management of the condition to begin.

- **Focus on capacity not incapacity**. Employers and employees can ‘catastrophise’ MSDs, imagining their effects to be far more serious or insurmountable than is strictly the case. Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They do not need to be 100 per cent fit to return to work. A little lateral thinking, preferably in partnership with clinicians, will allow managers to identify what an individual can still do within their capacity and what workplace adjustments can be made to support them on their journey back to full productivity.

Four stakeholders – individuals, employers, clinicians and policy makers – must embrace the principles of effective management of MSDs to reduce and prevent the impact of chronic conditions on the ability of individuals to remain at work and return to employment. The report calls upon each of them to take action.

Policy makers should consider developing a National Plan for MSDs as a way of targeting the three major stakeholder groups in an effective and joined-up way. This plan should incite the establishment of a Clinical Outcomes Framework, through which work is outlined as one of the clinical priorities going forward. It should also encourage and support the establishment of a robust surveillance system that will enable employers to monitor and report incidences of occupational illness and disease. Finally it should promote and help individuals adopt policies that are conducive to the prevention of MSDs.

Clinicians should identify where job retention or early return to work is good for their patient. They need to work in partnership with the patient and their employer to help those with MSDs achieve a balance between their need for respite and their need for work. It is easy to assume that work is unambiguously bad for your patients, especially if you suspect aspects of their job may make their symptoms worse. However, most workers with MSDs can continue to make a great contribution at work if they are allowed to. With some adjustments, staying in work on lighter duties, or with adjusted hours, might still be a better option than a prolonged absence.

Employers should work with clinicians to encourage and support individuals’ involvement with the treatment and self-management of an MSD. Employees should play a bigger part in the planning of workplace adjustments in order to help prevent an MSD from getting worse, or to help them stay in, or return to, work. This is conducive to developing a more individual need-centric approach to the management of MSDs.

Individuals should play an active part in the management of their condition by adopting strategies that are conducive to prevention, rather than reactive to the management of their condition. There are lots of different ways to find out more about a chronic health condition, and learn how to best minimise its impact on performance and psychological wellbeing. A proactive approach to the self-management of MSDs improves quality of life and perceived employability among individuals and is also crucial in order to address the worsening health status.

In part, some aspects of the problem of MSDs, and their impact on work, are already on the agenda in New Zealand. However, other equally important aspects are not. As a result there still remains a paucity of clinical, epidemiological, psychological and economic evidence about the precise nature, extent and consequences of MSDs in New Zealand. Despite this, we know enough to be able to conclude that going forward MSDs will affect a growing proportion of the working-age population in New Zealand. While the acceptance of a more holistic approach towards the treatment of patients with MSDs is beginning to grow, the underlying principles of the biopsychosocial model are yet to be fully embraced. Through coherent, ‘joined-up’ thinking and action by the key stakeholders – government, clinicians and employers – there is a renewed opportunity to focus on the MSD **patient as worker**.

2. Introduction

2.1 The global burden of MSDs

At least one billion people in the world live with some form of disability; for 200 million of them long-term health conditions significantly affect their ability to perform activities of daily life (WHO, 2011). Moreover, the prevalence of disability is increasing as the population ages and the incidence of chronic health conditions such as diabetes, cardiovascular disease, cancer and mental health disorders increases.

Musculoskeletal disorders (MSDs) such as low back pain, arthritis and other diseases of the joints are among the leading causes of disability (WHO, 2011). MSDs account for more than 10 per cent of all years lost to disability globally (WHO, 2009). The conditions of this group, although not leading directly to mortality, impact on individuals' ability to live independently and continue productive working lives.

The impact of MSDs on individuals and their ability to work varies significantly from person to person. Work disability is usually estimated in relation to cessation of employment, reduced working hours or claiming of disability benefits. These estimates rarely take into consideration lost productivity whilst at work. The effects of pain from MSDs can impact on such aspects of one's performance at work as stamina and resilience, cognitive capacity or concentration, rationality/mood, fatigue, mobility and agility.

Reduced productivity of individuals with MSDs at work, and their likely premature withdrawal from the labour market, has negative spill over effects on our economy and society. The variety of physical and psychological symptoms of MSDs, and resulting comorbidities, mean that the actual burden that MSDs have on individuals, employers and society may be significantly underestimated. Despite this, work is still not considered a valued clinical outcome in treating individuals with MSDs.

2.2 Evaluating the economic and social impact of MSDs

Calculating the exact costs of MSDs is not straightforward (Lundkvist, Kastäng and Kobelt, 2008). Several factors need to be considered, and obtaining accurate, reliable and consistent figures is almost impossible.

To calculate the cost of MSDs (or any illness) the following factors must be estimated:

- **Direct costs** including medical expenditure, such as the cost of prevention, detection, treatment, rehabilitation, long-term care and ongoing medical and private expenditure. They are often further separated into medical costs occurring in the health care sector and non-medical costs occurring in other sectors (Lundkvist, Kastäng and Kobelt, 2008);

- **Indirect costs** including lost work output attributable to a reduced capacity for activity, such as lost productivity, lost earnings, lost opportunities for family members, lost earnings of family members and lost tax revenue;
- **Intangible costs** including psychosocial burden resulting in reduced quality of life, such as job stress, economic stress, family stress and suffering (WHO, 2003).

These costs vary considerably depending on the condition, on the severity of the symptoms, and whether these cause short or long-term absence or disability. Moreover, they vary depending on the particular methods used to calculate the costs. Some factors which affect the calculations include the following:

- Severity of patient's conditions;
- Mix of patient demographics in a study;
- Calculation method for productivity;
- Definitions of work disability;
- The treatment costs or outcomes due to treatments;
- Change in health care financing systems;
- Incidence or prevalence based estimates of costs.

The biopsychosocial model (Waddell and Burton, 2006b) advocates taking into consideration the interplay between the biological (eg disease, joint damage), the psychological (eg disposition, anxiety) and the social (eg work demands, family support) factors, when assessing the overall impact of chronic health conditions. The psychological status and behaviour of a patient can be equally affected by a 'physical' injury (such as back pain), and should be addressed during treatment and rehabilitation. It is evident that the interaction of the biological, psychological and social dimensions defines the long-term impact of a musculoskeletal condition.

While it is hardly possibly to quantify the exact burden of MSDs on individuals, employers and the wider society, it is clear that reduced workability contributes to the indirect and intangible costs of MSDs, which are eventually greater than the direct costs of treatment (Lundkvist, Kastäng and Kobelt, 2008). A number of stakeholders including policy makers, health care professionals, employers and individuals have to work together to anticipate the negative impact of MSDs in time for the most efficient prevention and management of the effects of those conditions.

2.3 International context

To raise awareness of the disability caused by MSDs the United Nations declared the years 2000 to 2010 The Bone and Joint Decade. Many countries have since acknowledged the increasing prevalence of MSDs, and the rising costs of these conditions. Studies have shown that, for example, in 2005 over 107 million adults in the United States (US) reported having an MSD (United States Bone and Joint Decade, 2008). Similarly, it has been estimated that in Europe chronic musculoskeletal pain affects 100 million people (Veale, Woolf and Carr, 2008).

Many of individuals living with MSDs are of working age. In the European Union (EU) MSDs affect more than 40 million workers and account for about half of all work-related disorders (European Trade Union Institute (ETUI), 2007), representing an estimated cost to society of between 0.5 and 2.0 per cent of gross domestic product (GDP) (Cammarota, 2005). The European Commission estimates that MSDs account for 49.9 per cent of all absences from work lasting three days or longer and for 60 per cent of permanent work incapacity (European Agency for Safety and Health at Work, 2007).

Increasing awareness of the burden of MSDs on economies and societies has led to the proposal of the EU directive on MSDs, due in 2012.[1] Unlike other recent EU directives, this one will focus primarily on MSD-related workplace risk, taking into account individual or psychological factors as well as the social milieu in which individuals live their lives, for which work plays a large part. In particular, the directive prescribes that psychosocial factors (such as stress) must be considered and assessed alongside physical work-related ill health. Such a recommendation signifies a welcome cultural shift towards viewing a patient as a worker and aiming for a return to work to be an ultimate outcome of treatment.

This report looks at New Zealand in this wider global context and assesses where New Zealand is doing well and where it has challenges to confront. Appendix 3 compares New Zealand with other countries across a range of labour market, welfare and health care systems indicators.

2.4 Objectives of the study

More specifically, this project has sought to address each of the following questions:

1. What is the impact of MSDs on employment and economic performance in New Zealand? How is this likely to change in the context of future demographic, workforce and lifestyle changes?
2. What is the relationship between work and MSDs? What impact do biological, psychological and social factors, including workplace factors, have on MSDs?

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[1] See Health and Safety Executive. http://www.hse.gov.uk/aboutus/europe/euronews/dossiers/msd.htm

3. How well do employers, governmental bodies, general practitioners (GPs) and occupational health professionals understand and deal with MSDs as they relate to the workplace? How well equipped is the health sector to provide early intervention, rehabilitation and other support for people with these conditions?
4. What early interventions can policy-makers and employers deliver to ensure that those with MSDs a) retain their jobs b) maximise their quality of working life and their contribution to society and c) maintain access to (and routes back into) employment?

In addressing the objectives outlined above, we have used the following approaches:

1. Desk research: Here we have drawn on existing published research from the medical, occupational health and health economics literature. This has enabled us to bring together the evidence on the nature, extent, impact and costs of MSDs to the New Zealand's economy, to employers and to individuals. We have examined a range of MSDs to assess the extent to which their impact varies and where policy and practice has been both strong and weak in preventing and intervening.
2. Secondary data analysis: We have used data from domestic and international studies and surveys to examine the prevalence and costs of MSDs in the working age population in New Zealand.
3. Expert interviews: We have conducted interviews with five New Zealand experts across a number of disciplines (including occupational health and medicine, public health, rheumatic disease and workplace discomfort, pain and injury) to identify the main areas of policy and practice which need to be addressed by policy-makers, health professionals and by employers.

In addition to the wider picture, to focus the research, we have chosen to concentrate on four categories or groups of MSDs. These are:

- Back pain;
- Work-related upper-limb disorders such as regional pain and non-specific forearm pain (WRULDs);
- Rheumatoid arthritis (RA);
- Spondyloarthropathy (SpA).

Back pain and the majority of WRULDs are categorised as non-specific and episodic conditions which may frequently be caused by, or be made worse by, work. They manifest themselves in disparate ways and may cause periods of intense discomfort and incapacity which may affect the ability of the individual worker to carry out their work. They may also abate for long periods.

Many people with these conditions, such as back pain, never seek treatment and most recover on their own but the conditions can cause significant absence from work or lost productivity. Back pain and WRULDs are often included in the occupational health and safety guidelines and literature. Occupational health practitioners typically deal with these conditions.

On the other hand, RA and SpA are specific and progressive rheumatic diseases which are not caused by work, but may be made worse by work and are often handled by general practitioners and specialists, not within the occupational health arena. They are clinically diagnosed conditions that progress in a broadly predictable way, if untreated. They can have a significant impact on functional capacity at work and, in the long-term, participation in the labour market. Most people with these conditions require clinical interventions over a prolonged period of time and the management of these conditions for those of working age should involve the frequent and active participation of clinicians, employers and occupational health professionals.

2.5 Structure of the report

The report is structured as follows:

- Section Three examines the extent of MSDs in New Zealand the implications of poor health for the New Zealand's society.
- Sections Four, Five, Six and Seven review the impact and costs of MSDs from the perspectives of the New Zealand government, health care professionals, employers and employees. They provide recommendations for each group of stakeholders on how to tackle the burden of the chronic conditions.
- Section Eight summarises the case for early intervention for MSDs and Call to Action for the four stakeholder groups.

3. Work and MSDs in New Zealand

This section sets out what we know about the impact of MSDs on people of working age in New Zealand. It uses data, research and interview evidence from local sources where this is available, and paints a picture of the challenges faced by both current and future workers in New Zealand, their families, their employers and, ultimately, state agencies.

3.1 Why is workforce health in New Zealand important?

Despite being one of the first of the OECD countries to enter into recession, New Zealand experienced a relatively shallow economic downturn. Sound macroeconomic policy, alongside targeted policy stimulus, meant that New Zealand quickly began to show signs of an early recovery (Treasury, 2010). However, as New Zealand's economy began to stabilise, the country was struck by two devastating natural disasters. The cost of these, according to the International Monetary Fund, will be in the region of $NZ 15 billion. This is equivalent to 7.5 per cent of New Zealand's GDP (International Monetary Fund, 2011).

As the country begins to recover once again and take renewed steps to stabilise its economy, New Zealand must address the problem of labour productivity so that it is able to extract the most economic benefit from its labour force, and secure high levels of growth. In 2010 New Zealand was ranked 27 percentage points below the OECD average in terms of labour productivity, and a further 32 percentage points behind Australia (Patterson and Brown, 2010). In addition to low skill levels among the working age population, a significant reason for low levels of productivity is likely to be ill-health (Holt, 2010a).

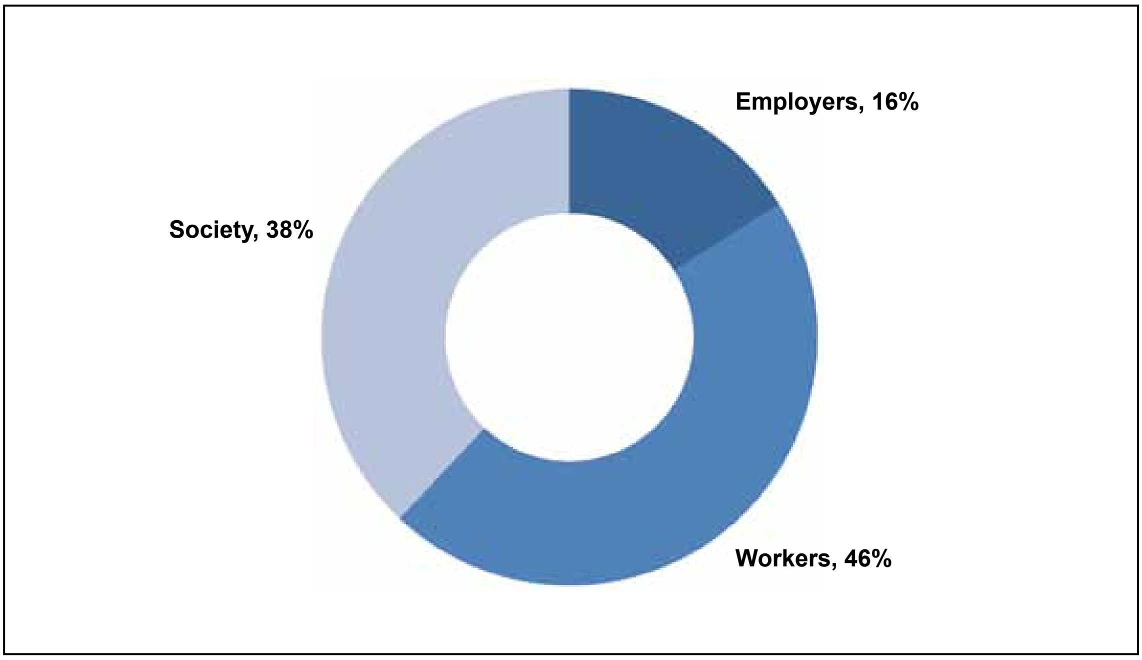
As well as affecting labour force participation, ill-health can impede the development of skills and knowledge, which in turn can impact negatively on labour market productivity. Disability affects approximately 17 per cent the working age population in New Zealand. In 2006, at every level of qualification, those people who reported having a disability were less likely to be participating in the labour force, and were significantly under-represented in each of the skilled occupation groups when compared with people who did not have a disability (Statistics New Zealand, 2008). Health improvements that maintain staff and lead to the development of skills and knowledge, can also help make workplaces in New Zealand more attractive. This in turn will aid New Zealand in retaining a globally skilled workforce that will also drive forward future productivity (Department of Labour, 2005).

Musculoskeletal conditions are the leading cause of permanent incapacity in New Zealand, affecting 1 in 4 adults (Bossley and Miles, 2009). According to the 2006/07 New Zealand Health Survey, among those people who reported experiencing chronic pain, 57.6 per cent said that they had pain in their joints and 47.5 per cent said they had pain in their spine (Ministry of Health, 2008b). High levels of musculoskeletal pain (47.4 per cent) were also found in an ad-hoc study of 540 adults in New Zealand (Taylor, Dean and Siegert, 2006). Among those surveyed, 29 per cent of respondents reported their musculoskeletal pain to be disabling.

As well as contributing to the individuals' withdrawal from the labour market, MSDs can also affect the amount of work that one person can undertake (Holt, 2010a). In New Zealand chronic disease is associated with an increased likelihood of working part-time, suggesting that these people experience difficulties when trying to hold down a full-time job (Holt, 2010b). For example, arthritis is negatively associated with levels of workplace productivity, measured through absenteeism and presenteeism (Access Economics, 2010). At the same time, in 2010, 15.2 per cent of New Zealanders aged 15 and over were living with at least one type of arthritis. By 2020 the prevalence of arthritis is expected to reach 16.9 per cent, which is equivalent to 120,000 people.

These highly prevalent conditions impact the quality of individuals' lives, their ability to work, and consequently, present a burden to the employers and the society. In 2006 The National Occupational Health and Safety Advisory Committee (NOHSAC) estimated the extent of the burden of occupational disease and injury on workers (excluding suffering), employers (including compensation premiums) and the society in New Zealand (see Figure 3.1).

Figure 3.1. Burden of occupational injury and disease in New Zealand, by cost bearer



Source: Access Economics, (2006)

Despite growing evidence of the impact of MSDs on the health, participation and productivity of New Zealand's workforce, the early diagnosis and treatment of all MSDs, whether caused through disease or injury, is yet to become a priority among decision makers in New Zealand. A lack of comprehensive data is one reason that can be used to explain why this might be.

3.2 Definitions and available data

The lack of standardisation and validation around the terminology and classification of MSDs is one of the reasons for the lack of, or contradictory findings in the literature regarding the diagnosis, epidemiology, treatment and rehabilitation of these conditions (WHO, 2003). Accident Compensation Corporation (ACC) – providers of the main source of MSD related statistics in New Zealand – define MSDs under the broad term '*Discomfort, Pain and Injury*', so to allow for a clear and all encompassing interpretation by ACC users. More specifically this definition relates to either:

1. A work-related gradual onset injury that occurs in any of the following sites:
    - *Head (except face);*
    - *Back (except head);*
    - *Vertebrae;*
    - *Finger/thumb;*
    - *Hand/wrist;*
    - *Elbow;*
    - *Upper and lower arm;*
    - *Shoulder (include clavicle/blade);*
    - *Chest;*
    - *Knee;*
    - *Ankle;*
    - *Foot;*
    - *Upper back/spine;*
    - *Lower back/spine;*
    - *Multiple locations.*
2. A work-related soft tissue injury that occurs in any of the following sites:
    - *Back (except head vertebrae);*
    - *Lower back/spine;*
    - *Neck;*
    - *Back;*

- *Back of head vertebrae;*
- *Upper back/spine.*[2]

The ACC workers claims database, which provides comprehensive information on the number of work-related Discomfort, Pain and Injury claims, as well as the cost of each claim in terms of associated medical fees and wage replacements, is used to quantify the extent of MSDs in the working age population of New Zealand (Health Outcomes International Pty Ltd, 2005). However, this method does not account for systemic diseases that are not caused by work but can be aggravated by work, such as RA, due to the difficulty of linking them directly to the workplace (NOHSAC, 2005). It is therefore likely that compensation data from ACC under-reports the prevalence of some MSDs among the working age population in New Zealand. In addition, the encompassing nature of the term 'Discomfort, Pain and Injury' makes it difficult to separate out some MSDs, such as WRULDs, from other incidences of reported discomfort and pain in the data. This makes it difficult to assess the prevalence and cost of one MSD over another, and may also raise the aggregate total of claims over and above what is traditionally considered to be an MSD.

A different way to asses the prevalence of MSDs in New Zealand is through social surveys. Several ad hoc studies, including the New Zealand Health Survey, have helpfully documented the size and nature of specific musculoskeletal conditions, such as arthritis among the general population. However, studies of this nature are based on self-reported data and thus potentially exclude people at the early stages of the disease, who are not yet aware of their condition. In addition to this, data are not collected in care homes or hospitals, and thus potentially exclude a significant proportion of older people who are more susceptible to MSDs (Ministry of Health, 2008c).

In 2008 NOHSAC concluded that there is 'a long way to go in even identifying the size and nature of these problems; let alone developing effective interventions' for them (NOHSAC, 2008). This paints a troubling picture for a number of reasons:

- Low awareness of the wider economic and societal costs of MSDs, their impact on productivity, workers and their families, delays the action that needs to be taken by employers and policy makers in New Zealand.
- If, as is predicted, the prevalence of MSDs increases with the ageing of the New Zealand workforce, the absence of good baseline data will complicate forecasting about the future impact of MSDs.

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[2] Information provided by an in-country expert

- The benefits of clinical, labour market or workplace interventions are made all the more difficult to quantify (or justify) if there are no reliable or comprehensive data on the extent or impact of MSDs on the New Zealand workforce.

3.3 The impact of MSDs on ability to work

This section reviews existing data on the prevalence of four MSDs common in New Zealand.

3.3.1 Back pain

Back pain, back problems and disc disorders are very common complaints in New Zealand. According to ACC, approximately 6,300 new work-related back injury claims were made in the year 2008/09, in addition to the 10,300 claims already active, at a cost of NZ$ 144,654,000.[3] Claims for back problems are most common among men.

Back pain is common, episodic, often recurrent and generally self-limiting. It is defined as recurrent if several episodes occur in one year for a duration of less than six months, acute if an episode lasts for less than six weeks, sub-acute (7-12 weeks) and chronic if it endures for over 12 weeks. Back pain is a recurrent problem for many people, although this does not necessitate that symptoms will worsen. For the majority of people back pain will disappear of its own accord within four to six weeks. In a European study of people visiting their family doctors because of back pain, 65 per cent were free of symptoms within 12 weeks (van der Hoogen et al., 1998 in Bekkering, Henriks, Koes, Oostendorp, Ostelo et al., 2003). Recorded absence is greatest amongst the minority of individuals whose condition is chronic or recurrent. Most people who are affected by back pain either remain in work or return to work promptly. About 85 per cent of people with back pain take less than seven days off, yet this accounts for only half of the number of working days lost. The rest is accounted for by the 15 per cent who are absent for over one month (Bekkering et al., 2003).

It is important to recognise that there is a difference between having symptoms, care seeking, lost productivity and disability, and the factors that contribute to them (Burton, 2005). This means that whilst individuals may experience musculoskeletal pain (in their back, for example), it is not possible to predict their strategies for dealing with illness or injury (seeking medical attention for example), how it will affect their work performance, whether they will take time off work and whether, ultimately, they will become one of the very small minority who become permanently disabled by their condition. The important question is therefore why, when so many people experience back pain, does it have such an adverse effect on some and not others? There is a growing consensus that psychological factors are the differentiating reason as they are strongly associated with the progression of back pain from an acute to a chronic condition

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[3] See Accident Compensation Corporation Injury Statistics 2008/2009. Retrieved 2 June 2011 from http://www.acc.co.nz/about-acc/statistics/acc-injury-statistics-2008/index.htm

that affects two to seven per cent of people (Burton, 2005), and to disability (Burton, 2005; Bekkering et al., 2003).

3.3.2 Work-related upper limb disorders

There are not data available on the prevalence of work-related upper limb disorders (such as regional pain syndromes or non specific forearm pains) in New Zealand, mainly due to difficulties in classifying exactly what classifies as a WRULD.

The difficulty in classifying WRULDs is also reflected by a considerable debate about the definition and diagnostic criteria for WRULDs, which are also commonly referred to as 'sprains or strains', 'repetitive strain injuries or disorders', or 'cumulative trauma disorders'. Both specific and non-specific disorders and symptoms can be covered by this category. Van Eerd, Beaton, Cole, Lucas, Hogg-Johnson et al. (2003) identified 27 different classification systems for work-related MSDs, of which no two were found to be alike. The fact that a single disorder is often described in different ways only amplifies the problem of the systematic monitoring of WRULDs. Critically, Van Eerd et al. (2003) found that the different classification systems did not agree on which disorders should be included. This definitional problem makes it difficult to calculate the number of people with WRULDs and to develop a common understanding of the associated risk factors. It also runs the risk of undermining New Zealand's ability to collect comparative data over time.

Whilst no agreed classification exists there is a common consensus that symptoms of WRULDs can present in the tendons, muscles, joints, blood vessels and/or the nerves and may include pain, discomfort, numbness, and tingling sensations in the affected area. WRULDs can be specific and non-specific conditions (Aptel, Aublet-Cuvelier and Cnockaert, 2002) and attempts at classification tend to focus either on the affected body area or on the cause. Examples of WRULDs by body part include the following:

- Elbow: Epicondylitis (tennis or golfer's elbow);
- Hand, wrist and forearm: Carpal tunnel syndrome; repetitive strain injury, de Quervain's syndrome;
- Shoulder: Tendinitis of the shoulder;
- Neck: Neck pain.

Classification by occupational causes refers to actions such as vibration of the hand and arm, which can result in Raynaud's Syndrome, for example. The breadth of the category of WRULDs means that almost all symptoms and impacts on work associated with MSDs are associated with WRULDs. Specific symptoms and impacts of MSDs are therefore discussed in more detail below with reference to back pain, RA and SpA conditions.

3.3.3 Rheumatoid arthritis

The 2006/07 New Zealand Health Survey found RA to be the second most prevalent form of arthritis, affecting 3.5 per cent of the total population (Ministry of Health, 2008a). This estimation is significantly higher than the world prevalence rate estimated by WHO which, for most industrialised countries, is between 0.3 per cent and 1 per cent (WHO, 2003). It is also higher than the estimated prevalence given by Lundkvist, Kastäng and Kobelt (2008), which stood between 0.5 per cent and 1 per cent. These discrepancies could be due to differences in methodology (population, age group, geographic areas) and definitions of RA, but also due to the fact that data on RA prevalence are commonly based on prevalence studies in the US and Europe, and therefore regional differences could also come into play.

The exact cause of RA is not known. Evidence suggests that it is an immune reaction, presenting as an inflammation affecting joints and other tissues. Risk factors include gender, family history of RA and specific leukocyte antigen (HLA) (WHO Scientific Group, 2003).

The course of RA varies, meaning that it can go from a mild and even self-limiting form of the disease, to being severe and destructive within a short time (Young, Dixey, Cox, Davis, Devlin et al., 2000). RA is usually chronic (persistent) and people with the condition often have ‘flares’ of intense pain frequently associated with fatigue, although the reason for these is not known. In effect, ‘flares’ mean that one day someone will be able to perform their duties and the next they cannot. This can be difficult for colleagues and managers to comprehend, and can make planning workloads challenging. Managing these ‘flares’ in employment requires close communication and understanding between employees and employers.

RA affects people of any age, although incidences in New Zealand have been found to rapidly increase with age, peaking among those aged between 65 and 74 years (Ministry of Health, 2008a; Access Economics, 2010). In addition, females are more likely to be affected than males. In New Zealand, it is estimated that 4.4 per cent of women have RA compared to 2.8 per cent of men (Access Economics, 2010). Epidemiological studies have shown that RA shortens life expectancy by around 6-10 years. Whilst at an individual level the clinical course of RA is extremely variable, its features include pain, stiffness in the joints and tiredness, particularly in the morning or after periods of inactivity, weight loss and fever or flu-like symptoms. It affects the synovial joints, producing pain and eventual deformity and disability. The disease can progress very rapidly; causing swelling and damaging cartilage and bone around the joints. It can affect any joint in the body, but it is often the hands, feet and wrists that are affected. RA can also affect the heart, eyes, lungs, blood and skin.

3.3.4 Spondyloarthropathies

Spondyloarthropathies (SpA) represent a family of chronic inflammatory conditions which include:

- Ankylosing spondylitis (AS);
- Reactive arthritis (ReA)/Reiter syndrome (RS);
- Psoriatic arthritis (PsA);
- Spondyloarthropathy associated with inflammatory bowel disease (IBD);
- Undifferentiated spondyloarthropathy (USpA).

There are not data available on the prevalence of SpA in New Zealand (Arthritis New Zealand, 2011). However, recent research looking at the prevalence of SpAs among the European population has found that it has long been underestimated, and that SpAs may have a similar prevalence rate to RA (Akkoc, 2008). Similarly, a US study estimates that there are 2.4 million Americans living with SpA compared to 1.3 million Americans with RA (Helmick et al., 2008 in Brown, 2009).

Ankylosing spondylitis is a specific progressive and chronic rheumatic disorder that mainly affects the spine, but can also affect other joints, tendons and ligaments. Its prevalence in the general population is most commonly reported to be 0.1-0.2 per cent, with a 3:1 to 2:1 male: female ratio (Dagfinrud, Mengshoel, Hagen, Loge and Kvien, 2004). First diagnosis is often made when people are in their teens and early twenties (the mean age of onset is 26). Research suggests that there is a strong genetic component to the cause of AS. Although anyone can get AS, it affects men, women and children in slightly different ways (Dagfinrud et al., 2004). In men, the pelvis and spine are more commonly affected, as well as the chest wall, hips, shoulders and feet. Women are supposed to have a later age of onset, milder disease course, longer asymptomatic periods but more extraspinal involvement. Accurate diagnosis can often be delayed since the early symptoms are frequently mistaken for sports injuries; Sieper, Braun, Rudwaleit, Boonen and Zink (2002) suggest an average of seven years between disease onset and diagnosis. Typical AS symptoms include pain (particularly in the early morning); weight loss, particularly in the early stages; fatigue; fever and night sweats and improvement after exercise. Again, as with RA, the temporal aspects of the disease require good management to ensure that individuals can perform their job, but do not make work impossible.

Approximately half of people with SpA are severely affected whilst others report very few symptoms. AS is generally considered to be a disease in which many individuals can maintain relatively good functional capacity (Chorus, Boonen, Miedema and van der Linden, 2002), yet reported unemployment rates are three times higher among people with AS than in the general population (Boonen, Chorus. Miedema, van der Heijide, Landewé et al., 2001).

Psoriatic arthritis is a form of joint inflammation affecting between 0.2 and 1.0 per cent of the general population (Wallenius, Skomsvoll, Koldingsnes, Rødevand, Mikkelsen et al., 2008) and between 10 and 20 per cent of individuals with psoriasis. When joints are inflamed they become tender, swollen and painful on movement. The joints are typically stiff after resting, early in the morning or while resting in the evening. Tissues such as ligaments, tendons around the joints may also be involved. Inflammation of tendons or muscles (such as tennis elbow and pain around the heel) also features in those with psoriatic arthropathy. In approximately 80 per cent of cases the arthritis develops after the appearance of psoriasis. Men and women are considered to be equally affected, and comparative studies have showed that patients with PsA have a burden of illness which is comparable to that of patients with RA or AS (Wallenius et al., 2008).

There are several features that distinguish PsA from other forms of arthritis: one pattern of inflammation is usually in the end of finger joints. Another pattern is involvement of the joints of the spine and sacroiliac joints which is called spondylitis (similar to ankylosing spondylitis). Neck pain and stiffness can occur or an entire toe or finger can become swollen or inflamed (dactylitis). There can also be a tendency for joints to stiffen up and sometimes to fuse together. Importantly the absence of rheumatoid factor in the blood helps distinguish psoriatic arthritis from rheumatoid arthritis. It is usual for the condition to develop in the teenage years. In women there may be an increased incidence following pregnancy or the menopause.

As PsA affects both the skin and the joints, this has a negative impact on the quality of life of people with PsA; due to emotional problems, in fact, they may experience more pain and role limitations than patients with RA (Husted, Gladman, Farewell and Cook, 2001). A higher level of mortality compared to the general population has also been reported among people with PsA (Wallenius et al., 2008).

3.4 Summary

The prevalence and impact of specific MSDs, such as RA and back pain, on New Zealand's working age population has already been documented. However the prevalence and impact of other MSDs, such as SpA and WRULDs, are yet to be explored. In addition, some of the wider impacts associated with these MSDs have not yet been wholly acknowledged. MSDs clearly affect the people living with them, but they can also affect their employers and the society as a whole.

Much of the burden associated with MSDs in New Zealand would be avoidable if employers, employees and health care professionals understood the policy context within which effective collaboration between one another could be established. This in turn would help foster a proactive approach to early diagnosis and treatment of all MSDs, enabling individuals to remain productive members of the workforce.

The following sections outline what can be done to tackle ill-health among the working age population in New Zealand, providing specific recommendations for each stakeholder group.

4. MSDs and government

Having a significant proportion of the working age population either temporarily or permanently unable to work due to chronic disease – even in a favourable economic climate – can reduce the aggregate level of labour productivity in an economy and damage the competitiveness and effectiveness of private and public sector employing organisations. A significant burden of ill-health or disability can also have a number of damaging social consequences leading to marginalisation and social exclusion.

4.1 Costs of MSDs to the wider economy and society

To support economic growth in New Zealand, it is imperative to optimise the proportion of the working-age population who are 'fit for work'. It is important to ensure that those people with ill-health or long-term conditions are not disproportionately excluded from the labour market, since such exclusion has a number of implications.

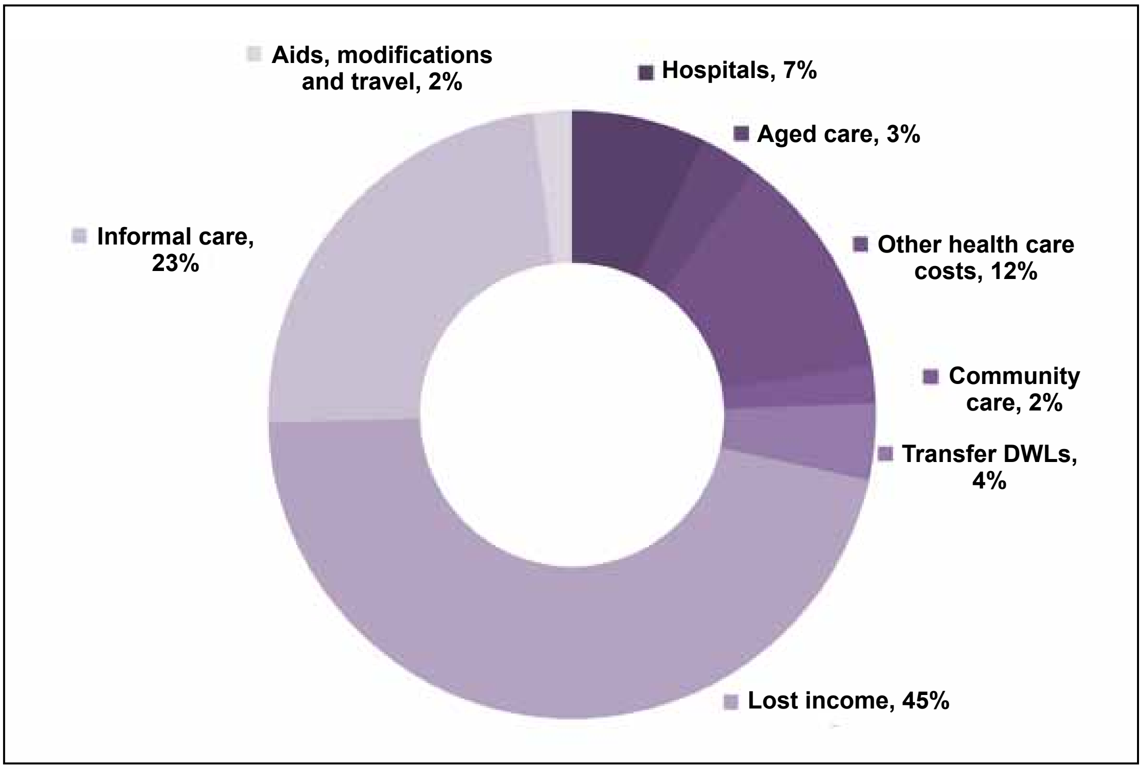
First, the future competitiveness of New Zealand's economy needs to be driven by the skills, experience and knowledge of its workforce. In 2006 'knowledge workers' already accounted for 41.1 per cent of the economy (Department of Labour, 2009a; 2009b). Through innovation, these workers, according to the Department for Labour, will drive the future productivity of New Zealand's economy (Department of Labour, 2009a). This trend of 'knowledge workers' is further supported by declining numbers of people working in primary and secondary industries in favour of service-oriented industries (Gander, Pearce, Langley and Wagstaffe, 2009). However, if those people with ill-health and long-term conditions are excluded from the labour market, the risk is that the New Zealand economy will be drained of much needed skills, therefore making the longer-term vision of the 'knowledge economy' more difficult to sustain.

Second, unemployment and job loss can have serious financial and health consequences for individuals. Several studies have demonstrated widespread deterioration in many aspects of physical and mental well-being among people who loose their jobs. Such deterioration can persist for many months (The Royal Australasian College of Physicians (RACP), 2010; Armstrong, 2006; Brinkley, Clayton, Coats, Hutton and Overell, 2008).

Third, it is essential that job loss is not concentrated within the most vulnerable parts of the workforce, particularly among those with a disability or a long-term or chronic health condition. We know that once these workers become detached from the labour market, their chances of finding meaningful work again are severely damaged. Therefore, finding ways of improving job retention is vital.

The New Zealand economy simply cannot afford for its development to be inhibited by a shortage of skilled, motivated and healthy workers. Work-related injuries and disease, largely made up of MSDs, cost the New Zealand economy between 4 and 8 per cent of GDP in 2002 in direct costs (Department of Labour, 2002). Yet the direct costs of MSDs only represent a small proportion of the total burden. In the case of arthritis Figure 4.1 illustrates that indirect costs of ill-health may significantly exceed the direct costs associated with disease, particularly chronic conditions.

Figure 4.1. Direct and indirect costs of arthritis in New Zealand, 2010



Source: Access Economics, (2010)

Indirect costs such as those associated with lost productivity represent a significant financial burden to the economy. A review of work productivity loss due to RA estimated that work loss was experienced by 36-85 per cent of people with RA in the previous year, for an average of 39 days (Burton, Morrison, Maclean and Ruderman, 2006). In 2010 lost work productivity owing to arthritis, for example, was thought to have cost New Zealand's economy in the region of NZ$ 1.48 billion (Access Economics, 2010). Another study looking specifically at lost work productivity owing to AS estimated the annual cost to society at around 3,595 euros (2011 US$6,119) per patient (Boonen, van der Heiede, Landewé, Spoorenberg and Schouten, 2002).

In addition indirect costs are also associated with early retirement among people with MSDs Dagenais, Caro and Haldeman, 2008; Alavinia and Burdorf, 2008). In the literature, high variation in early retirement rates can be seen depending on the country in question, the year of the study and the sampling frame. Nevertheless, in most studies the rate of early retirement due to RA falls somewhere between 30 and 50 per cent (Lundkvist, Kastäng and Kobelt, 2008). Up to 70 per cent of individuals with RA are work disabled 7 to 10 years after the onset of disease (Burton et al., 2006), and individuals with AS are three times more likely to withdraw from the labour market prematurely (Boonen et al., 2001) hinting at a vast burden of MSDs on the welfare system.

At present, New Zealand’s welfare system offers two main sources of income protection for people with a health condition.

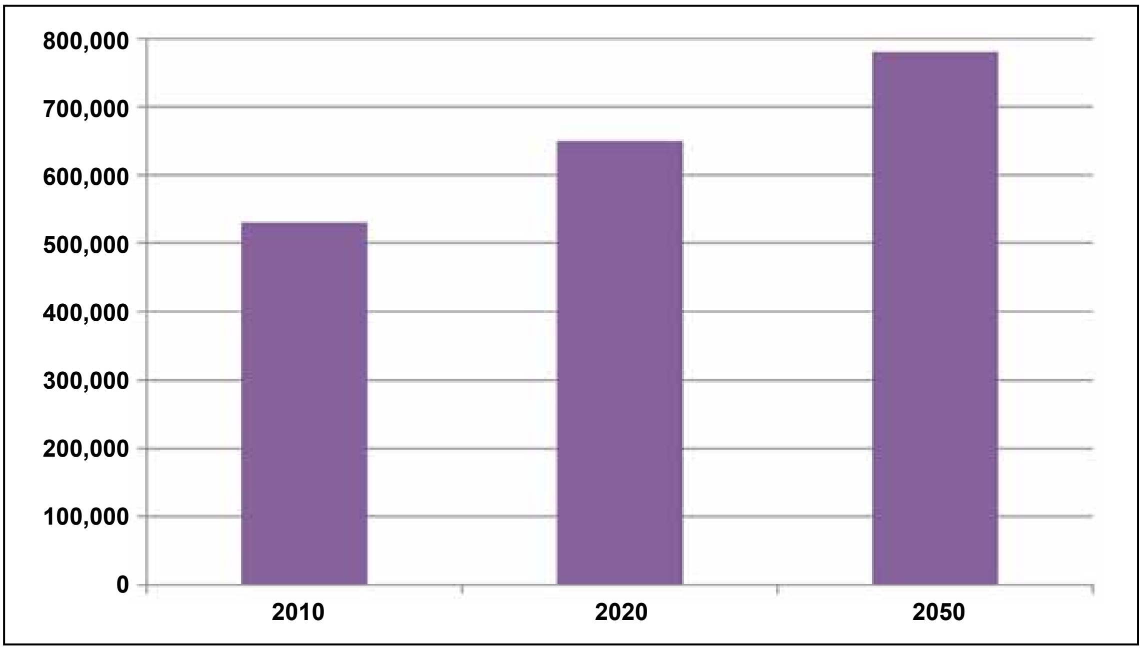
Sickness Benefit is available to people of working age who are temporarily off work, or working at a reduced level, because of sickness, injury or disability. Eligibility for Sickness Benefit is dependent on proof of injury, sickness or disability, and requires regular re-assessments to ensure that individuals are still receiving the most suitable assistance and support (Work and Income, 2011a).

Invalid’s Benefit is available to people of working age whose long-term injury, sickness or disability is expected to last two or more years; thus preventing them from working (regularly) in excess of 15 hours each week.

According to the Ministry of Social Development, at the end of 2010 14.5 per cent of all accepted claims for sickness benefit (second largest category) and 11.7 per cent of all accepted claims for invalid’s benefit (third largest category) were for MSDs (Ministry of Social Development, 2010a; 2010b). In recent years there has been concern about the number of people in New Zealand claiming invalids benefit for MSDs due to an unprecedented 22 per cent increase in accepted claims between the years 1996 and 2002 (Wilson and McLeod, 2006). Among other things some of this increase can be explained by a growth in the proportion of New Zealand’s population aged 15-64, thus inevitably increasing the numbers of people potentially eligible to make a claim (Wilson and McLeod, 2006). It is also consistent with the general observation that the prevalence of MSDs increases with age (see Figure 4.2).

Workers compensation schemes entitle employees to a reimbursement of their wages and cover the cost of treatment for an injury or disease caused through work. Accident Compensation Corporation (ACC) – New Zealand’s national, state owned, compensation scheme – does not protect an employee against illness, non-work related diseases, infections or gradual process injuries (ACC, 2011). As a result musculoskeletal diseases such as RA, which are not caused by work but can be aggravated in the workplace, are not covered. Instead the costs of these musculoskeletal diseases are usually picked up by the welfare system in the form of sickness or invalid benefits.

Figure 4.2. Projected increase of arthritis prevalence in New Zealand, 2010-2050



Source: Access Economics, (2010)

According to Statistics New Zealand (2009), the number of people aged 65 and over will almost double in the next 20 years and by 2031 at least 1 in 5 New Zealanders will fall within this age bracket compared to just 1 in 8 in 2009. As this increase takes hold it will challenge the government to support an even greater proportion of the population not able to work because of MSDs, alongside other chronic ill-health conditions. Access Economics (2010) have gone some way to begin to quantify this impending challenge for arthritis, suggesting that demographic ageing will lead to a steady increase in the number of New Zealanders living with arthritis (see Figure 4.2).

4.2 Policy context

There are several ways the New Zealand government could address the burden of MSDs among the working age population on the economy and the society.

1. Return to work interventions

In order to reduce the welfare bill the social security regime should take into account the need and the ability of individuals with long-term and chronic conditions to work. Since the establishment of the Working to Welfare Group[4] in 2010 much is being done to try and reduce long-term welfare dependency among the working age population in New Zealand. Support for this move can be seen when looking at the number and diversity of signatories (workers, employers, unions, health professionals and government) for the New Zealand 'Consensus Statement on the Health Benefits of Work' (RACP 2010b), which advocates the need for a better welfare system that does not inevitably lead to dependency. To date, the focus of the Working to Welfare Group has been on moving people back into work, where it is deemed possible for them (Welfare Working Group, 2011). In order to achieve this fundamental changes to New Zealand's welfare system are currently being proposed. These changes include the a) establishment of a single work-focussed welfare payment, named Jobseekers Support, to replace all existing benefits and b) the development of a single delivery agency to implement and deliver the above. Together it is hoped that, through these changes, by 2021 the number of people receiving benefits can be reduced by 100,000 along with a 28 per cent reduction in the long-term cost of welfare to society (Welfare Working Group, 2011).

Efforts to limit long-term dependency of some MSD patients on social security have already been piloted in Ireland by the Department of Social and Family Affairs. This pilot was developed in an attempt to determine whether intervening early with low back pain claimants could help to support early return-to-work and halt the progression of chronic disability in the long run. The Renaissance Project, as this pilot was called, is described briefly below.

Some evidence suggest that joined-up thinking in prioritising early treatment and return to work would result in overall savings to the economy. In the UK the National Audit Office found that by increasing short term NHS spending on earlier treatment for RA patients by £10m per annum, quicker diagnosis's and earlier treatments could be achieved as well as significant long-term productivity gains and savings to the welfare bill (approximately £31 million per annum) and improvements in quality of life (National Audit Office, 2009).

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[4] See The Institute for Governance and Policy Studies http://igps.victoria.ac.nz/WelfareWorkingGroup/Index.html

Box 1. Early Intervention Case Study – The Renaissance Project[5]

This project aimed to target early interventions to prevent chronic disability from low back pain and limit long-term dependency on the welfare system.

What approach was taken?

Between January and June 2003, 3,300 new claimants for Disability Benefit and Injury Benefit with GP-certified low back pain were selected for participation in the project. All subjects were aged between 20 and 50 years of age. A matched control group of claimants were also selected as a comparator. Of the initial 3,300 claimants, the following outcomes were reported:

- 1,700 (51 per cent) returned to work within four weeks;
- 1,600 were selected for early referral and asked to attend a medical assessment at a point 4-6 weeks after claiming (much earlier than normal);
- Of these 1,600, at total of 1,000 decided to return to work and were not medically assessed;
- The remaining 600 were assessed using a Diagnostic Triage approach.

Diagnostic Triage: The medical assessments placed claimants into one of three categories – those with simple back pain (95 per cent of cases), those with nerve root pain (3-5 per cent of cases) and those with a potentially serious spinal pathology (1-2 per cent of cases). Claimants in the ‘simple back pain’ category were assessed for their work capability, taking into account symptom severity, occupation, potential for work restriction and potential to change the demands of the job.

What were the results?

The proportion of claimants progressing from simple back pain to chronic disability fell, with 64 per cent assessed to be capable of work, compared with 20 per cent of claimants assessed during the previous year. There was also a reduction in the number of claimants appealing against their assessment (44 per cent versus 61 per cent). Compared with the control group there was a 40 per cent reduction in claims which progressed to a long duration and a saving of over 560,000 euros compared with the previous year.

2. Engaging with employers

Another key issue is raising awareness about good practices of management of people with MSDs. Individuals are not often aware of the positive effect that work can have on reducing the impact of their MSDs. One of the most persistent (and pernicious) myths about back pain, for example, is that bed rest is the best solution. Health promotion campaigns have been shown to be effective at getting the message across to people that experiencing pain may not necessarily mean the condition has worsened or that being active is bad for you (Buchbinder, Jolley and Wyatt, 2001).

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[5] For further details of the project see http://www.welfare.ie/EN/Policy/ResearchSurveysAndStatistics/Pages/renaissance.aspx

Ninety per cent of medium and large businesses in New Zealand report having health and safety systems in place for their employees. However, due to a lack of financial and human resource, many small enterprises have difficulty in setting these up (Department of Labour, 2011) despite the cost of ill-health being significantly higher for them. ACC have several initiatives in place to encourage employers to invest in workplace health and safety. The most recent of these is a financial experience rating incentive (Department of Labour, 2011), in which the levy a business pays to protect their employees against injury or illness in the workplace is weighed against their past claims record and their return to work outcomes (ACC, 2011). They are also encouraging large organisations to self-manage and rehabilitate their staff whilst working with occupational health professionals to try to develop in-house expertise. Whilst the infrastructure to allow this to happen is being put in place, there are remain many small and medium enterprises in New Zealand for whom these opportunities won't be available.[6] SMEs typically have less ability to spare resources and therefore staff absence and reduced productivity associated with ill-health is more likely to impact on customer satisfaction, productivity and business performance. In these cases the importance of balancing support to enable employees to return to work as soon as possible, whilst giving employees the chance to respite, will invariably be yet to be acknowledged.

The workplace Discomfort, Pain and Injury (DPI) programme, run by ACC, is already raising awareness about the management of MSDs in the workplace by encouraging workers and their managers to look for early warning signs of pain and discomfort, and to report these early on.[7] The DPI programme, which was established in 2006, has a number of tools that workplaces can use to assist this process; including early reporting forms for employees and customised health and safety information for specific occupational groups. The programme is open to all working New Zealanders, however it has traditionally been aimed at either larger employers who have health and safety representatives or at specific 'at risk' industries. With sufficient commitment and investment from central government this, or a similar programme, could also target SME's in New Zealand who may not have health and safety representatives or who are less able to accommodate the costs (time, resources) associated with taking part. This would go some way to improving the management of MSDs in all workplaces in New Zealand.

New Zealand's Injury Prevention Strategy, which was established by ACC in 2003, identified six priority areas for injury prevention in New Zealand, one of which was workplace injury and occupational disease. The strategy gave central government, local government, communities and individuals an action framework, helping them to focus on prevention or on a reduction in the severity of cases that do occur (ACC, 2003). Despite this strategy the exclusion of MSDs

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[6] Information provided by an in-country expert

[7] Information provided by an in-country expert

from key health priorities outlined in the National Health Strategy (Ministry of Health, 2000), in addition to the lack of a specific MSD plan, has meant that overall little focus has been given to try and reduce their impact on the working age population in New Zealand. It is therefore crucial that going forward the National Health Strategy gives MSDs the necessary priority and a specific plan for MSDs is developed to help establish better cross governmental working, early diagnosis and treatment practices and workplace management of these conditions. This will ultimately lead to better outcomes for individuals (Taylor, Smeets, Hall and McPherson, 2004).[8]

3. National Action Plan for MSDs

One way to raise awareness and tackle the impact of MSDs on the working age population is to develop a National Action Plan for MSDs. Such a plan should be based on the principles of the position statement of the Australasian Faculty of Occupational and Environmental Medicine ‘Realising the Health Benefits of Work’ (RACP, 2010a). It should prioritise early intervention and return to work and engage and coordinate efforts between government departments, employers, health care professionals and individuals so that a more efficient, joined-up and proactive approach is taken to the management of MSDs.

A National Plan for MSDs might also include the establishment of a Clinical Outcomes Framework for people with MSDs, through which an employment target for people with long-term conditions might be established with the aim of improving functional capacity, employment outcomes and quality of life. A National Plan could also encourage and support the establishment of a National Service Framework for MSDs, such as that developed by the UK Department for Health,[9] which covers all aspects of health and social care and supports professionals in providing high quality care for their patients. It should encourage employers in monitoring the rates of occupational disease, which is not routinely recorded in New Zealand.[10] Finally, a National Plan should help create and support care pathways for people with MSDs. These pathways should promote and help individuals adopt policies that are conducive to the prevention of MSDs, early diagnosis and treatment and the prioritisation of work as a clinical outcome.

The case study below details the establishment and initial achievements of the National Plan for MSDs in Ireland, which was developed as a result of recommendations from the 2009 EU Fit for Work Project.

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[8] Information provided by an in-country expert

[9] See The Musculoskeletal Services Framework – a joint responsibility: Doing it differently. http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4138412.pdf

[10] Expert interview

Box 2. National Plan for MSDs Case Study – Ireland

Background
In Ireland, MSDs are the most commonly reported cause of work-related ill health. Each year they cost the economy $750 million and approximately seven million working days are lost. The level of full-time employment for people in Ireland with an MSD is low, at around 22 per cent, and 25 per cent of people with RA stop working altogether within five years of having their first symptoms (Church, J. 2010; Fit for Work Europe, 2011).

A National Plan for MSDs established
In 2009 the European Fit for Work Coalition published a report into MSDs and the health of Ireland's working age population. The report was launched in May of that year and led to the establishment of four national goals aimed at helping to reduce the burden of MSDs, and make Ireland 'Fit for Work'. As one of these four goals, Ireland committed to developing a National Plan for MSDs that would:

a. Establish MSDs as a clinical priority;
b. Establish recommended care pathways for the treatment of people with MSDs;
c. Review the number and content of clinical teams and emphasise 'return to work' as a clinical outcome for people with MSDs (Church, 2010).

Key achievements of Ireland's National Plan to date
MSDs are now one of 24 Clinical Directorates within the Health Service Executive (HSE) in Ireland. The overarching aim of the clinical directorate is to create a model of care that will facilitate 'the right person, right place, first time' approach for patients with rheumatic disease (HSE, 2011). Traditionally rheumatology has received low levels of attention within the HSE, so its establishment as a clinical priority has been an important and significant development.

Prof. Oliver Fitzgerald has been awarded the position of National Clinical Director of Rheumatology, a newly established post in Ireland to oversee and develop of a model of care for people with MSDs. Since his appointment Prof. Fitzgerald has increased specialist resources available for people by securing funding for an additional 24 MSD trained physiotherapists and seven new MSD consultants.

A National Standard referral process for GPs has also been established, so that when a patient displays symptoms of an MSD they are automatically referred to an MSD clinic. Here patients are able to receive the most appropriate treatment and specialist intervention as early as possible.

What are the next steps for Ireland's National Plan?
To develop 'fit for work' pathways within the model of care for people with MSDs. Among other things it is hoped that these pathways will ensure GPs and primary caregivers are better educated around the issue of work and MSDs.

There will also be an increased focus on early intervention and the use of such aids as the 'Fit Note' (see Appendix 2). Pilot programmes with employers will continue to be rolled out to demonstrate the benefits of early intervention, particularly to SMEs who may be restrained by the resources available to them.

4.3 Recommendations for policy makers

The existing evidence suggests that the proportion of the New Zealand workforce who has an MSD is likely to grow over the next few decades. While New Zealand is actively developing a policy to tackle MSDs under ACC's workers compensation scheme, it is equally important to develop wider, more accessible policies as well as addressing systemic MSDs, which are not directly caused by work, but can have a severe impact on workforce participation.

In order to have wider, more accessible policies it is important for New Zealand to develop a National Plan that will allow them to address a number of issues, such as the surveillance of occupational injury and disease. Development of a robust monitoring system, for example, will enable policy-makers to gather information about the prevalence and cost of MSDs and find evidence-based solutions that are best suited to address such issues.
Calculations of the cost of MSDs tend to evaluate the clinical costs and benefits of treatment. However the wider impact of people with MSDs remaining in or returning to work early extend to the biopsychosocial model, and the economic benefit of that individual being in the work, as well reduced costs to the Department of Labour, Ministry of Health and other government departments.

We recommend that New Zealand policy makers:

- Incorporate MSDs into the National Health Strategy and develop a National Action Plan for MSDs to bring about positive change to the care and services people receive.
- Prioritise early intervention for MSDs to prevent the disabling effect of these conditions, and aim to eliminate inequalities in access to health care. Encourage health care pathways to become more efficient by enabling easier access to specialists and allied healthcare professionals, such as physiotherapists and occupational therapists. The health care should enshrine the principle that job retention and return-to-work are legitimate clinical outcomes.
- Adopt recommendations to develop a robust occupational health monitoring and surveillance system that can document the prevalence and cost of all MSDs. Without this there is a serious impediment to evidence-based policy-making and it is almost impossible to develop effective strategies to tackle MSDs and accurately inform the strategic planning of health care.
- Acknowledge both direct and indirect costs of all MSDs in New Zealand. Building a comprehensive picture about the impact of MSDs on the New Zealand population requires a more detailed differentiation between different types of musculoskeletal conditions.

- Provide financial resource and commitment to target all employers in New Zealand to learn about the management of musculoskeletal disease in the workplace. This would help raise awareness of MSDs, encourage early reporting and diagnosis, and support managers to intervene and encourage return-to-work.
- Raise employers' awareness of the impact of MSDs on their employees. Consider incentives that would stimulate a pro-active approach towards the management of MSDs in the workplace. Incentivise employers to support return-to-work.
- National health campaigns and patient support programmes are tested mechanisms of improving awareness of workplace risks and norms of effective management of MSDs. Tailor the programmes to the needs of small and medium enterprises, which experience magnified effects of employee ill-health.

5. MSDs and health care professionals

Job retention and return to work programmes are contingent on patients receiving appropriate medical care as quickly as possible. Ensuring that workers who have MSDs get access to the appropriate treatment and support in time must be a top priority for the health care professionals. Early intervention for individuals with MSDs will help people return to work quicker, avoiding the high costs of treating the condition and its comorbidities at the later stages of disease.

5.1 Costs of MSDs to the health care system

Direct costs, compared to indirect costs, usually represent a minority of the total costs (Dagenais, Caro and Haldeman, 2008; Kavanaugh, 2005; Kobelt, 2007; Lundkvist, Kastäng and Kobelt, 2008). However, for RA, large cross-countries variations of estimates of direct costs are found in the literature due to the different uptake of particular treatments in different countries (Lundkvist, Kastäng and Kobelt, 2008).

Unlike Australia, New Zealand does not collect prevalence and cost data by disease chapter within the health care sector, making it almost impossible to compare health care expenditure on MSDs with the costs of other chronic conditions. Estimations by Bossley and Miles (2009), suggest that MSDs cost New Zealand's health care system over NZ$ 5,570 million per year and comprise at least 25 per cent of the total annual health care costs. This figure includes the estimated annual cost of arthritis, MSD-related injuries, GP visits and cost of physiotherapy associated with musculoskeletal injuries. Pharmaceutical, imaging and pathology costs are based on figures for arthritis only, due to lack of relevant estimations for other MSDs (see Table 5.1 on the next page). That means that total health care costs associated with MSDs are likely to be even higher than the presented estimation.

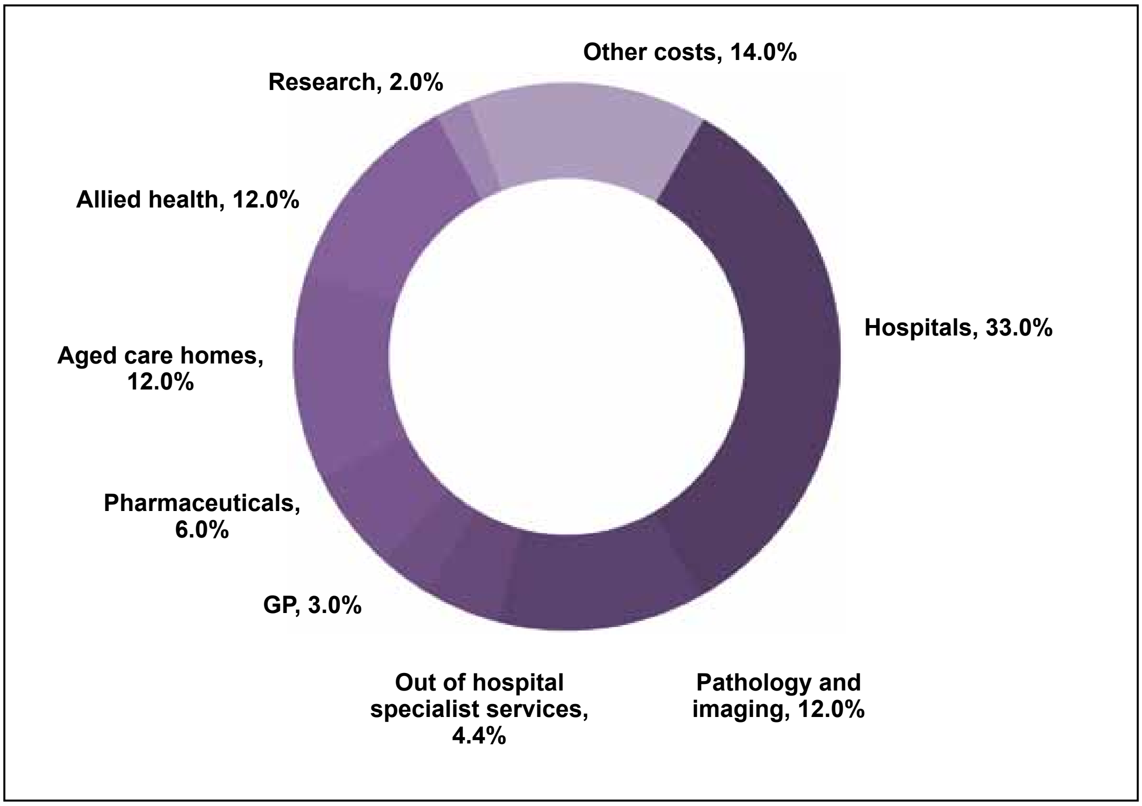
According to the available data in the table, the highest MSD-related expenditure is associated with arthritis. In 2010 Arthritis New Zealand estimated the health sector costs of arthritis alone to be around NZ$ 695 million (see Figure 5.1), with at least a third of this spent on hospitalisation (Access Economics, 2010).

Table 5.1. Estimated annual costs of MSDs in New Zealand

Disorders/Benefit	Annual cost (NZ$ million)
Arthritis	2,089
Osteoporosis (diagnosed)	1,133
Injuries (ACC)	1,556
Sickness benefits	320
Physiotherapy (ACC)	127
Chronic pain	N/A
Joint replacement (hip & knee)	191
Pharmaceuticals (arthritis and osteoporosis)	61
GP visits	26
Pathology (arthritis)	19
Imaging (arthritis)	49
Total	**NZ$ 5,571**

Source: Bossley and Miles (2009)

Figure 5.1. Estimated cost of Arthritis in New Zealand 2010



Source: Access Economics, (2010)

Injury-related costs are thought to make up a significant part of the total annual costs to the health care system, however it is not clear what proportion work-related injuries contribute to the above figures. Additional data provided by an in-country expert shows that, in 2009/2010, the Accident Compensation Corporation of New Zealand (ACC) spent NZ$ 147,452,564 on work-related musculoskeletal entitlement claims. Whilst this estimation is helpful in understanding costs incurred by injury, it still does not include the costs of systemic conditions, such as RA, that are not caused by work but are aggravated whilst in the workplace.

Some of the specific direct costs to the health care system associated with musculoskeletal conditions in general, and RA and low back pain in particular, found in the literature (Kavanaugh, 2005; Dagenais, Caro and Haldeman, 2008) are:

- Physician and other health professionals visits;
- Outpatient surgery;
- Emergency room;
- Rehabilitation service utilisation (physiotherapist, occupational therapist, social worker);
- Medications and alternative therapies;
- Medical equipment;
- Diagnostic / therapeutic procedures and tests: imaging and laboratory monitoring;
- Devices and aids, environmental adaptations;
- Acute and non-acute hospital facilities (with and without surgery);
- Home health care services;
- Mental health services.

Cost-of-illness estimates therefore require input from a number of different factors, and great variation is found across different studies. For low back pain, the most significant direct costs are related to physical therapy, inpatient services, drugs, and primary care (Dagenais, Caro and Haldeman, 2008). Nachemson, Waddell and Norlund (2000) calculated that some 80 per cent of health care costs are generated by the 10 per cent of those with chronic back pain and disability. For RA, although direct health care costs have been relatively small in the past (Lundkvist, Kastäng and Kobelt, 2008), a number of studies indicate that direct costs increase as functional capacity decreases – making functional capacity a major cost driver (Huscher, Merkesdal, Thiele, Schneider and Zink, 2006; Kobelt, 2007; Leardini, Salaffi, Montanelli, Gerzeli and Canesi, 2002).

5.2 Access to health care in New Zealand

General Practitioners (GPs) are the first point of contact for most people in New Zealand seeking medical care (King, 2001). According to one New Zealand study (Taylor et al. 2004), out of the 29,153 people who attended their GP over a 12-month period 20.4 per cent presented a rheumatic (musculoskeletal) disorder. How GPs respond to the initial presentation of symptoms is therefore crucial in determining access to appropriate and early interventions, including return to work.

In New Zealand, GP knowledge and experience seem to be important in determining how medical practitioners choose to manage MSDs. Where the approach of the biopsychosocial model is used, GPs are comfortable at managing musculoskeletal pain and make appropriate referrals to physiotherapy and other community services (Stott, Jones, Bond, Thorn, Taine et al. 2011). However, GPs who are less familiar with this model are more likely to rely on the hospital system where patients may have a longer and more protracted pathway of care, as they are passed from one specialist to another (Stott, et al. 2011). This suggests there is a need to raise the profile of the biopsychosocial model in New Zealand and improve the referral pathways for patients, so that initial assessment results in a referral to the appropriate specialist. In turn it is likely that this will reduce the currently high hospitalisation costs of MSDs[11] (See Figure 5.1).

The Ministry of Health (2010) initiative Better, Sooner, More Convenient Primary Health Care aims to use primary health services to reduce the demand on hospitals by moving some secondary care services into the domain of the primary care. The Report on the Musculoskeletal Workforce Service Review (Stott, et al. 2011) provides recommendations on how these care pathways might be made more efficient, so that the most appropriate person assesses the patient at the point of referral. Recommendations include the use of a triage of experts who deal with referrals in order to determine whether a) a referral needs to be made to a specialist; b) whether a potential referral needs to assessed by another team member and; c) whether a referral in the first instance is inappropriate.

For example the workforce review suggests that greater use of physiotherapists should be made in the initial assessment of MSD patients (Stott, et al. 2011). In addition to this, it is suggested that occupational therapists should assert a central role in rehabilitation, providing professional leadership and working in conjunction with GPs to deliver advice on injury and disease.[12] Indeed, looking across to Australia, occupational therapy services are relatively easy to access, do not require a referral, and appointment time is fairly quick. Many Australian employers also have occupational therapists in-house, providing easily accessible health care

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[11] Information provided by an in-country expert

[12] Information provided by an in-country expert

for employees with MSDs.[13] New Zealand, on the other hand, has relatively poor access to occupational therapists and it is considered that among some employers there is a lack of awareness about what is available to them. This is in part owing to New Zealand's industrial structure being heavily focussed on SMEs, which tend to lack the resources needed for in-house occupational health services.[14] Therefore improving access to such experts in New Zealand to help manage MSDs at an earlier stage would be a cost-effective option.

Typically, once the need for an MSD-related referral has been identified, access to a relevant specialist and resulting waiting times may depend on availability of those health care professionals. Indeed, according to one report (Access Economics, 2010) there appears to be an acute shortage of rheumatologists in New Zealand.

At a later stage in treatment, GPs may once again present a potential barrier to return to work for people with MSDs in New Zealand. GPs often act as gatekeepers in determining whether or not a patient returns to work and, as in many countries, some GPs in New Zealand can be seen to support an MSD patient to stay off work, rather than considering what they may be capable of doing.[15] Part of this tendency could be explained by the current lack of knowledge among GPs about appropriate treatments for rehabilitation[16] or prevailing view that increasing rest (in particular bed rest) and decreasing activity will accelerate recovery. On the contrary, evidence shows that the longer someone is off work, the less likely they are to return to work (Waddell and Burton, 2006b). As 'The Health Benefits of Work' position paper demonstrates, in general, work is good for our health and musculoskeletal conditions, in particular, have been shown to benefit from activity based rehabilitation and early return to suitable work. However this view is yet to receive widespread acceptance (RACP, 2010a). Overall there seems to be a need for education around the management of MSDs in medical training on undergraduate courses, as well as for existing practitioners, so that the conservative management of MSDs becomes a core competency and patients receive the right care as soon as possible (Stott, et al. 2011).[17]

Evidence suggests that there is variation in accessing GPs in New Zealand, not least in rural areas where there is, in general, a long-standing shortage of health professionals. Health Workforce New Zealand[18] was in part set up to help address these shortages. Schemes such as Voluntary Bonding[19] use financial incentives to encourage graduates to work in areas which are

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[13] Information provided by an in-country expert
[14] Information provided by an in-country expert
[15] Information provided by an in-country expert
[16] Information given by an in-country expert
[17] Information given by an in-country expert
[18] www.healthworkforce.gov.nz
[19] http://www.moh.govt.nz/bonding

considered hard to staff. Wider implementation of such schemes to help overcome the long-standing shortage of health professionals is New Zealand is to be welcomed.

Specifically for New Zealand's Maori population, it has been found that many Maori are reluctant to attend medical institutions such as a GP surgery or hospital; considering them to be unfriendly places (WHO, 2008). Since 2000 a lot of work has been undertaken by the New Zealand government to improve the access and take-up of health care services for Maori, including the placement of clinics within their local communities (WHO, 2008). The establishment of Primary Health Organisations in 2002 has also helped to reduce inequalities experienced by the Maori population, by tailoring services to the communities they serve.

5.3 Condition-specific interventions

For those with specific musculoskeletal conditions, speedy referral to the appropriate specialist for investigation and treatment is usually vital. People with MSDs can experience numerous problems associated with long-term care, including long waits, failure to undertake a multidisciplinary approach, poor advice on pain management, and a lack of clear integrated pathways. Notwithstanding this, there are a number of condition-specific interventions which have been shown to be effective in improving job retention and return to work.

5.3.1 Non-specific MSDs

The primary focus of this report has been to examine the interventions and other factors which affect job retention, labour market participation and job quality among those with MSDs. As we have seen, there is evidence that physical impairment can represent a barrier to each of these aspects, but that many people – even those with serious and chronic incapacity – can and do lead full and fulfilling working lives. Since back pain and the majority of work-related upper limb disorders are not diseases to be cured, and there is very limited evidence that prevention is possible, it has been argued that the focus of treatment should be on returning to the highest or desired level of activity and participation, and the prevention of chronic complaints and recurrences (Burton, 2005; Bekkering et al., 2003) rather than eradicating the cause of the problem or returning to normal function.

Whilst treatment to ease or relieve the symptoms of non-specific MSDs will always be a priority, medical intervention is not necessarily the only, or the best route to recovery or helping those with non-specific MSDs to manage their condition. In fact, for non-specific conditions, an individual's recovery and chances of returning to work can be adversely affected by 'over-medicalising' their condition. Based on evidence that psychosocial factors are a determinant of chronicity and disability in those with back pain, there is a strong argument for re-conceptualising this condition and its treatment, which has important lessons for other types of non-specific musculoskeletal pain (Burton, 2005).

Waddell and Burton (2006b) summarise the challenge neatly in their work on vocational rehabilitation. They point out that, whilst many non-specific MSDs do not have clearly defined clinical features and have a high prevalence among the working age population, most episodes resolve themselves and most people with these conditions remain at work or return to work very quickly. In their view, a focus on incapacity alone can be unhelpful:

> *'..the question is not what makes some people develop long-term incapacity, but* ***why do some people with common health problems not recover as expected?*** *It is now widely accepted that biopsychosocial factors contribute to the development and maintenance of chronic pain and disability. Crucially, they may also act as obstacles to recovery and return to work. The logic of rehabilitation then shifts from dealing with residual impairment to* ***addressing the biopsychosocial obstacles that delay or prevent expected recovery.****'* (Waddell and Burton, 2006b, p.7) (bold in original text)

The biopsychosocial model is an explanatory framework that recognises the importance of psychological and social factors in determining how those with MSDs cope with their conditions. In some cases the patient risks entering a self-reinforcing cycle of incapacity, delayed recovery and even depression if their dominant response to pain is to 'catastrophise' it. Of course there may be many factors which affect an individual's disposition to 'catastrophise', including personality, previous medical history, levels of family support or job satisfaction (Sullivan and D'Eon, 1990). An effective treatment of non-specific MSDs according to the biopsychosocial model of disease has to address all the causes rather than concentrate on the affected body part.

The New Zealand Acute Low Back Pain Guide, compiled by ACC (2004), is an example of how the biopsychosocial model can be used by GPs and health professionals to help with the clinical management of low back pain. Steps within the guide include the identification and exclusion of 'red flags' – risk factors for serious disease – and the compilation of strategies to encourage patients to remain active and stay in, or return to, work early. After four weeks, if a patient has not returned to their usual levels of activity (including a return to work), the guide suggests they should then be assessed for 'yellow flags' or psychosocial factors which may be prolonging symptoms and, in turn, could lead to long-term disability or work-loss (see Table 5.2).

Table 5.2. Yellow Flags

Yellow Flags indicate psychosocial barriers to recovery. They include:

- Belief that pain and activity are harmful;
- Problems at work including poor job satisfaction;
- ‘Sickness behaviours’ (like extended rest);
- Low or negative moods, social withdrawal;
- Treatment that does not fit best practice;
- Problems with claims and compensation;
- History of back pain, time-off, other claims;
- Problems at work, poor job satisfaction;
- Heavy work, unsociable hours;
- Over protective family or lack of support.

Source: ACC Acute Low Back Pain Guide (2004 edition)

This, along with the ACC’s Return to Work Guide (2006) is designed to give guidance to GPs on how to prevent long-term pain and disability, encourage positive and early return to work, and promote the idea that it is healthy to work. ACC also offer training, conferences and other resources to GPs on interventions and return to work, however, it is not clear how widespread the take-up of these resources is among GPs.[20]

5.3.2 Rheumatoid arthritis

The importance of effective and early treatment of RA in reducing joint damage and disability is now widely acknowledged (Pugner, Scott, Homes and Hieke, 2000). Since there is currently no ‘cure’ for RA, the focus of treatment is on controlling signs and symptoms, enabling the patient to manage their condition and improving quality of life. Medical treatments for RA are directed at suppressing one or other part of the joint damaging processes; the effectiveness of which has improved in recent years. Since it is well documented that the functional capabilities of RA patients will decline over time, it is critical that patients should be treated as quickly as possible with disease-modifying anti-rheumatic drugs (DMARDS) to control symptoms and disease progression (RACP, 2009). One study, for example, found there to be a 73 per cent risk of erosive damage in patients who wait over a year between symptom onset and referral to rheumatology clinics (Irvine, 1999 in Luqmani, Hennell, Estrach, Birrell, Bosworth et al., 2006).

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[20] Information provided by an in-country expert

Growing clinical evidence demonstrates that biologic drug therapies can have a more powerful effect on RA than DMARDs, especially in improving job retention and work participation (Halpern, Cifaldi and Kvien, 2008). However, Kobelt, Lekander and Santesson Nicolae (2010) found that, compared with Australia and the UK, biological drug therapy in New Zealand is less common, potentially due to restrictions on reimbursement for biological treatment for RA (Kobelt et al., 2010), lower number of rheumatologists per number of RA patients compared with Australia and the UK, lower spending per capita on health in New Zealand or the lack of a clear strategy to evaluate the response to treatment. The access to this new class of biological agents is restricted to patients with severe and progressive RA who are not responding to traditional DMARDs (Lu, Williams and Day, 2007). This is mostly due to the high costs of treatment associated with the use of anti-TNF therapy (Chang and Girgis, 2007; Lu, Williams and Day, 2007). However, if work outcomes of the individuals with RA were considered, more patients in New Zealand could benefit from anti-TNF therapies earlier in the course of their disease.

Nevertheless, medical interventions in the form of drug therapy to control inflammation and disease progression, and surgery to redress structural damage are only part of managing the care of RA patients. Other important elements include patient education and empowerment, practical self-management to help deal with symptoms and specialist support to help live with the disease and its consequences. The effective management of RA has to involve not only the clinical team (including GPs, consultant rheumatologists, physiotherapists, occupational therapists, chiropodists, podiatrists, pharmacists, primary care nurses and orthopaedic surgeons), but the participation of the patient and, ideally, their employers. Social workers also have their role to play, as do patient groups, which are likely to offer on going services to support self-management such as access to networks, telephone support, self-management courses and peer support.[21]

In addition to medical treatment, there is also growing evidence in the literature pointing to psychological interventions as an important factor in the management of RA. Sharpe, Allard and Sensky (2008) established, for instance, that cognitive behavioural therapy (CBT) not only has a positive effect on patients' well-being but also can considerably reduce treatment costs. In a different study Dissamayake and Bertouch (2010) found consistent and supportive evidence for the application of disclosure therapy and long-term therapy (over six weeks), and CBT combined with maintenance therapy to decrease fatigue and depression associated with RA, lower the levels of pain and daily stress, improve physical dysfunction and affective disturbance, develop self-efficacy and coping strategies, and even reduce the disease severity.

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[21] For example, Arthritis New Zealand.

There is a growing evidential base of support for the use of self-management programmes for MSDs. Several initiatives, for example, the Centres for Disease Control and Prevention in the US and the Osteoarthritis Research Society International found self-management education to be a key step in improving health outcomes and quality of life for people with arthritis helping them to successfully manage the disease and its related co-morbidities.[22]

5.3.3 Spondyloarthropathies

Prompt referral to specialists for confirmation of diagnosis and the start of treatment is also essential for those with SpA and other rheumatic conditions. Since (similarly to RA) there is no cure for SpA, the aim of therapeutic intervention is to reduce inflammation, control pain and stiffness, alleviate systemic symptoms such as fatigue, and to slow or stop the long-term progression of the disease. In addition standard treatment also includes non-steroidal anti-inflammatory drugs as well as patient education, physical therapy, self-management with exercise and relief of pain and stiffness (Stafford and Youssef, 2002).

As SpA typically affects relatively young people, its potential to disrupt or even curtail an individual’s labour market participation may be significant. As we have discussed, there are important clinical, social and economic benefits to keeping these patients in work as long and consistently as possible. Depending on the severity of their condition, AS patients can benefit from workplace adjustments, flexible working arrangements, exercise regimes and physiotherapy (Boonen et al., 2001).

5.4 Recommendations for health care professionals

For those with specific MSDs, speedy referral to the appropriate specialist for investigation and treatment is vital. People with MSDs can experience numerous problems associated with long-term care; including long waits, failure to undertake a multidisciplinary approach, poor advice about pain management, and a lack of clear integrated pathways. Such problems lead to delays in treatment, and in many cases, the progression of an MSD. In considering work as a clinical outcome when planning the health care of an MSD patient, many more patients could benefit from early diagnosis and treatment at the onset of their condition as efforts are made to preserve their work capacity for as long as possible. For this to happen, it is important that health care is planned in partnership with the employers and the patients themselves.

The early detection and treatment of MSDs will reduce the demand for more expensive types of intervention in the long run, and enable a quicker return to work or indeed, better prospects for job retention. Early detection and treatment also facilitates a proactive rather than reactive

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[22] Information provided by an in-country expert, see Centres for Disease Control and Prevention http://www.cdc.gov/arthritis/interventions.htm/

approach to the management of MSDs by health care professionals, employers and individuals themselves

As it becomes clear that proactive management of MSDs reduces the prevalence of chronic conditions and disability in the long run and hints towards significant savings to the health care system, we recommend that the health care professionals in New Zealand:

- Aim for early diagnosis and intervention. The evidence suggests that long periods away from work are usually bad for MSD patients. The longer they are away from work, the more difficult it is to return. Early detection of MSDs and referral to appropriate care, preferably in partnership with the patient and their employer, will help individuals to return to work as soon as possible and avoid work incapacity in the long term. GPs are ideally placed to identify the early presentation of many MSDs. Where appropriate, refer patients to specialist teams or allied health professionals such as physiotherapists or occupational therapists, as early as practicable, to enable management of the condition to begin.
- Be a patient advocate. It is easy to assume that work is unambiguously bad for your patients, especially if you suspect that aspects of their job make their symptoms worse. With some adjustments, staying at work on lighter duties or with adjusted hours might still be a better option than a prolonged absence from work, where individuals are able and willing to work.
- Increase your knowledge, understanding and awareness of MSDs through training or guides currently available. Work in association with ACC to ensure the best possible outcome for your patient in returning to work.
- Identify where job retention or early return to work is good for the patient, even if they are not ‘100 per cent fit’. A patient can hold a very negative view of the impact and likely progression of their condition if the way that clinicians present it focuses on incapacity rather than capacity. Clinicians should consider what the individual can still do at work, taking into account the nature of the worker’s capacity and pre-injury employment, the patient’s demographic characteristics, physical and psychosocial demands of the job and job quality.
- Encourage self-management. The patient can often learn strategies to manage aspects of their own condition, especially if they are staying in or returning to work. A feeling of empowerment and control will help their mood and ensure that they can keep on top of important aspects of their incapacity while at work. Clinicians should communicate with employers to establish ways they can support the patient to self-manage.

6. MSDs and employers

It is in an employer's best interests to act early if they are to minimise the cost of MSDs to the health of their employees and business through absence. Based on a review of available evidence Breen, Langworthy and Bagust (2005) recommended that employees and employers should discuss and adjust work within the first week. If employees have concerns about their condition they should consult a health care professional and, following referral or diagnosis coupled with advice and planned action, a review should be conducted within four weeks.

Epidemiological studies of employees whose absence is caused by low back pain have shown that the longer the sick leave, the more difficult it is to get the employee to return to work and the higher the economic cost (Frank, Sinclair, Hogg-Johnson, Shannon, Bombardier et al., 1998; Meijer, Sluiter, Heyma, Sadiraj, and Frings-Dresen, 2006). Sick leave has also been shown to have a negative psychological impact on employees (Meijer, Sluiter, and Frings-Dresen, 2005). Early intervention is therefore crucial to individual recovery and self-management, and may contribute to reducing the number of working days lost and reduced productivity caused by MSDs.

6.1 Costs of MSDs to organisations

There are two types of indirect costs most commonly used in association with the ill-health of employees. These are absence from work and what is termed 'presenteeism'; or a loss of productivity in an employee while they are at work with an illness or incapacity.

Absenteeism is the most common indicator used to evaluate the costs of MSDs in relation to work. In New Zealand it is estimated that every year 16.3 per cent of the working population take some form of absenteeism from work due to ill health (Holt, 2010a). As at the end of 2010, 14.5 per cent of sickness benefit claims were for MSDs. Access Economics have made attempts to quantify the impact of temporary work leave resulting from arthritis. Basing their calculations on a similar study conducted in Australia they estimated that, in 2010, temporary absenteeism in New Zealand owing to all arthritic conditions stood in the region of NZ$ 25.1 million (Access Economics, 2010).

Presenteeism is extremely difficult to measure. Nevertheless, several attempts have been made to assess its impact in New Zealand. In 2009, for example, the Treasury estimated that the direct cost of presenteeism owing to ill-health was approximately 2.7 per cent of its national GDP (Holt, 2010a).

Poor management of psychological symptoms associated with MSDs can have a negative effect on performance at work. MSDs can also cause work-limiting pain and fatigue which many people feel unable to disclose. Research shows that up to 30 per cent of workers with conditions such as rheumatoid arthritis (RA) feel reluctant to disclose their condition to their colleagues or to a manager out of fear of discrimination (Gignac, Cao, Lacaille, Anis and Badley, 2008) and 22 per cent of workers do not tell their employers about their condition (Gignac, Badley, Lacaille, Cott, Adam et al., 2004). In New Zealand there is a strong sense of entitlement towards claiming for work-related injuries or illnesses, mainly due to the taxation that everyone, including businesses, are legally obliged to contribute towards ACC.[23] While this will have inevitably nurtured a culture of workplace disclose for some MSDs, other MSDs such as RA which are not covered by ACC, will most likely remain hidden. In these cases these people will be continuing to work whilst being affected by their condition, and associated pain, leaving them unable to perform to their full capacity. In some cases, this will cause additional safety hazards, such as in high-risk work environments.

Lost workforce participation due to chronic illness in New Zealand suggests that employers experience considerable costs due to staff turnover. In 2005, for example, it was estimated that 25,440 people were not participating in the labour market because of arthritis (Access Economics, 2010). These costs could be avoided if chronic illnesses, such as MSDs, was more successfully prevented and managed within the workplace.

6.2 The role of employers in reducing the impact of MSDs

Effective management of MSDs requires employers to think beyond their statutory duty of addressing health and safety risks and to recognise that sickness absence management, effective return to work programmes and rehabilitation are, at bottom, principles for effective management (Waddell and Burton, 2006b). This is partly dependent on raising awareness about how best employees and their managers can manage the symptoms of MSDs, but also on ensuring that mangers have the skills and confidence to support their employees to remain in the workplace.

Employers, and in particular line managers, are in the front line of staff absence. They are in a good position to spot the early warning signs of a problem and help rehabilitate employees after a period away from work. They therefore need to be aware that MSDs can be a frequent problem for their staff, as well as for their organisation as a whole, and take timely measures to prevent the long-term costs of such conditions.

6.2.1 Awareness of conditions and their management

Many employers are unaware about the nature of MSDs, both in terms of their immediate impact on functional capacity whilst at work and, where relevant, the manifestations and progression of these conditions.[24] For example, employees with RA or SpA may be susceptible to periodic ‘flares’ of inflammation and severe pain followed by fatigue and, in some cases,

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[23] Information provided by in-country experts

[24] Information provided by an in-country expert.

depression. Occupational health nurses are helping to raise awareness about the impact and needs of employees with MSDs in some areas of New Zealand.[25] However, the majority of employers still remain unaware of the 'typical' symptoms of an MSD and as a result can adopt an unhelpful or over-cautious approach to return to work.

MSDs affect employees in all kinds of industries and occupations, although some are more high risk than others, and certain occupations are associated with strain on specific parts of the musculoskeletal system. In New Zealand several 'at risk' or 'targeted' occupation groups have been identified by the Department of Labour and ACC as having traditionally high levels of MSDs (Harcombe, McBride, Derrett and Gray 2009; Tappin, Vitalis and Bentley, 2008). These groups include agriculture, construction, meat processing, forestry, health, metal manufacturing and road transport (Department of Labour, 2011).[26]

To raise awareness, ACC have customised resources to guide and advice workers within these industries to help them minimise the risks they face.[27] Nevertheless such industries are still susceptible to MSD fatigue – where it is deemed easier to respond to the occurrence of a condition than it is to address its underlying causes.[28] For industries outside of these groups, awareness of work-related MSDs and their associated risk-factors generally remains low.[29] MSDs are not a specific priority area for the government, and therefore are not given the same profile as other work-related injuries, such as falls or hearing loss.

The evidence linking non-occupational MSDs and work is not conclusive; therefore attributing cause and effect between specific aspects of work and particular parts of the body is difficult. It is clear that work is not the cause of rheumatic diseases such as RA and SpAs, however there is evidence that physical work demands, lack of support, self-stigma and a lack of flexibility over work hours can make job retention or return to work more difficult (der Tempel and van der Linden, 2001; Gignac et al., 2004). Similarly, many established risk factors that may contribute to the development of non-specific MSDs can be encountered at work. This is particularly so when we consider risk factors beyond the physical. Thus, even if work did not cause the condition it may have impacted on it.

The most frequently cited risk factors for MSDs encountered in the work place include the following:

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[25] Information provided by an in-country expert.
[26] Confirmed by in-country expert
[27] Information provided by an in-country expert
[28] Information provided by an in-country expert
[29] Information provided by an in-country expert

- Rapid work pace and repetitive motion patterns;
- Heavy lifting and forceful manual exertions;
- Non-neutral body postures (dynamic or static), frequent bending and twisting;
- Mechanical pressure concentrations;
- Segmental or whole body vibrations;
- Local or whole-body exposure to cold;
- Insufficient recovery time (Punnett and Wegman, 2004).

New Zealand's evolving work environment and the continued development of the knowledge economy is leading to an emergence of new physical and psychological work-related health risks that are exposing employees to work-related MSDs (Gander et al., 2009).[30] However, due to the lack of comprehensive occupational health and safety surveillance data, employers do not have the capacity to even begin to react or respond to these emerging issues (Gander et al., 2009). As a result many employers in New Zealand are ill-prepared to deal with the growing problem of work-related musculoskeletal disease and, going forward, will only be able to address some of the risks that are contributing to their development.

Generally there is an increased risk of injury when physical risk factors are combined, or adverse psychosocial, personal or occupational factors are present (Devereux, Rydstedt, Kelly, Weston and Buckle, 2004). Psychological and organisation factors can also combine with physical factors to influence the probability of an individual leaving work prematurely. Research on low back pain shows that an employees' belief that work itself produces pain, precedes sickness behaviour, and is a risk factor for chronic work disability (Werner, Lærum, Woormgoor, Lindh and Indhal, 2007). Sokka and Pincus (2001) reviewed 15 studies and showed that physically demanding work, a lack of autonomy, higher levels of pain, lower functional status and lower educational levels were predictors of someone with RA leaving work early. The evidence from Sokka and Pincus (2001) highlights that it is not only the physical elements of work that can influence someone's functional work capacity and likelihood of staying in the labour market. We must also consider the psychosocial and organisational factors of work. Lower functional status and lower educational levels were predictors of someone with RA leaving work early. The evidence from Sokka and Pincus (2001) highlights that it is not only the physical elements of work that can influence someone's functional work capacity and likelihood of staying in the labour market. We must also consider the psychosocial and organisational factors of work.

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[30] Confirmed by in-country expert

Psychosocial and organisational factors associated with MSDs include:

- Rapid work pace or intensified workload;
- Perceived monotonous work;
- Low job satisfaction;
- Low decision latitude/ low job control;
- Low social support;
- Job stress.

Job stress is a broad term and can result from a variety of sources such as high job demands or a mismatch between skills and job requirements. In addition stress can result from abuse or violence at work, as well as discrimination.

Again, it is important to recognise the connection between the psychological and the physical. While job stress, including violence and discrimination at work, might lead to lost productivity due to stress or common mental health problems, it may also lead to MSDs caused by tension or strain. An increased probability of experiencing a high level of pain has also been associated with low social support, low social anchorage or low social participation (Katz, 2002). ‘Good work’ and the provision of high quality jobs is therefore crucial (Coats and Max, 2005, Coats and Lehki, 2008). Shanahan and Jezukaitis (2006) explore the relationship between physical and psychological factors in managing WRULDs, concluding that prevention of painful upper limb disorders should include early intervention for both physical symptoms and anxiety and depression through education and involvement of workers and line managers in a ‘collaborative and nonadversarial approach’.

6.2.2 Intervention and adjustment of work demands

In New Zealand, manual handling is considered one of eight national priorities that form the Workplace Health and Safety Strategy to 2015, due to its capacity to lead to musculoskeletal disease and illness (Department of Labour, 2005). However, whilst the message about manual handling and work design may have got through to many employers, the fact that absence and even reduced work requirements can be counter-productive has yet to gain wider understanding. Changing attitudes and raising awareness about the management of MSDs is an important part of reducing their burden on employers and society.

Not only has evidence shown that work is good for you, but returning to modified work can help recovery (Feuerstein, Shaw, Lincoln, Miller and Wood, 2003; van Duijn and Burdorf, 2008). Among occupational health specialists, the use of vocational rehabilitation has long been an accepted mechanism for ensuring that individuals with illness, injury or incapacity can return to work (even to perform adjusted work) as soon as sustainably possible. There have been concerns that rehabilitation is not well-integrated into mainstream clinical practice and that return to work is not seen by a sufficient proportion of clinicians as a valued outcome for the patient (Frank and Chamberlain, 2006). It is also important to stress that vocational rehabilitation is not the preserve of professionals. In practice, effective management is as, if not more, important than formal rehabilitation.

Yet employers, if they think about this at all, invariably consider the physical job demands which need to be met by an employee with an MSD. The biopsychosocial model requires that the mental demands of the work are also considered as part of the return to work process. There is a growing body of work which shows that adjusting a variety of work demands can support successful return to work among those with a range of MSDs (Schultz, Stowell, Feuerstein and Gatchel, 2007; de Croon, Sluiter, Nijssen, Dijkmands, Lankhorst et al., 2004; Feuerstein, Shaw, Nicholas and Huang, 2004; Chorus, Miedema, Wevers and van der Linden, 2001). The success with which both employee and employer can manage the process of readjustment during work can also depend on the beliefs that both parties have about the extent to which the work itself is (at least in part) caused by or related to the incapacity.

Much of the attention that employers pay to the impact of the workplace on the onset and deterioration of an employee's MSD is driven by a concern to fulfil their duty of care and to limit any possible litigation.[31] There is a lot of concern among employers in New Zealand that their involvement, once an employee has been diagnosed with an MSD, could worsen the situation. Whilst the majority of these concerns are misunderstood, the educational gap behind this is driving many employers to believe their employees should not return to work until they are deemed as being 100 per cent fit.[32] Rather, return to suitable work, with adjustments, as demonstrated in the position paper 'The Health Benefits of Work' has been show to benefit MSDs, aid rehabilitation and reduce the negative impact of long-term work absence (RACP, 2010a). In addition, many employees are unaware of their role in the return-to-work process when they have had someone temporarily away from work with an MSD. This is particularly so for small and medium organisations, who are less likely to be aware of the importance of return to work procedures. For those who are, there is typically less resource available to engage in this process.

Ideally, the employers should aim to support return to the same work that the individual was performing before absence. That can be achieved through an individualised return-to-work plan, discussed and implemented together with the returning employee, their health care specialist,

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[31] Information provided by in-country expert
[32] Information provided by in-country expert

occupational health specialist, and the line manager. However, if full return to previous duties is impossible, the optimal hierarchy of return to work is:

- Same employer, same duties;
- Same employer, similar duties;
- Same employer, new duties;
- Alternative employer, same duties;
- Alternative employer, similar duties, and
- Alternative employer, new duties.

There are numerous types of work based interventions for assisting people with MSDs. These range from ergonomic adjustments, through to providing access to physiotherapy, modifying work programmes and offering cognitive behavioural therapy. Evidence as to the success of these interventions in tackling non-specific MSDs is mixed (Meijer, Sluiter and Frings-Diesen, 2005). For example, while a systematic review looking at multidisciplinary treatments for patients with low back pain demonstrated that treatment improved function and was associated with decreased levels of pain, it failed to conclude that it was linked to employees returning to work earlier than those who had not received it (Guzman, Esmail, Karjalainen, Malmivaara, Irvin et al., 2001). Whilst biomechanical or ergonomic factors may be related to the onset of non-specific MSDs, such as back pain, evidence that interventions will prevent reoccurrence or progression to chronicity is thin on the ground (Burton, 1997). It has been found similarly impossible to determine whether one treatment is significantly more effective than another (Ekberg, 1995). Even for specific conditions such as RA, evidence towards the effectiveness of vocational rehabilitation is slim (Backman, 2004; de Buck, Schoones, Allaire and Vliet Vlieland, 2002).

Nonetheless there is a broad agreement on the principles for managing non-specific MSDs, particularly back pain. These are outlined in Box 3. This includes advice and a number of relatively simple measures for employees and employers to follow on how to deal with back pain.

Box 3. Principles of managing non-specific MSDs

- Early treatment should be sought for back pain.
- Most back pain is not due to a serious condition.
- Simple back pain should be treated with basic pain killers and mobilisation.
- It is important to keep active both to prevent and to treat back pain.
- Getting back to work quickly helps prevent chronic back pain.
- Adopt the correct posture while working.
- All workplace equipment should be adjustable.
- Take breaks from repetitive or prolonged tasks or postures.
- Avoid manual handling and use lifting equipment where possible.
- Clear information should be provided to employees about back care.
- Health and safety policies should be implemented to cover all aspects of day-to-day work and should be reviewed regularly.

Source Health and Safety Executive (HSE), 2002

Given that MSDs are one of the most common work-related health problem, and the importance of psychosocial factors in determining whether employees remain in work or return to it as soon as they can, managers need to have the skills to deal with staff with those conditions.

The role of line managers in early intervention is crucial, both in work retention and rehabilitation. Yet, many line managers feel ill-equipped to manage long-term absence and incapacity. They find many aspects of mental ill-health or chronic incapacity awkward and embarrassing to talk about or confront, and are concerned about challenging or asking for more information about GP sick notes, making home visits or telephoning staff at home for fear of being accused of harassment or falling foul of the law and landing themselves and their organisation in a tribunal. They are also ignorant of, or uncomfortable with, the idea of rehabilitation. Although the 1993 Human Rights Act[33] requires employers to take ‘reasonable measures’ to accommodate disabled employees’ needs through the provision of special services/facilities or by taking steps to reduce any associated risk of harm, most line managers particularly in small size organisations find job re-design difficult, irritating and disruptive.

On the face of it, many of the return to work challenges faced by employees with MSDs may be improved if there was an improved level of mutual understanding between employers and clinicians. As highlighted above, the clinical appreciation of most MSDs by employers can be cursory to say the least. It is often argued that most GPs, in their turn, have little or no appreciation of the vocational or occupational dimension of many MSDs.[34] In addition,

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[33] See Parliamentary Counsel Office http://www.legislation.govt.nz/act/public/1993/0082/latest/DLM304212.html
[34] Confirmed by in-country expert

many GPs feel uncomfortable or incompetent when asked to assess ‘workability’ (Arrelov, Alexanderson, Hagberg, Kifgren, Nilsson, Ponzer et al., 2007; Swartling, Hagberg, Alexanderson and Wahlstrom, 2007). However, without an understanding of specific tasks undertaken by employees and the ability to adjust those tasks, GPs may feel that a return to work would exacerbate a condition unless an individual is 100 per cent fit.

For their part, employers will only very rarely challenge a GPs sick note, or ask for a second opinion on the potential for a beneficial return to work for a patient. The consequence of this mutual lack of understanding and resulting dearth of dialogue can often be that the MSD patient is left stranded in the middle, with no clear pathway back to work and, more importantly, no voice. A proactive, inclusive, multi-disciplinary, capability-focussed approach to vocational rehabilitation, informed by the biopsychosocial model and delivered through case management is widely regarded as the most enlightened and effective approach to take in the majority of work-related MSD cases. Quite often both employers and GPs will focus on the aspects of the job which an MSD patient cannot currently perform, rather than on those which they can. Consultation with occupational health specialists is one method that can be used to help facilitate a more capability-focussed approach to MSDs between GPs and employers.

One of the attractions of the biopsychosocial model is that it ‘joins up’ the three core strands of the MSD patient’s experience, and management of, their condition. It offers a comprehensive framework with which to look at the diagnosis and treatment of a range of MSDs, especially when an important outcome for the individual is to stay in, or return swiftly, to work.

6.3 Recommendations for employers

The importance of maintaining the worker’s connection to the workplace and the employer’s connection to the worker is well recognised for their successful return to work. Managers and occupational health specialists within organisations are best placed to detect the early signs of diseases and to plan appropriate intervention and rehabilitation. In doing this they must take into account physical, psychological and the social dimensions of diseases in order to prevent work-related causes of MSD and fully embrace the benefits of workplace rehabilitation. They must also allow workers to play a bigger part in the planning of workplace adjustments and return to work. This will help managers with their concerns around litigation and duty of care, and is conducive to developing a more individual need-centric approach to the management of MSDs in the workplace.

Helping workers with an MSD to stay in, or return to, work is cost effective for organisations. They will save directly on the costs associated with recruiting temporary or replacement staff, training and incapacity payments as well as indirectly through future premium calculation. An unsupportive workplace can in turn lower the morale and self-esteem of a worker with an MSD, leading to problems such as low levels of engagement and secondary psychological illness that may hinder them further from returning to the workplace.

We recommend that employers need to:

- Go beyond legal compliance. A ‘risk management’ mentality when dealing with an employee with an MSD can often lead to delay and ambiguity. Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They do not need to be 100 per cent fit to return to work, and a little lateral thinking will allow you to give them useful work to do which will support them on their journey back to full productive capacity.
- Establish a return to work plan in which the employee is given a significant voice and the role of the employer is clearly clarified. A return to work plan should be formulated in consultation with an employees medical practitioner(s) and should cover capabilities, workplace based rehabilitation, physical (or mental) rehabilitation, medical treatment, retraining and modification to the workplace. All parties should have a copy of the plan which clearly outlines goals, processes, alternate duties and relevant dates.
- Imaginative job design will assist rehabilitation. Mangers, even in small organisations, can make simple changes to the way that work is organised, including simple changes to working time arrangements, to help prevent an employees’ MSD from getting worse and to help them stay in, or return to, work. Employees should play a more active role in communicating their needs and the planning of workplace adjustments. This will be conducive to developing an individual need-centric approach.
- Include a health and wellbeing component in managerial training. Raising awareness about MSDs and how best to help rehabilitate an employee back into the workplace can make a real difference to the return to work process, as well as the productivity, morale and performance of that employee. It can also help to counter MSD ‘fatigue’ and prevent it occurring in the first place. Occupational health professionals should be involved in this process.
- Monitor and improve the psychosocial environment in the workplace. Be aware that MSDs can be caused or exacerbated not just by occupational factors in high-risk jobs, but similarly by bad management, poor quality of job and workplace conflicts.

7. MSDs and individuals

7.1 Impact of MSDs on individuals and households

The evidence on the burden of MSDs on the economy, the society and the organisations still underestimate the true cost of those conditions in New Zealand. As demonstrated in Figure 3.1 individuals are the bearers of the largest costs associated with arthritis and other musculoskeletal conditions. Despite this, intangible costs are rarely included in calculations as it is almost impossible to properly express the intangible costs in monetary terms (Sieper et al., 2002).

The evaluation of intangible costs gives useful information regarding the price paid by people with MSDs in terms of quality of life and can also be used to measure the effectiveness of available interventions (Leardini et al., 2002).

At the present time, two measures are commonly used to evaluate intangible costs:

1. **Disability adjusted life years (DALYs)**. This is a measure of the disease burden which tallies the complete burden that a particular disease exacts. Key elements include age at which the disease or disability occurs, how long its effects linger, and its impact on quality of life. One DALY is equal to one year of healthy life lost.
2. **Quality adjusted life years (QALYs)**. The QALY is also a measure of disease burden, including both the quality and the quantity of life lived. It is used in assessing the value for money of medical interventions and is based on the number of years of life that would be added by these interventions. A QALY gives a measure of how many extra months or years of life of a reasonable quality a person might gain as a result of treatment and helps in the assessment of the cost-utility of this treatment.

Both measures are subject to debate, but have become accepted as helpful in making comparative judgements across medical conditions and internationally. Estimates from the World Health Organisation (2009) show that in New Zealand up to 20,000 DALYs were lost to MSDs in 2004, including 3,000 DALYs attributed to RA and 11,000 DALYs attributed to osteoarthritis. An earlier estimation also suggests that in 2001, MSDs contributed to 0.6 per cent of years of life lost and 6.6 per cent of years lost to disability, accounting for at least 3 per cent loss of the total disease burden measured in DALYs (Ministry of Health, 2001).

Arthritis New Zealand estimates that the monetary burden of disability and premature mortality for arthritis alone was NZ$ 3.8 billion in 2010. In addition, it has been found that, compared to the general population, individuals with MSDs report higher an analysis of disability, poorer health-related quality of life and increased psychological distress (Taylor, Dean and Siegert , 2006).

The effects of MSDs can make it difficult for individuals to complete everyday tasks, often forcing people to give up work. The odds of participating in the labour force in New Zealand are 31.5 percentage points lower for those people with a chronic condition, such an MSD (Holt, 2010b). People of working age in New Zealand with a chronic disease are often experiencing financial hardship.

The average income of individuals with a disability in New Zealand is lower than those without a disability. In 2006, approximately half of all disabled people in paid employment had a total annual income (from all sources) of NZ$ 30,000 or under. This compares to 40 per cent of employed non-disabled people (Statistics New Zealand, 2008). In 2010 Arthritis New Zealand estimated the total value of lost personal income to arthritis to be NZ$ 1,476.4 million (Access Economics). These figures suggest that many people with a disability or a chronic health condition, such as an MSD, are at a higher risk of experiencing poverty.

The indirect costs of ill-health extend beyond lost productivity and foregone income of the individual, and often impact on the labour market participation of family members and friends (Pugner et al., 2000). In the 2006 Census, 420,000 New Zealanders reported having provided some form of informal care in the previous four weeks to someone else who had ill-health or a disability (Gander et al. 2009). Although the wider 'cost' of informal care is notoriously difficult to quantify (in terms of lost hours to labour market participation, leisure activities etc) Arthritis New Zealand has estimated the value of this care for all arthritic conditions at just under NZ$ 5 billion for 2010 (Access Economics, 2010).

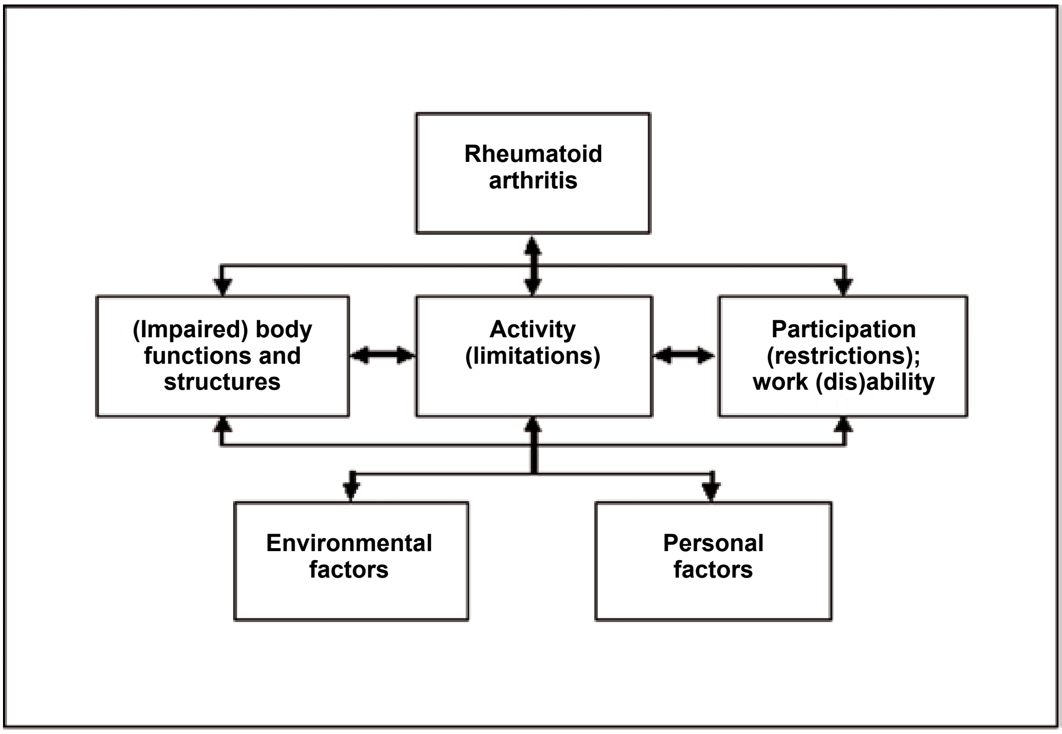
On the issue of social support, studies have shown that functional limitation caused by an MSD can put added pressure on family systems, as well as lead to conflict, if an individual is unable to partake in usual family duties (Hamberg, Johansson, Lindgren and Westman, 1997; MacGregor, Brandes, Eikermann and Giammarco, 2004; Kemler and Furnée, 2002). On the other hand, an overly solicitous family (or, by extension, manager or colleague) may reinforce MSD patient passivity and encourage them to adopt a 'disabled role' (Kerns, Haythornthwaite, Southwick, and Giller, 1990; Block, Kremer, and Gaylor, 1980).

7.2 Role of work for health outcomes

Research conducted among individuals with RA (Chorus, Miedema, Boonen and van der Linden, 2003) and AS (Gordeev, Maksymowych, Evers, Ament, Schachna et al., 2009) confirmed that physical (health-related) quality of life of individuals with those conditions was positively influenced by work. Chorus et al. (2003) conclude that work '*might be an important factor in positively influencing patients' perception of their physical performance*'. This finding concurs with Waddell and Burton (2006a) that, overall, good quality work has health and recuperative benefits for workers.

On the other hand, poor experiences in work environments may negatively affect individuals' health. De Croon et al. (2004) looked at the research on work disability among people with RA and concluded that psychosocial factors were often a better predictor of work disability than standard bio-medical factors. Since it was first proposed in the late 1970s, a growing body of evidence has developed to support the biopsychosocial model. For example, research has demonstrated that job dissatisfaction can be an important predictor of speedy and successful return to work (Bigos, Battie and Spengler, 1992). In Figure 7.1 below, the authors highlight how wider environmental and personal factors enhance the explanatory power of the International Classification of Functioning, Disability and Health in the case of work disability and RA.

Figure 7.1. ICF model applied to work disability in RA



Source: de Croon et al., (2004)

Some critics of the biopsychosocial model (McLaren, 2006) have focused on this last point, highlighting concerns that this approach may encourage or 'permit' helplessness in some patients or that, in other circumstances, it may alienate patients who feel that they are being told that their condition is 'all in the mind'. Clearly, care must be taken in the way that clinicians and others mitigate these risks, but the balance of the literature – and of the expert opinion offered during the course of our interviews – is strongly in support of the biopsychosocial model and its role in informing the management of MSDs in both clinical and occupational settings (Smyth, Stone, Hurewitz, and Kaell, 1999; Carter, McNeil, and Vowles, 2002; Zampolini, Bernardinello, and Tesio, 2007). Indeed, it forms the basis of the World Health Organisation's International Classification of Functioning, Disability and Health which has been widely embraced as an authoritative guide for vocational rehabilitation (WHO Scientific Group, 2001).

An example of a successful intervention to reduce sickness absence based on the biopsychosocial model is provided by Ektor-Andersen, Ingvarsson, Kullendorff and Ørbæk (2008). In their study Ektor-Andersen et al. developed a tool based on the Cognitive Behavioural Theory method of functional behaviour analysis according to which risk factors for long-term sick leave due to musculoskeletal symptoms were identified in four different domains: the community, the workplace, the family/spare time and the health care system. Care-seekers were examined by each member of the interdisciplinary team and risk factors were identified and classified as stable or dynamic. Dynamic factors were the ones the care-seekers and the team agreed to intervene on. Some of these interventions involved CBT sessions and other focused more on physiotherapy which were then administered for a year. Results from the study show that this type of intervention is effective in reducing sick leave and social security expenditure four months after the intervention started. Although the cost-benefit analysis presented by Ektor-Andersen et al. (2008) underestimates the total savings by taking into account social security costs only, the costs of this type of intervention are balanced out by the reduced costs in sickness allowance during the first year.

As Waddell and Burton (2006b) have argued, the goals of the biomedical model are to relieve symptoms, whereas the goals of clinical management informed by the biopsychosocial model – especially in occupational settings – should be to control symptoms and to restore function. This suggests that employers contribute to the 'social' part of the biopsychosocial model and that their actions can make a difference to the outcome for individuals with MSDs.

7.3 Recommendations for individuals

Individuals must play a proactive and active part in the management of their condition. Many people feel that their health condition is controlling their lives at home and at work. However, there are many ways to find out more about the condition, recognise patterns in pain or fatigue and learn how to minimise the impact of an MSD on functioning and well-being.

It has been found that people who actively manage their condition recover earlier than those who catastrophise their disease. For example, RA patients receiving anti-TNF therapy have higher employability after treatment (Smolen, Han, van der Heijde, Emery, Bathon et al., 2006). Overall, the use of TNF inhibitors improves self-reported work ability, quality of life and fatigue in the first year in patients with RA (Herenius, Hoving, Sluiter, Raterman, Lems et al., 2010) and sleep quality among those with AS (Rudwaleit, Gooch, Michel, Herold, Thorner et al., 2011).

We recommend that individuals with MSDs should:

- Focus on capacity not incapacity. It’s natural to be anxious or even guilty about the parts of your job which you may find difficult to perform because of your MSD. But you still have much to contribute and you should play to your strengths. Your specialist knowledge and experience doesn’t disappear just because you are in pain or discomfort or have mobility problems, you can still contribute in many ways. Work with your managers and colleagues to find out how you can maximise your impact at work within the constraints of your condition, for example by making changes to your work area or equipment. Be open with them and they should respond better.
- Talk early. Your line manager, despite what he or she might tell you, is not a mind-reader. If your MSD is causing you difficulty or you anticipate a period when you will need to adjust your working time, talk to your manager so that you can both plan what to do about it. The earlier the better as managers don’t like last minute surprises, but they can usually find a solution to most problems if they have some notice. You might also find it useful to talk to your union representative, your HR manager or someone in occupational health. Don’t delay.
- Know your rights. As both a patient and as a worker you should know what support and advice you are entitled to. If you are a trade union member your union should be able to guide you on much of this.
- Involve family in job retention and rehabilitation. Your family and friends are important sources of support. They may not realise that staying in or returning to work is both possible and desirable. You need to help them to help you by getting them involved in your rehabilitation at work. Even small adjustments to working time or travel to work arrangements can make the world of difference.
- Play an active part in the management of your condition. Your MSD is bound to get you down sometimes and you will feel like its controlling your life at home and at work. But you don’t need to be a passive victim of pain or immobility. Find out more about your condition, try to develop strategies to help you minimise its impact on your functioning or mood and use peer support. This can sometimes be very hard to do, but persevere; people who play an active part in the management of their condition tend to get back to work more quickly.

8. Conclusions and recommendations

Work is good for our health. It provides us with income, generates social capital and gives us purpose and meaning. Even when unwell or injured, remaining in work – at least in some capacity – is often better for recovery than long periods away from work (RACP, 2010a). If New Zealand's workforce is to be productive and competitive in the global economy, and if the quality of their working lives is to be enhanced, it is important that a high proportion of the workforce is, as far as possible, fit for work.

The evidence presented in this report illustrates that a large proportion of working age people in New Zealand are, or will be, directly affected by MSDs. This can have very significant social and economic consequences for these individuals and their families: MSDs can impede the productive capacity of the total workforce and parts of New Zealand industry and it can draw heavily on the resources of both the health service and the benefits regime.

There are four main principles which GPs, employers, employees and the government should focus on if we are to improve the working lives of workers with MSDs.

- **Early diagnosis and intervention are essential**. The overwhelming evidence is that long periods away from work are usually bad for MSD patients – the longer they are away from work the more difficult it is for them to return. Early detection of MSDs and referral to appropriate care, such as physiotherapists and occupational therapists, and preferably in partnership with the patient and their employer, will help individuals to return to work as soon as possible and avoid work incapacity in the long term. This in turn will reduce the burden on MSDs and resulting comorbidities on the wider economy and society.
- **Identify where work is *good***. It is easy to assume that work is unambiguously bad for people with MSDs, especially if some aspects of their jobs have the potential to make their symptoms worse. With some adjustments, staying at work on lighter duties or with adjusted hours might still be a better option than a prolonged absence from work.
- **Think beyond the physical symptoms**. Health care professionals should bring to bear their understanding of the biopsychosocial model and the limitations of the biomedical model in their diagnosis and treatment of the patient and – most importantly – their assessment of the role that a job might play in helping someone to say active and avoid isolation. Occupational therapists and GPs are ideally placed to identify the early presentation of many MSDs. Where appropriate they should refer patients to specialist teams or allied health professionals, such as physiotherapists and occupational therapists, as early as practicable to enable the management of the condition to begin.

- **Focus on capacity not incapacity**. Employers and employees can ‘catastrophise’ MSDs, imagining their effects to be far more serious or insurmountable than is strictly the case. Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They do not need to be 100 per cent fit to return to work. A little lateral thinking, preferably in partnership with clinicians, will allow managers to identify what an individual can still do within their capacity and what workplace adjustments can be made to support them on their journey back to full productivity.

Four stakeholders – individuals, employers, clinicians and policy makers – must embrace the principles of effective management of MSDs to reduce and prevent the impact of chronic conditions on the ability of individuals to remain at work and return to employment. The report calls upon each of them to take action.

- **Policy makers** should consider developing a National Plan for MSDs as a way of targeting the three major stakeholder groups in an effective and joined-up way. This plan should incite the establishment of a Clinical Outcomes Framework, through which work is outlined as one of the clinical priorities going forward. It should also encourage and support the establishment of a robust surveillance system that will enable employers to monitor and report incidences of occupational illness and disease. Finally it should promote and help individuals adopt policies that are conducive to the prevention of MSDs.
- **Clinicians** should identify where job retention or early return to work is good for their patient. They need to work in partnership with the patient and their employer to help those with MSDs achieve a balance between their need for respite and their need for work. It is easy to assume that work is unambiguously bad for your patients, especially if you suspect aspects of their job make their symptoms worse. However, most workers with MSDs can continue to make a great contribution at work if they are allowed to. With some adjustments, staying in work on lighter duties, or with adjusted hours, might still be a better option than a prolonged absence.
- **Employers** should work with clinicians to encourage and support individuals’ involvement with the treatment and self-management of an MSD. Employees should play a bigger part in the planning of workplace adjustments in order to help prevent an MSD from getting worse, or to help them stay in, or return to, work. This is conducive to developing a more individual need-centric approach to the management of MSDs.
- **Individuals** should play an active part in the management of their condition by adopting strategies that are conducive to prevention, rather than reactive to the management of their condition. There are lots of different ways to find more out about a chronic health condition, and learn how to best minimise its impact on performance and psychological

> wellbeing. A proactive approach to the self-management of MSDs improves quality of life and perceived employability among individuals and is also crucial in order to address the worsening health status.

In part, some aspects of the problem of MSDs, and their impact on work, are already on the agenda in New Zealand. However, other equally important aspects are not. As a result there still remains a paucity of clinical, epidemiological, psychological and economic evidence about the precise nature, extent and consequences of MSDs in New Zealand. Despite this, we know enough to be able to conclude that going forward MSDs will affect a growing proportion of the working-age population in New Zealand. While the acceptance of a more holistic approach towards the treatment of patients with MSDs is beginning to grow, the underlying principles of the biopshycosocial model are yet to be fully embraced. Through coherent, 'joined-up' thinking and action by the key stakeholders – government, clinicians and employers – there is a renewed opportunity to focus on the MSD **patient as worker**.

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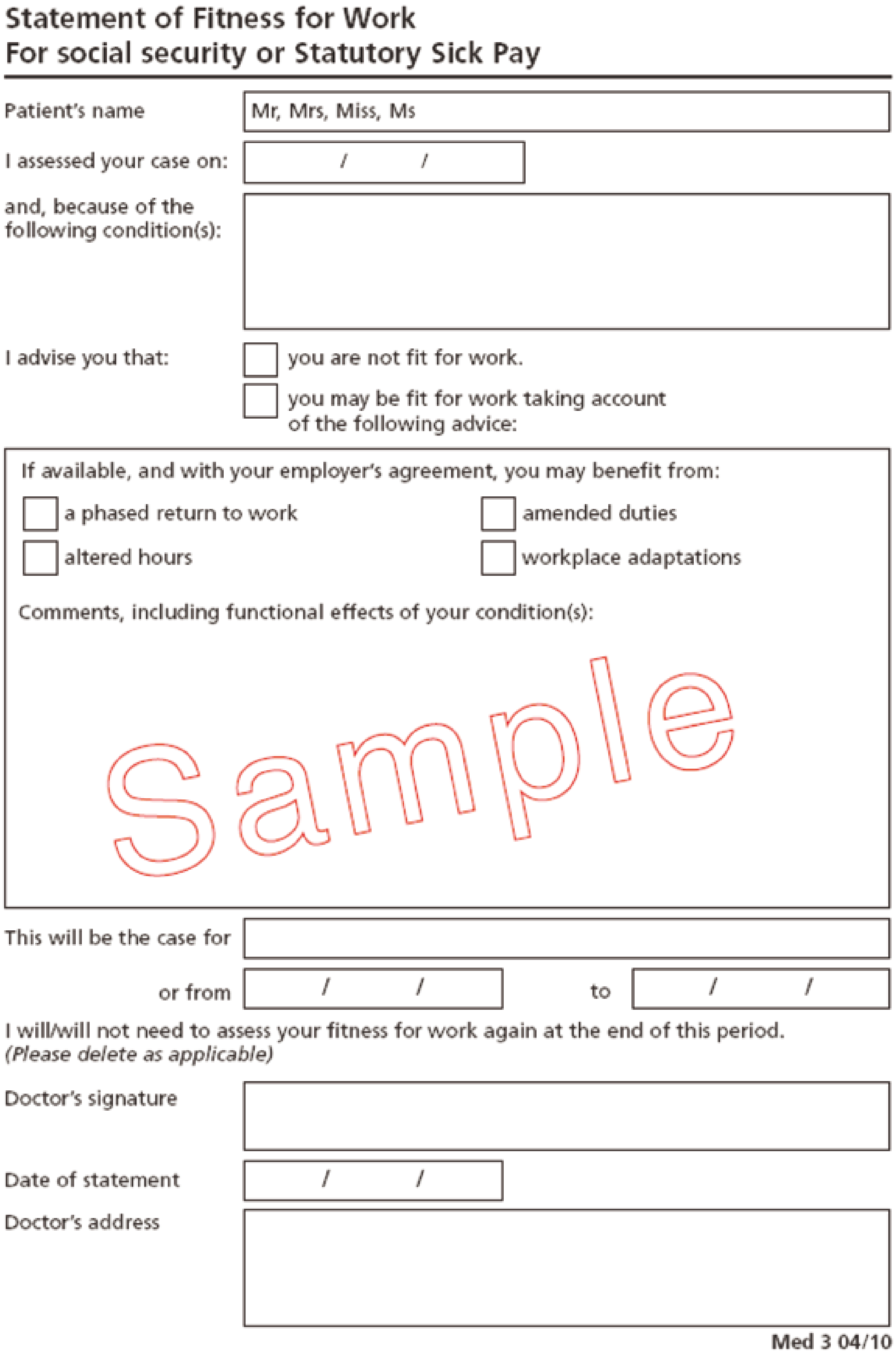
Appendix 1: Interviews and consultation with experts

The following people shared their views and information with us during the course of our research and we are very grateful for the time each spent. We have taken their views into account in writing this report, though their participation in the study does not in any way imply endorsement of the report's conclusions.

Dr David Beaumont	Chair, Faculty Policy and Advocacy Committee Australasian Faculty of Occupational and Environmental Medicine
Sandra Kirby	CEO Arthritis New Zealand
Chris Polaczuk	Accident Compensation Corporation Prevention and Management of Discomfort, Pain and Injury Programme
Janice Reigen	Waitemata District Health Board Occupational Health Lead
Dr David Tappin	Massey University Centre for Public Health Research Occupational and Environmental Medicine

Appendix 2: Fit Note Sample



Statement of Fitness for Work
For social security or Statutory Sick Pay

Patient's name: Mr, Mrs, Miss, Ms

I assessed your case on: / /

and, because of the following condition(s):

I advise you that:
☐ you are not fit for work.
☐ you may be fit for work taking account of the following advice:

If available, and with your employer's agreement, you may benefit from:
☐ a phased return to work
☐ amended duties
☐ altered hours
☐ workplace adaptations

Comments, including functional effects of your condition(s):

This will be the case for

or from / / to / /

I will/will not need to assess your fitness for work again at the end of this period.
(Please delete as applicable)

Doctor's signature

Date of statement / /

Doctor's address

Med 3 04/10

Source: Department for Work and Pensions (2010).

Appendix 3: Benchmarking grid

The Fit for Work study has looked across a range of European countries, Australia, New Zealand, Canada and Japan. This approach allows us to explore how far early intervention is implemented across the world. It also enables us to see how far we may identify both enablers and barriers to early intervention given the different approaches to policies that affect the labour market, the welfare system and the health care system. To explore this we have looked widely at a number of indicators covering the:

- Labour market;
- Welfare system ;
- Health care system.

The data presented below come from various international data sources. Where possible we used 2009 data to allow for comparisons across countries for a number of different indicators. The data mainly come from the OECD. We present a selection of indicators below.

Appendix 3: Benchmarking grid

	GDP per capita in PPP, 2009	Percentage of the population of working age	Percentage of the population aged 65 and over	Unemployment rate (%)		Long term unemployment rate, % of all unemployed	Disability prevalence, as a percentage of 20-64 population	Average age of withdrawal from the labour market		Labour productivity per unit labour input, relative to base year 2005 (=100)	Unit labour cost, relative to base year 2005 (=100)
				Male	Female			Male	Female		
Australia	$39, 660	67.6	13.3	5.7	5.4	14.7	12.0	62.2	64.4	101.2$^{\text{2006 data}}$	104.9$^{\text{2006 data}}$
Brazil	$10,453	67.3	6.8	6.5	9.9	--	--	--	--	--	--
Canada	$37,808	69.5	13.9	9.4	7.0	7.8	12.1	61.9	63.3	101.2	110.4
Japan	$32,062	63.9	22.7	5.3	4.8	28.5	--	69.5	66.5	95.0	101.1
New Zealand	$28.885	66.5	12.8	6.1	6.2	6.3	--	63.9	66.5	97.8	116.1
UK	$35,159	66.5	15.8	8.8	6.5	24.6	17.6	61.9	63.2	103.7	107.6
US	$45,674	67.0	12.9	10.3	8.1	16.3	11.9	63.9	64.4	101.8	108.8
EU-27	$31,257	67.2*	17.2*	9.0*	8.9*	3.0*	--	61.9*	60.5*	--	--
OECD-Europe	--	--	--	--	--	--	--	--	--	103.6	106.9
OECD	$33,080	66.8	14.6	8.5	7.7	24.2	--	62.3	63.5	102.9	106.7

*Sources: OECD (n.d.), *Eurostat (n.d.), OECD (2010)*

	GDP per inhabitant in PPS, 2007	Social expenditure (% GDP)	Public expenditure on (% of GDP)			Generosity of the welfare system (0/7 scale)
			Health	Incapacity related	Unemployment	
Australia	$39,002	16.0	5.7	2.2	0.4	4.10
Brazil	$9,900	--	3.7	--	--	--
Canada	$38,353	16.9	7.0	0.9	0.6	3.52
Japan	$33,635	18.7	8.1	0.8	0.3	--
New Zealand	$28,567	18.4	7.1	2.5	0.2	--
UK	$35,719	20.3	6.8	2.4	0.2	3.87
US	$46,337	16.0	7.2	1.3	0.3	2.70
EU-27	$30,769	--	--	--	--	--
OECD	$33,139	--	--	--	--	--

Sources: OECD (n.d.), Osterkamp and Rohn (2007)

Appendix 3: Benchmarking grid

	% of working days lost	% of working age population inactive due to sickness and disability		MSD-related disability claims	DALYs MSDs (% of Total)	DALYs RA (% of total)	Number of RA Patients general population ('000)	Total annual cost of RA, mln euros	Practising general practitioners (GPs), density per 1,000 population
		Male	Female						
Australia	1.3$^{\text{2004 data}}$	2.6	2.9	32.7 ^{2008}	4.49	0.76	136	2,164	1.49
Brazil	--	--	--	--	2.46	0.63	--	--	--
Canada	1.5	--	--	19.9 ^{2007}	4.72	0.88	215	2,249	1.09
Japan	--	--	--	--	5.73	0.92	--	--	2.15*
New Zealand	--	--	--	13.0 ^{2008}	4.24	0.72	--	--	0.85
UK	3.2	6.7	6.3	14.1 ^{2005}	4.11	0.81	399	6,577	0.77
US	3.6	4.7	4.6	26.0 ^{2008}	3.76	0.71	1,976	41,631	0.3
OECD	3.4	4.2	4.4	--	--	--	--	--	--
Europe	--	--	--	--	--	--	660	45,263	--

Sources: OECD (2009); OECD (n.d.); WHO (2006; 2007); Lundkvist, Kastäng and Kobelt (2008); OECD (n.d.)

**-practicing physicians*

Variable	Definition – Provided by source	Source
Labour indicators		
Gross domestic product in US dollars per capita At current prices and current PPPs 2009	Gross domestic product is an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.	OECD (n.d.)
Percentage of the population of working age 2009	Share of total population of age 15 to 64..	OECD (n.d.), Eurostat (n.d.)
Percentage population aged 65 and over 2009	Share of total population of age 65 and above.	OECD (n.d.), Eurostat (n.d.)
Unemployment rate by gender 2009	Data refer to persons who are without a job, want a job, have actively sought work in the last four weeks and are available to start work in the next two weeks or are out of work, have found a job and are waiting to start it in the next two weeks.	OECD (n.d.), Eurostat (n.d.)
Long-term unemployment, % of total unemployed 2009	Unemployed for one year and above. Data refer to the shorter of the following two periods: the duration of search for work, or the length of time since last employment.	OECD (n.d.), Eurostat (n.d.)
Disability prevalence, as a percentage of 20-64 population	Self-assessed disability prevalence, as a percentage of 20-64 population	OECD (2010)
Average age of withdrawal from the labour market 2009	The indicator gives the average age at which active persons definitely withdraw from the labour market. It is based on a probability model considering the relative changes of activity rates from one year to another at a specific age. The activity rate represents the labour force (employed and unemployed population) as a percentage of the total population for a given age.	OECD (n.d.), Eurostat (n.d.)
Labour productivity per unit 2009	Output per hour. If the index of a country is higher than 100, this country's value is higher than the OECD average and vice versa.	OECD (n.d.)
Unit labour cost, relative to base year 2005 (=100) 2009	Unit labour costs measure the average cost of labour per unit of output. They are calculated as the ratio of total labour costs to real output. Output per hour. If the index of a country is higher than 100, this country's value is higher than the OECD average and vice versa.	OECD (n.d.)

Variable	Definition – Provided by Source	Source
Welfare indicators		
GDP per inhabitant in PPS 2007	Gross domestic product is an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs). The sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services, or the sum of primary incomes distributed by resident producer units.	OECD (n.d.)
Social benefits (% of GDP) 2007	Social benefits are current transfers received by households intended to provide for the needs that arise from certain events or circumstances, for example, sickness, unemployment, retirement, housing, education or family circumstances.	OECD (n.d.)
Sickness/health care benefits – % of total benefits 2007	Spending on in- and out-patient care, medical goods, prevention.	OECD (n.d.)
Disability – Social benefits by function – % of total benefits 2008	Care services, disability benefits, benefits accruing from occupational injury and accident legislation, employee sickness payments.	OECD (n.d.)
Unemployment – Social benefits by function – % of total benefits 2008	Unemployment compensation, early retirement for labour market reasons.	OECD (n.d.)
O&R generosity index	Seven different measures of generosity were combined to construct a single measure of generosity that ranges from between 0 and 7, where 7 indicates the highest level of generosity. The seven variables include waiting period, self-certification, total maximum duration of payment, employer maximum duration of payment, employer amount of payment, sickness fund amount of payment and external proof.	Osterkamp and Rohn (2007)

Variable	Definition – Provided by Source	Source
Health outcomes		
% of working days lost	The median number of days absent because of health.	OECD (2009)
% of working age population inactive due to sickness and disability 2009	All persons who are not classified as employed or unemployed, of population aged between 15 and 64.	OECD (2009)
MSD-related disability claims	Number of claims associated with musculoskeletal disorders.	OECD (2009)
DALYs – MSDs, male and female	Disability-adjusted life years (DALYs) are frequently used to assess the burden of disease. The WHO's definition of DALY 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.	WHO (2006; 2007)
DALYs – RA	DALYs are frequently used to assess the burden of disease. The WHO's definition of DALY 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.	Lundkvist, Kastäng and Kobelt (2008)
Number of people with RA	Estimated number of people with RA. The percentage is calculated from the number of people with RA divided by the population numbers listed in the article.	Lundkvist, Kastäng and Kobelt (2008)
Total annual cost of RA, mln euros	Estimated direct and indirect costs of RA. The percentage is calculated from the number of people with RA and estimated cost per individual.	Lundkvist, Kastäng and Kobelt (2008)
Practising general practitioners (GPs), density per 1,000 population 2008	Number of practising GPs per 1,000 population.	OECD (n.d.)

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