Fit For Work?

Musculoskeletal Disorders in the Czech Labour Market

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1 Executive summary

The economic downturn is starting to hit the Czech Republic hard. The consequences for the Czech labour market is likely to be especially difficult, partly because of the speed with which unemployment has risen, with all its individual, social and economic ramifications. The health of Czech workers is also giving serious cause for concern. A significant proportion of the workforce is not healthy enough to drive the improvements in productivity which the Czech Republic needs to compete in an increasingly globalised, knowledge-based economy when the up-turn comes. There is also overwhelming evidence that worklessness is, itself, bad for health and that job retention and rehabilitation back into work can positively affect physical health, psychological well-being and raise people out of poverty.

More than 51 working days per employee were lost in 2007 through musculoskeletal disorders (MSDs) such as back pain, arm or neck strains or diseases of the joints. Indeed, MSDs are, by some margin, among the most commonly reported causes of work-related ill health in the Czech Republic.

The ‘Fit for Work?’ project

This project, part of a wider programme of work across 24 European and other countries, has looked in some detail at the impact that MSDs have on the working lives of thousands of Czech workers, the adequacy of the treatment and support they 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, work-related upper limb disorders (WRULDs) – 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 the 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 Czech workforce

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

- 39 per cent of Czech workers experience work-related back pain;

38 per cent of Czech workers experience muscular pain in their neck, shoulders and upper limbs;
- rheumatoid arthritis is prevalent in 610 per 100,000 adults;
- ankylosing spondylitis is prevalent in 118.9 per 100,000 adults.

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 in 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 MSD 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) 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 into the workplace. It is not being adopted as widely as it should, however, because many GPs 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 GPs and employers mistakenly believe that workers with MSDs must be 100 per cent well before any return to work can be contemplated.

Looking to the future, with prospects for an ageing workforce, a growth in obesity, a reduction in exercise and physical activity and general fitness in the general population, it is likely that the incidence and effects of MSDs will intensify and worsen rather than improve in the medium-to long term. We are concerned that this will affect the quality of working life of many Czech workers, and that the productive capacity of the Czech workforce will be adversely affected at a time when we need it to be on top form.

What can be done?

There are five 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 intervention is 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 action, preferably in partnership between GPs, the patient and their employer, can help those with MSDs to keep their jobs and to achieve a balance between the individual’s need for respite and their need to work. For some MSD patients early access to physiotherapy or to drug therapies can reduce the severity, impact or progression of the condition – a delay in diagnosis or treatment can make recovery, job retention or rehabilitation much more difficult. Once the economic upturn arrives – which it assuredly will – the Czech economy cannot afford for its recovery to be inhibited by a shortage of skilled, motivated and healthy workers.
- **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 will allow mangers to give them useful work to do that supports them on their journey back to full productive capacity.
- **Imaginative job design is the key to rehabilitation.** Managers can change the ways work is organised (including simple changes to physical layout or to working time arrangements) to help prevent MSDs getting worse and to help people with MSD to stay in, or return to, work. They need to do this in a way which preserves job quality, avoids excessive or damaging job demands and takes heed of ergonomic good practice.
- **Think beyond the physical symptoms**. Clinicians 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 stay active and avoid isolation. GPs are ideally placed to identify the early presentation of many MSDs. Where appropriate, GPs should seek to refer patients to specialist teams as early as practicable, to enable management of the condition to begin.

- **Assess the direct *and* indirect costs of MSDs**. We need some better measures to assess the social, economic and work impact of MSDs to allow the Czech Ministry of Labour and Social Affairs and the Czech Social Security Administration to assess and monitor both the clinical and labour market impact of MSDs in a more 'joined-up' way.

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

We have found important clinical, epidemiological, psychological and economic evidence and expert opinion on the nature, extent and consequences of the MSD problem in the Czech Republic. However, there still seems to be a lack of coherence or 'joined-up' thinking and action which focuses on the MSD **patient as worker**.

2 Introduction

2.1 Why is workforce health in the Czech Republic important?

The Czech Republic, like many developed western economies, is emerging from a long period of sustained economic and employment growth. With the current economic climate, real gross domestic product in the Czech Republic is contracting as investment falls and the recession in major export markets contributes to a sharp downturn in 2009. This is set to be followed by a weak recovery in 2010 as a result of a gradual increase in private consumption and export demand. Inflation is also likely to fall in line with the global recession. (OECD, 2009a). In the first quarter of 2009 real gross domestic product fell by 3.4% compared with the fourth quarter in 2008 and the first quarter of 2008. Unemployment rates grew during this period, boosted by an increase in the population by 9,000 in the first quarter of 2009 - (Czech Statistical Office, 2009). Compared with the first quarter in 2008, employment decreased by 11,600 in the first quarter of 2009. The number of unemployed people (using International Labour Organization methodology) was up by 58,300 compared with the first quarter of 2008. The seasonally adjusted average number of unemployed people (again using the International Labour Organization methodology) increased by 65,900 (up 1.3 per cent) compared with the fourth quarter of 2008. This represents the highest quarter-on-quarter increase since the survey began in 1993. The number of unemployed people reached 302,800 – 154,000 of them were women – in the first quarter of 2009, up by 58,300 compared with the first quarter of 2008 (an increase of 23.8 per cent, as against a decrease of 8.7 per cent in the fourth quarter of 2008 compared with the same period in 2007). Male and female unemployment grew by 39,300 and 18,900 respectively. Nevertheless, there was a decrease by 19,000 in the number of people unemployed for one year or longer compared with the first quarter of 2008 to 104,900; they still, however, represent 34.7 per cent of the total unemployed (Czech Statistical Office, 2009).

Along with skills, training and qualifications, one of the most significant drivers of labour productivity is workforce health and well-being. Having a significant proportion of the working age population either temporarily or permanently unable to work through ill-health – 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. Of course a significant burden of ill-health or chronic disease can also have a number of damaging social consequences.

Now that economic growth is slowing, and that the buoyancy of the Czech labour market is diminishing, the imperative to maximise labour productivity and to ensure that the workforce is equipped to take full advantage of the up-turn in the economy has intensified still further. As unemployment starts to rise again, it will be important to ensure that those with illness or long-term conditions are not disproportionately affected. This turnaround in fortunes has a number of important implications.

First, unemployment and job loss have serious financial and health consequences for individuals. Studies have shown widespread deterioration in aspects of physical and mental well-being among those who lose their jobs which can persist for many months (Armstrong, 2006; Brinkley, Clayton, Coats, Hutton, and Overell, 2008).

Second, it is essential that job loss is not concentrated in the most vulnerable parts of the workforce, especially among those with a disability or with a long-term or chronic health condition. Finding ways of improving job retention for these workers is vital as we know that, once they become detached from the labour market, their chances of finding meaningful work again are severely damaged.

Third, once the upturn arrives – which it assuredly will – the Czech economy cannot afford for its recovery to be inhibited by a shortage of skilled, motivated and healthy workers. It is on this last point which much of this report focuses.

Despite the benign economic conditions, the health and well-being of the Czech workforce has given cause for concern for a number of years, and these concerns will continue in the light of both the economic downturn and of the ageing of the Czech workforce.
A number of other indicators suggest that workforce health will remain an important priority for policy-makers and employers for the foreseeable future:

- The average duration of incapacity for work is growing for almost all registered diagnoses. Over a ten year period between 1994 and 2004, the average duration of incapacity for work grew by up to ten calendar days – on average there was a year-on-year growth rate of four per cent (Eurofound, 2007b).
- At the end of 2007, the Ministry of Labour and Social Welfare registered in total 354,878 unemployed people. Almost 20 per cent (56,022) were people with disabilities (Šiška, 2007).

- In 2007, the number of newly reported occupational diseases was 1,228,78 cases more than in 2006. The cause of this growth was a marked increase in occupational diseases caused by physical factors, by 31 per cent. (Institute of Health Information and Statistics of the Czech Republic, 2008b).
- There has been a growth in the number of cases of musculoskeletal and connective tissue diseases. In 1995 the average number of absence days as a result of these illnesses amounted to 38.9; less than ten years later, that number had increased to 53 days. (Eurofound, 2007b.) In 2007, that figure was still high at 51.8. (Institute of Health Information and Statistics of the Czech Republic, 2008b).
- In 2007, of the 61,057 total number of cases of incapacity for work per 100 000 sickness insured, diseases of the musculoskeletal system and connective tissue accounted for 11,295 cases per 100,000 sickness insured. (Institute of Health Information and Statistics of the Czech Republic, 2008b).

2.2 MSDs: The European context

In the European Union (EU) context, concern in the European Commission and among the social partners over the prevalence and impact of work-related MSDs has been growing for several years. Chronic musculoskeletal pain (CMP) is estimated to affect 100 million people in Europe (Veale, Woolf and Carr, 2008), MSDs affect more than four million workers in the EU and account for about half of all work-related disorders in EU countries (European Trade Union Institute, 2007), representing an estimated cost to society of between 2.6 and 3.8 per cent of gross national product (GNP). The fourth European Working Conditions Survey (EWCS) published by the European Foundation (Parent-Thirion, Fernandez Macias, Hurley and Vermeylen, 2007) has shown that 24.7 per cent of workers across the EU experience backache and 22.8 per cent muscular pain. Indeed, 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. If the European, knowledge-based economy is to recover and compete against the US and the growing economies of Asia the health and productivity of the EU workforce must be a policy priority. This report looks at the Czech Republic in this wider EU context and assesses where it is doing well and where it has challenges to confront.

2.3 Objectives of 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 the Czech Republic? 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?
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 draw together the evidence on the nature, extent, impact and costs of MSDs to the Czech 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 European studies and surveys to examine the prevalence and costs of MSDs in the working age population in the Czech Republic.
3. Expert interviews: We have conducted interviews with Czech experts across a number of disciplines (including occupational health, and rheumatic disease) 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 (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.

Together, these MSDs illustrate the effects of conditions from which a significant number of Czech workers may report at any one time. Improving our understanding of the effects of these conditions, how staying in work can be beneficial, and what might be done to alleviate their impact, can yield significant social and economic benefits.

2.4 A note on definition

In the absence of a consensus on a clinical definition of many MSDs, navigating the literature on their prevalence, incidence, diagnoses, epidemiology, treatment and cost to Czech society is a difficult task. The lack of standardisation and validation of the terminology and classification of MSDs is one of the reasons for the contradictory findings in the literature regarding the diagnosis, epidemiology, treatment and rehabilitation of these conditions (WHO Scientific Group, 2003). Some clinicians differentiate between ‘musculoskeletal conditions’ and ‘musculoskeletal disorders’. The former refers to all clinical conditions affecting the musculoskeletal system and the latter, to borrow a definition from the ETUI (European

Trades Union Institute, 2007), meaning 'any affliction of the musculoskeletal system that appears at work and causes discomfort, difficulty or pain when performing work'.

In the Czech Republic, the (Eurofound, 2007b) the following MSDs are used to classify cases of incapacity related to MSDs::
Inflammatory polyarthropathies

- Arthrosis
- Systematic connective tissue disorders
- Cervical disc disorders and other intervertebral disc disorders
- Deforming and other dorsopathies excluding intervertebral disc disorders, spondylpathies
- Soft tissue disorders
  Other disorders of the musculoskeletal system and connective tissues.

However, monitored musculoskeletal disorders include compressive neuropathies (eg, carpal tunnel syndrome, cubital tunnel syndrome, and other peripheral mononeuropathies), arthroses, epicondylitis, tendonitis, bursitis etc.[a]

2.5 Structure of the report

This report is structured as follows:

- Section Three examines the extent of MSDs in the Czech Republic and the impact they have on productivity and attendance at work, on labour market participation and on the wider Czech economy.
- Section Four reviews the range of interventions, including vocational rehabilitation, which can improve job retention and labour market participation among those with MSDs.
- Section Five sets out our recommendations for employers, employees, GPs, occupational health professionals and for the Czech government.

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[a] Interview: Expert interview

3 Work and MSDs in the Czech Republic

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

1. The availability of data on MSDs in the Czech Republic;
2. The impact that MSDs have on people's ability to work;
3. The impact that work can have on MSDs;
4. The wider economic and social impact of MSDs in the Czech Republic.

We begin by looking at data quality.

3.1 The data context

The main source of data relating to MSDs in the Czech Republic is the Institute of Health Information and Statistics of the Czech Republic. It produces annually the report Health Care and Health Services in the Czech Republic and the Czech Health Statistics Yearbook. The former outlines, for example, trends in occupational diseases, statistics on incapacity as a result of MSDs and number of days of hospitalisation as a result of MSDs.

In addition, there have also been some studies into MSDs in general, such as Pavel Urban's MSDs in the Czech Republic (Urban, n.d.), a study on those with ankylosing spondylitis (Forejtová et al, 2008) as well as research into rheumatoid arthritis, juvenile idiopathic arthritis and gout (Hanova et al, 2006).

Although the European Foundation for the Improvement of Living and Working Conditions (Eurofound) has repeatedly found it difficult to build a reliable statistical portrait of MSDs in the Czech Republic, some information outlining incidences of MSDs and trends have been obtained (Parent-Thirion et al, 2007). However, it is believed that MSDs are under-reported in the Czech Republic (Urban, date?) and when it comes to outlining the exact economic costs of MSDs, information is relatively patchy. As a result:

- It is impossible to be accurate about the economic consequences of MSDs, their productivity impact or their social costs to the nation, to its workers and to their families.
- If, as is likely, the prevalence of MSDs increases as the average age of the Czech workforce increases, the absence of good baseline data today makes forecasting the future impact of MSDs very difficult.
- Poor economic data make it difficult to make a compelling case for action to Czech employers or to Czech policy-makers.
- 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 exact impact of MSDs on the Czech workforce.

Despite this, The Work Foundation is confident that there is sufficient evidence in the Czech Republic to argue strongly for MSDs to be a policy priority in the coming years.

What we do know is that, compared with other EU member states, a relatively high proportion of the Czech workforce, 30 per cent, is at risk of developing MSDs (Urban, n.d.). During 1996-2005, a total of 6,047 cases of occupational MSDs were reported in the Czech Republic, representing approximately 33 per cent of all reported occupational diseases.[b]

Most occupational MSDs in the Czech Republic occur in mining and manufacturing, in craft and related trades among male workers aged 40-55 years. The prevalence of MSDs in males was predictably most pronounced in construction; while with females MSD prevalence was related to education and health care sectors.

Obesity is also a concern in the Czech Republic. Of the total number of diseases followed up in children and adolescents in 2007, 37,720 children aged 0-14 and 25,014 adolescents aged 15-18 experienced endocrine, nutritional and metabolic diseases. Of those, 23,524 children (1601.7 per 100,000 registered patients) and 15,359 adolescents (3026.7 per 100,000 registered patients) were obese or experienced hyperalimentation (Institute of Health Information and Statistics of the Czech Republic, 2008b).

In addition, a decline in the number of children has led to an increase in the proportion of people over the age of 65; there were 102.4 senior citizens per 100 children in 2007,

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[b] Interview: Expert interview

compared with 100.2 in 2006 (Institute of Health Information and Statistics of the Czech Republic, 2008a).

Experience from economies with older age distributions shows that the burden of MSDs can have significant economic and social consequences. The Czech Republic must stand ready to anticipate and manage the almost certain growth in the coming years of what some commentators have called ‘an ill-understood pandemic’ (European Trade Union Institute (ETUI), 2007).

3.2 The impact of MSDs on ability to work

The impact of MSDs on individuals and their ability to work varies significantly from person to person. Attempts to measure relative work disability differ according to methods of data collection, respondent selection and definitions of work disability. Work disability usually refers to cessation of employment, reduced working hours or claiming of disability benefits. These estimates rarely include estimations of lost productivity whilst at work. MSDs can 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) are reluctant to disclose their condition to their colleagues and managers out of a 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 et al., 2004).

MSDs, as outlined in Section 2, can be non-specific or specific. The effects of specific MSDs are discussed below with particular reference to RA and spondyloarthropathies (SpA). Other, largely non-specific, MSDs are described in relation to two main categories, back pain and work related upper limb disorders. The effects of pain from MSDs can thus impact on the following aspects of one’s performance at work:

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

An MSD can also have effects on safety aspects of work. If concentration or movement is affected by the condition or associated pain then some aspects of work may become unsafe. It must also be noted that, following diagnosis, some treatments can have significant side effects which affect an individual's ability to perform. Where particular hazards such as heavy machinery or driving are involved then safety aspects of job performance will also be of concern.

3.2.1 Back pain

Back pain is a very common complaint in the Czech Republic, though good data on prevalence is not collected systematically. The fourth EWCS (Parent-Thirion et al., 2007) shows that 39 per cent of Czech workers surveyed reported work-related back pain, the problem most often mentioned. In the vast majority of patients with back pain no specific diagnosis is given.

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 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 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 factor as they are strongly associated with the progression of back pain from an acute to a chronic condition that affects two to seven per cent of people (Burton, 2005), and to disability (Burton, 2005; Bekkering et al., 2003).

3.2.2 Work-related upper limb disorders

According to the fourth EWCS (Parent-Thirion et al., 2007), 38 per cent of Czech workers reported that they had experienced muscular pain in their neck, shoulders and upper limbs any additional prevalence studies]. WRULDs are MSDs affecting the upper part of the body caused or aggravated by work and the working environment. However, there is 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 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. 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.

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 (RSI), 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.

3.2.3 Rheumatoid arthritis

RA is an example of a specific MSD. It is a form of inflammatory arthritis with a prevalence of between 0.3 per cent and one per cent in most industrialised countries (WHO Scientific Group, 2003). Data on the prevalence of rheumatoid arthritis derive largely from studies performed in the USA and Europe. One recent estimate is that there are 68,000 people with RA in the Czech Republic (Lundkvist, Kastäng and Kobelt, 2008). The disease affects people of any age, although peak incidence is in the mid age range of the working age population, between the ages of 25 and 55 years. Epidemiological studies have shown that RA shortens life expectancy by around 6-10 years.

In addition, Czech data reveals that the annual incidence for rheumatoid arthritis was 31 per 100,000 adults aged 16 or above. The prevalence rate of rheumatoid arthritis was shown to be 610 per 100,000 among adults aged 16 and over.[c]

Table 3-1 reveals the number of full and partial disabilities as a result of rheumatoid arthritis (RA) compared with the total number of disabilities.

Table 3-1 Reveals the number of full and partial disabilities as a result of rheumatoid arthritis (RA) compared with the total number of disabilities.

Year	2003	2004	2005	2006	2007
New invalidities	48554	50441	46184	48925	50286
Full	25544	26356	3613	24207	23354
Partly	23010	24088	2571	24718	26932
Of these total RA cases	509	614	56	594	611
Full	195	236	89	193	179
Partly	314	378	67	402	432

These are figures compare the number of RA invalidities compared with the total number of new invalidities (full/partly)

Source: Data provided by an expert interview

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[c] Expert interview

The exact cause of RA is unknown. 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). 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.

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 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.

The effects of the disease can therefore make it difficult to complete everyday tasks, often forcing many people to give up work. Work capacity is affected in most individuals within five years (WHO Scientific Group, 2003). One 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 (median) of 39 days (Burton, Morrison, Maclean and Ruderman, 2006). Young et al. (2002) reported that 22 per cent of those diagnosed with RA stopped work at five years because of their RA. However, in some cases the condition itself is not the main or only cause of having to leave work. Indeed Young et al. (2002) found a further group of respondents who stopped work due to a combination of RA and other personal factors, giving an estimate of 40 per cent of those with RA withdrawing from the workforce because of their condition.

3.2.4 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).

Recent research on the frequency of SpAs across the European population concludes that the prevalence has long been underestimated, and SpAs may have a similar prevalence rate to RA (Akkoc, 2008).

Ankylosing spondylitis (AS) 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).
The annual incidence of ankylosing spondylitis in the Czech Republic is estimated to 8.5 per 100,000 adults[d]. The prevalence of the disease is 118.9 per 100,000 adults.
A study aiming to evaluate the factors that influence the health status and disability of people with AS in the Czech Republic found that of the 1,008 respondents with AS, full disability had been awarded to 30 per cent at some point during their disease; 27 per cent reported receiving full disability pension for 10 or more years; while 45 per cent were receiving or had previously received partial disability pension. Receiving disability pension was more frequent among men (64 per cent) compared to women (56 per cent.) (Forejtová et al, 2008).

A project looking into the quality of life of people with AS was also carried out, 502 respondents, calculated that two per cent of the Czech population had AS. It revealed that 31.8 were receiving full disability benefit. How individuals spent most of their time was also examined. This showed that, of the respondents, 10 per cent spent their working day in a sitting position; 33.4 per cent sitting and walking, 13.8 per cent did not carry out difficult physical work, 30.5 per cent carried out medium heavy labour, while 11.1 per cent were involved in heavy labour.[e] Table 3-2 shows the invalidity rate of AS cases.

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[d] Expert interview

[e] Expert interview

Table 3-2 AS invalidities compared with total invalidities.

Year	**2003**	**2004**	**2005**	**2006**	**2007**
New invalidities	48554	50441	46184	48925	50286
Full	25544	26356	3613	24207	23354
Partly	23010	24088	2571	24718	26932
Of these total AS cases	277	292	42	13	285
Full	122	114	81	20	113
Partly	314	378	367	402	432

These are figures compare the number of AS invalidities compared with the total number of new invalidities (full/partly)

Source: Ministry of Labour and Social Affairs, 2009

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 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 et al., 2001).

Recent research has provided evidence that physical health related quality of life of people with RA (Chorus, Miedema, Boonen and van der Linden, 2003) and AS (Gordeev et al., 2009) was positively influenced by work.. Chorus et al.'s conclusion was 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. The extent to which the workplace can have a positive or negative effect on development of MSDs is discussed below.

Psoriatic arthritis (PsA) is a form of joint inflammation affecting between 0.2 and 1 per cent of the general population (Wallenius et al., 2008) and between 10 and 20 per cent of individuals with psoriasis.

In the Czech Republic the annual incidence of PSA was found to be 4.6 per 100,000 adults aged 16 and over; prevalence of PSA was shown to be 62 per 100,000 adults[f].

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) are 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 PsA from RA. 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

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[f] Expert interview

to the general population has also been reported among people with PsA (Wallenius et al., 2008).

3.3 The impact of the workplace on MSDs

The risk factors for MSDs are wide ranging. Whilst there is broad consensus among experts that work is a risk factor for MSDs, non-work activities such as sport and housework can contribute to musculoskeletal strain. Some studies, for example, have noted that a higher prevalence of musculoskeletal pain among working women may be linked to the fact that women are responsible for doing the majority of housework (Punnett and Wegman, 2004). Intrinsic risk factors also have a part to play in the onset and deterioration of MSDs. Some intrinsic factors can be altered, others, such as genetic predisposition, cannot.

One area of concern in the Czech Republic is the growth of obesity – a risk factor for bone and joint conditions (as well as cardio-vascular disease and diabetes). Of the total number of diseases followed up in children and adolescents in 2007, 37,720 children aged 0-14 and 25,014 adolescents aged 15-18 experienced endocrine, nutritional and metabolic diseases. Of those, 23,524 children (1601.7 per 100,000 registered patients) and 15,359 adolescents (3026.7 per 100,000 registered patients) were obese or experienced hyperalimentation (Institute of Health Information and Statistics of the Czech Republic, 2008b). The incidence of obesity and hyperalimentation in children showed an increase on the previous year: in 2006, of the 36,403 children experiencing endocrine, nutritional and metabolic diseases, 22,262 were obese or experienced hyperalimentation, 1503.1 per 100,000 registered patients. (There was no data for 2006 on obesity in adolescents for 2006.) (Institute of Health Information and Statistics of the Czech Republic, 2007).

Table 3-3 summarises the intrinsic risk factors for non-specific MSDs.

Table 3-3 Summary of intrinsic risk factors for non-specific MSDs

Intrinsic factors
• Obesity, height
• Spinal abnormalities
• Genetic predisposition
• Pregnancy
• Psychosocial stress: self-perception
• Health beliefs: locus of control, self-efficacy, perception of disability and expectation
• Family stress
• Psychological stress: somatisation, anxiety and depression
• Ageing

Source Adapted from WHO Scientific Group (2003)

In terms of evidence and risk factors for the impact of work on MSDs a distinction needs to be made between 'work-related' disorders and 'occupational' disorders (Punnett and Wegman, 2004). Certain MSDs are recognised as occupational diseases by some European governments, such as wrist tenosynovitis, epicondylitis of the elbow, Raynauld's syndrome or vibration white finger and carpal tunnel syndrome (Eurostat, 2004). As such, the fact that work can cause and contribute to these conditions is widely recognised and the use of assessments of workplace risk to reduce the incidence of these conditions is well established.

It is clear that work is not the cause of rheumatic diseases such as RA and SpAs, though there is evidence that physical work demands, lack of support, self-stigma and lack of flexibility over working time can each make job retention or return to work more difficult (der Tempel and van der Linden, 2001; Gignac et al., 2004).

The evidence linking other non-occupational MSDs and work is not conclusive and attributing cause and effect between specific aspects of work and particular parts of the body is difficult. However, many of the established risk factors that may contribute to the development of non-specific MSDs can be encountered at work; even if work does not cause a condition it may have an impact on it. Moreover, if we consider risk factors beyond the physical, then the impact of the workplace on MSDs is likely to be much greater.

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

- 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).

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.

Many jobs involve activities that can constitute a risk factor for MSDs. According to the EWCS, 17 per cent of European workers report being exposed to vibrations from hand tools or machinery for at least half of their working time, 33 per cent are exposed to painful or tiring positions for the same period, 23 per cent to carrying or moving heavy loads, 46 per cent to repeated hand or arm movements and 31 per cent work with a computer (Parent-Thirion et al., 2007).

Much of the attention that employers pay to the issue of MSDs and the impact of the workplace on their onset or deterioration is driven by a concern to avoid or limit litigation and ensure that they are fulfilling their duty of care, by performing workstation assessments and giving guidance on manual handling, for example. However, this neglects a wider issue that other work associated factors can also contribute to MSDs. These aspects are often missed out in the literature and advice on dealing with health and safety. Even where ‘stress’ is mentioned, the connection between psychosocial factors and physical conditions is omitted, reinforcing the primary focus on safety.

Generally there is an increased risk of injury when any of the physical risk factors mentioned above are combined, or adverse psychosocial factors, personal or occupational are present (Devereux, Rydstedt, Kelly, Weston and Buckle, 2004). Psychological and organisational 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 employee’s belief that work itself produces pain precedes sickness behaviour and is a risk factor for chronic work disability (Werner, Lærum, Wormgoor, 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.

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).

3.4 The wider economic and social impact of MSDs

The effect that MSDs can have on individuals’ ability to work and the time they may require to be absent from work means that MSDs have significant associated costs to the individual, the family, the employer and the wider economy. Calculating the exact costs is not straightforward (Lundkvist et al., 2008). Several factors need to be considered, and obtaining accurate, reliable and consistent figures is almost impossible. However, existing figures on the economic impact of MSDs based on conservative approximations show that MSDs are a significant economic burden to the Czech Republic.

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 healthcare sector and non-medical costs occurring in other sectors (Lundkvist et al., 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 Scientific Group, 2003).

The debate about which cost categories to include in economic analysis of the ‚burden' of MSDs to Czech society as a whole reflects a wider set of challenges in processes such as Health Technology Assessment (HTA). HTA is a process that informs decisions on the allocation of money across health care systems. HTA is now widely practiced around the world, however, the approach taken, and the influence of HTA within policy-making differs both across and within countries. The perspective taken in these decisions can vary:

- In theory, Governments across Europe aim to take the **societal perspective** – which includes consideration of the impact of a healthcare intervention on the patient's ability to work, the economic and productivity effects and the consequences for transfer payments such as social welfare costs;
- In reality, we see that a **health care system perspective** is also taken by some countries – covering only those costs and benefits of immediate relevance to the health care system (Bevan, 2012).

In Czech Republic no official HTA assessment process including societal perspective of evaluation is currently in place. New drugs are evaluated under the rules of cost-effectiveness from payer´s perspective. Non-drug technologies are not evaluated according to HTA principles.

According to Scientific Pharmacoeconomic Guideline published by Czech Pharmacoeconomic Society in 2011, welfare benefits could be assessed as indirect costs, but there are relevant from a governmental perspective. If the societal perspective is applied, these costs representing transfer payments could not be include into pharmacoeconomic analysis. Generally the guideline recommends applying the societal perspective. Costs representing wider perspectives (i.e. societal) could be separately presented as a part of health economic analyses (Czech Pharmacoeconomic Society, Guideline for

Pharmacoeconomic Assessment in the Czech Republic, 2011; State Institute for Drug Control, Assessing cost-effectiveness, 2013).

Cost of MSDs 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 (the year costs were calculated is also a factor not least because treatment processes can change);
- Change in healthcare financing systems;
- Incidence or prevalence based estimates of costs.

Intangible costs are rarely included in cost calculations as it is almost impossible to properly express the intangible costs in monetary terms (Sieper et al., 2002). However, the evaluation of intangible costs gives useful information regarding the price paid by people with MSDs in terms of quality of life (QoL), and QoL measures should be used as further indicators to measure the effectiveness of interventions (Leardini, Salaffi, Montanelli, Gerzeli and Canesi, 2002).

Presently, two measures widely used are:

1. **Disability adjusted life years (DALYs)**. This is a measure of the overall disease burden which attempts to tally the complete burden that a particular disease exacts. Key elements include the age at which disease or disability occurs, how long its effects linger, and its impact on quality of life. One DALY, therefore, is equal to one year of healthy life lost. For example, RA accounted for 0.69 per cent of all DALYs lost in the Czech Republic (Lundkvist et al., 2008).
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 the subject of debate, but have become accepted as helpful in making comparative judgements across medical conditions and internationally.

3.4.1 Direct costs

As mentioned above, cost-of-illness estimates require input from a number of different factors, and great variation is found across different studies. For low back pain (LBP), 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 healthcare costs are generated by the 10 per cent of those with chronic back pain and disability. For RA, although direct healthcare costs have been relatively small in the past (Lundkvist et al., 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 et al., 2002).

Direct costs, compared to indirect costs, usually represent a minority of the total costs (Dagenais et al., 2008; Kavanaugh, 2005; Kobelt, 2007; Lundkvist et al., 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 et al., 2008).

Table 3-4 shows some of the specific direct costs associated with musculoskeletal conditions (MSCs) in general, and RA and low back pain in particular, as found in the literature (Woolf, 2004 as cited in The Bone and Joint Decade, 2005; Kavanaugh, 2005; Dagenais et al., 2008).

Table 3-4 Direct costs associated with MSCs, RA, and LBP

	MSCs	RA	Low back pain
Healthcare costs	Physician visits Outpatient surgery Emergency room Rehabilitation service utilisation (physiotherapist, occupational therapist, social worker) Medications Diagnostic / therapeutic procedures and tests Devices and aids Acute hospital facilities (with and without surgery) Non acute hospital facilities	Physician visits Other health professional visits Outpatient surgery Emergency room Medications (including administration costs) Imaging Laboratory monitoring Toxicity (diagnosis, treatment) Medical assist devices Hospitalisations (related to RA or its treatment): orthopaedic surgery, extended care / rehabilitation facilities	Physician visits Chiropractic visits Outpatient surgery Emergency room Physical therapy and rehabilitation service utilisation Complimentary and alternative medicine Medications Imaging
Personal costs	Transportation Patient time Carer time		
Other disease related costs	Home healthcare services Environmental adaptations Medical equipment Non-medical practitioner, alternative therapy		Mental health services

Source: Woolf, 2004 as cited in The Bone and Joint Decade 2005; Kavanaugh, 2005; Dagenais et al., 2008

Calculations of the costs of treatment tend to evaluate the clinical costs and benefits of treatments. The wider impact of people with MSDs remaining in work or returning to work early extends to the biopsychosocial and economic effects to the individual of being in work and to the reduced costs to the Czech Social Security Administration and other government departments. Taking a wider joined-up approach to an analysis of costs of treatments for illness in general and MSDs in particular may provide a different and perhaps more realistic assessment of the costs and benefits of treatments.

Data for 2011 reveals that in the Czech Republic, diseases of the musculoskeletal system and connective tissue accounted for a total number of 175,938 cases of hospitalisation, out of a total number of 2,195,676 cases. The average duration of stay in hospital for people with diseases of the musculoskeletal system and connective tissue amounted to 7.4 days in total in 2011. This is higher than the total average stay in hospital of 6.7 days. (Institute of Health Information and Statistics of the Czech Republic, Hospitalization in hospitals in the CR 2012).

In 2011, the average cost of one hospitalisation amounted to CZK40,290 (1,331 euros) and the average cost of one day of stay in hospital in 2011 cost CZK5,142 (209euros) (Institute of Health Information and Statistics of the Czech Republic, Economic information on health care 2012. Based on the above figures, the average stay in hospital of a person with MSDs of 7.4 days costs CZK 31,623 (1,549 euros).

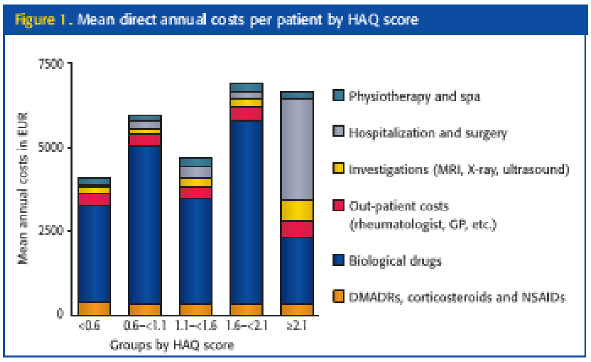
Total costs which were spent on drugs due to treatment of musculoskeletal system amounted to CZK2,798,000 (113,888 euros) in 2011(Institute of Health Information and Statistics of the Czech Republic, Economic information on health care 2012).

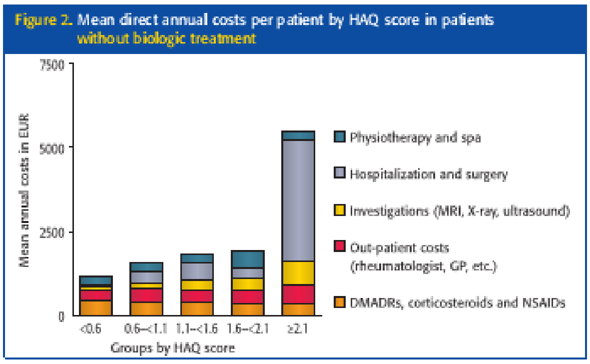
Health Insurance companies expenditure on health care of patients with some disease of the musculoskeletal system and connective tissue CZK10,659,000 (433,857 euros) in 2010 (Institute of Health Information and Statistics of the Czech Republic, Economic information on health care 2012).

Petříková et al. (2011) and Klimeš et al. (2011) estimated cost-of-illness – moderate and severe psoriasis and psoriatic arthritis, respectively on the bases of 6-months retrospective questionnaire which collected data about direct costs, productivity costs (see below) and on QoL. Mean annual direct costs per patient with moderate to severe psoriasis and/or psoriatic arthritis were calculated to CZK73,043 (2,987 euros) and mean annual direct costs per patient with psoriatic arthritis were CZK75,498 (3,088 euros). Major direct costs driver was phototherapy (47% of direct costs), systematic treatment (17%) and in-patient care (15%). Out-patient care, spa, local treatment (corticosteroids and other) and complement made up 4%, 3%, 9% and 5% of direct costs.

The direct cost and productivity costs (see below) attributed to rheumatoid arthritis were calculated by Klimeš et al. (2011c) using a retrospective cross-sectional study. The estimate of direct medical costs was based on prevalence-based cost-of-illness method reviewing individual patients'medical records for patients undergoing treatment for rheumatoid diseases. Mean annual medical direct costs were CZK145,241 (5,743 euros) per patient. Mean annual medical direct costs were also stratified according to HAQ score (Health Assessment Questionnaire, <0.6, 0,6-1.1, 1.1-1.6, 1.6-2.1, ≥2.1) and accounted for CZK103,100 (4,076.7 euros), CZK150,531 (5,950.2 euros), CZK118,643 (4,691.3 euros), CZK175,313 (6,932.1 euros), and CZK170,128 (6,727.1 euros), respectively for each HAQ-group (Figure 3-1). Direct costs were highly dependent on the number of patients who received biological drugs in every group - biological therapy amounted to 29-79% of the overall direct costs. To clarify the cost structure, an analysis excluding patients using biologics was performed. There was a mild decrease of the mean costs of pharmacotherapy with increasing HAQ score, while the hospital costs increased rapidly - for the patient subgroup with a HAQ score ≥2.1 hospital costs represent almost 57% of the total direct costs of the group (Figure 3-2).

Figure 3-1 Mean direct annual costs per patient by HAQ score
Figure 3-2 Mean direct annual costs per patient by HAQ score without biologic treatment





Source by Klimeš et al. 2011c

The burden of anlykosing spondylitis was investigated by Petříková et al. (2013) in two cross-sectional studies Beda I (2005) and Beda II (2008). The methodology used was Cost-of-Illness prevalence-based analysis bottom-up approach. Average direct costs per patient in the sample per year were estimated at CZK45,300 (1,812 euros) (Beda I) and CZK64,700 (2,588 euros) (Beda II). The largest direct cost burdens were spa procedures (45.3 % - Beda I, 31.2 % - Beda II) and biological drugs (34.2 % - Beda I, 52.8 % - Beda II). The remaining component of direct costs were in-patient care (0,9% and 2%) and out-patient care (1,5% and 1%), physiotherapy (3,8% and 4,8%), medical devices (0,1% and 0%), orthopaedic surgery (2,8% and 2,1%), lab tests and diagnostics (2,6% and 2,3%) and other medication (5,2% and 3,7%). Direct costs add up to approximately 40 % of total costs.

3.4.2 Indirect costs

There are two main types of indirect cost most commonly measured in association with ill health in employees. These are absence from work (‘absenteeismus’) and what is termed ‘presenteeism’, or loss of productivity in an employee while they are at work with an illness or incapacity. Table 3-5 gives an overview of general concepts and characteristics of absenteeism and presenteeism related to productivity loss. Presenteeism is extremely difficult to measure. Currently most estimates of indirect costs are based on absence data in international estimation. However, research on presenteeism suggests that presenteeism leads to greater losses in productivity compared with absenteeism.

Table 3-5 Concepts, characteristics of absenteeism and presenteeism related to productivity loss

Absenteeism	Presenteeism

- Currently working (full-time)
- Currently working, reduced amounts of time (part-time)
- Complete work cessation – permanent •
  - Work disabled
  - Not working due to arthritis
  - Not working due to other health problems
  - Not working for other reasons (eg early retirement, lifestyle choice, stopped work voluntarily)
  - Unemployed, looking for work
  - Retirement due to age
- Complete work cessation – temporary
  - Temporary work disability
  - Sick leave
- Occasional work loss
  - Days missed
  - Hours missed from work
	- Degree/percentage of impairment
	- Proportion/percentage of time
	- Frequency of impaired work
	- Overall work performance
	- Self versus others' performance
	- Quality and quantity
	- Efficiency/percentage being effective
	- Effect on well-being
	- Degree of agreement with work limitation
	- Amount/level/degree of difficulty
	- Number of difficulties
	- Time missed due to delays in starting work
	- Number of hours

Source: Escorpizo et al., 2007

It is worth noting some of the limitations of data collected on absence from work. The recording of sickness absence is rarely accurate. Different organisations have different ways of recording absence: in some cases employees complete records themselves, in other cases managers must record the absence for them. Employer surveys require HR professionals to complete the survey about their organisation from their records, though we found no recent Czech examples. Self-report surveys ask individual employees to complete the survey with respect to a particular reference time, for example, the previous two to four weeks (for example, the Quarterly National Household Survey). Each method has limitations, for example with the self-reported surveys, employees might report sickness on days when they were not due to work anyway. With employer surveys the responses are limited by the quality of the absence records employers keep (for example, employees do not always record absence accurately or categories for recording causes are not adequate). Employer surveys are also subject to response biases where only organisations with good methods to measure absence are likely to be able to respond quickly to the survey request. In all cases records and reports are subject to biases. Managers, for instance, tend to underreport their own absence. Except for absenteeism is possible to measure also presenteeism. . There are now a number of instruments for measuring productivity losses attributable to ‘presenteeism’, some of which are disease-specific – see Johns (2010) for a review.

Not only are indirect costs associated with sickness absence and presenteeism, but indirect costs are also associated with early retirement among people with MSDs (Dagenais et al., 2008; Alavinia and Burdorf, 2008). In the literature, high variation is found about early retirement rates depending on the country, the year of the study and the sample included. However, in most studies it varies between 30 and 50 per cent (Lundkvist et al., 2008).

Considerable debate exists on the estimation of indirect costs and which approach to use. The two most frequent approach are the human capital and friction cost approach (Koopmanschap et al. (1996), van den Hout (2010)). The results of studies shows that the friction cost approach provides a considerably lower estimation of the indirect costs, but they are still higher when compared with the direct costs for the working age population.

Most people with MSDs do not become disabled. In fact, whilst there is a relatively high background prevalence of MSDs, most people (even those with diagnosed conditions) continue to work (Waddell and Burton, 2006a). However, there are still potentially significant costs associated with lost productivity where people remain at work but in pain or distress while awaiting intervention or workplace adjustments. As discussed in the previous section, the indirect costs of ill health extend beyond lost productivity of the individual, often impacting on the labour participation of family members (Pugner, Scott, Holmes and Hieke, 2000). A further extension from work-related indirect costs, are additional costs associated with hiring household help (Kavanaugh, 2005) and provision of informal care. Although informal care is difficult to identify, quantify and value (what is considered ’informal care’ by some people may be considered ’normal’ by others), Lundkvist et al. (2008), estimated that for RA the annual cost of informal care in Europe was equal to 2,562 euros per patient. This figure varies greatly according to the services provided by the healthcare or social systems and the characteristics of the labour market in each country. Lundkvist et al. (2008) estimated the total cost of informal care for people with RA to be 968 euros annually.

In 2011, of the total number of cases of incapacity for work per 100,000 sickness insured in the Czech Republic – 30,349 for men and 33,623 for women (31,953 in total) – diseases of the musculoskeletal system and connective tissue accounted for 6,223 cases of males per 100,000 sickness insured and 12,318 cases of females per 100,000 sickness insured. In total, 5,876 cases per 100,000 sickness insured were as a result of diseases of the musculoskeletal system and connective tissue. Table 6 presents number of cases of incapacity for work per 100,000 sickness insured persons by groups of diseases (Health Care and Health Services in the Czech Republic 2011, Institute of Health Information and Statistics of the Czech Republic, Terminated cases of incapacity for work for disease or injury, 2012).

In 2011, the average number of days of incapacity for work associated with diseases of the musculoskeletal system and connective tissue was 67.0 for males, 71.5 for females and 69.1 in total. These numbers are higher compared with the average duration of one case of incapacity for work in days of all diseases: 43.4 for males, 46.0 for females; and 44.7 in total. Table 3-6 shows average duration of one case of incapacity for work (in days) by groups ofdiagnoses. (Institute of Health Information and Statistics of the Czech Republic, Terminated cases of incapacity for work for disease or injury, 2012).

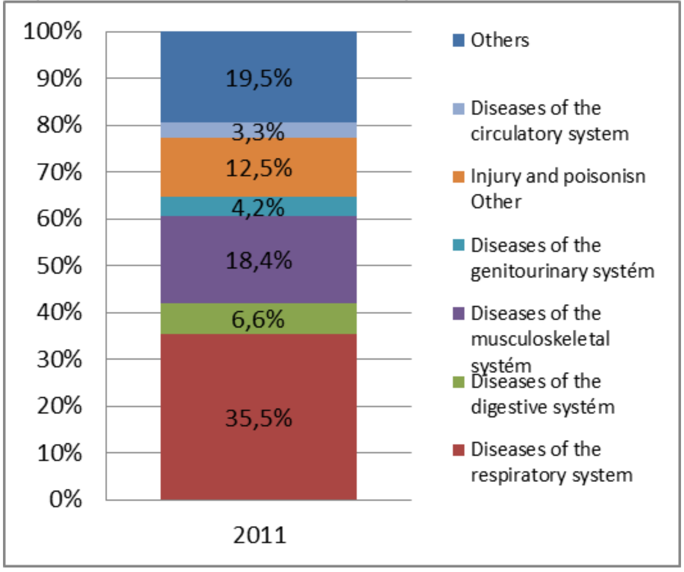
Table 3-6 Number & Duration of Incapacity by Diagnosis - 2011

2011	**Number of cases/100,000**	**Duration (days)**
Diseases of the musculoskeletal system and connection issue	5876	69.1
Inflammatory polyarthropathies	161	64.8
Arthrosis	468	104.0
Connective tissue disease	11	95.6
Diseases of the cervical intervertebral discs, etc	355	87.8
Other dorsopathies, spondylopathies	3601	63.9
Disorders of soft tissue	764	62.0
Other diseases of the musculoskeletal systém	518	71.8

Source: Institute of Health Information and Statistics of the Czech Republic, 2012.

Figure 3-3 shows that diseases of the musculoskeletal system accounted for 18.4 per cent of cases of incapacity in 2011 (Institute of Health Information and Statistics of the Czech Republic, 2012).

Figure 3-3 Mean percentage of incapacity for work

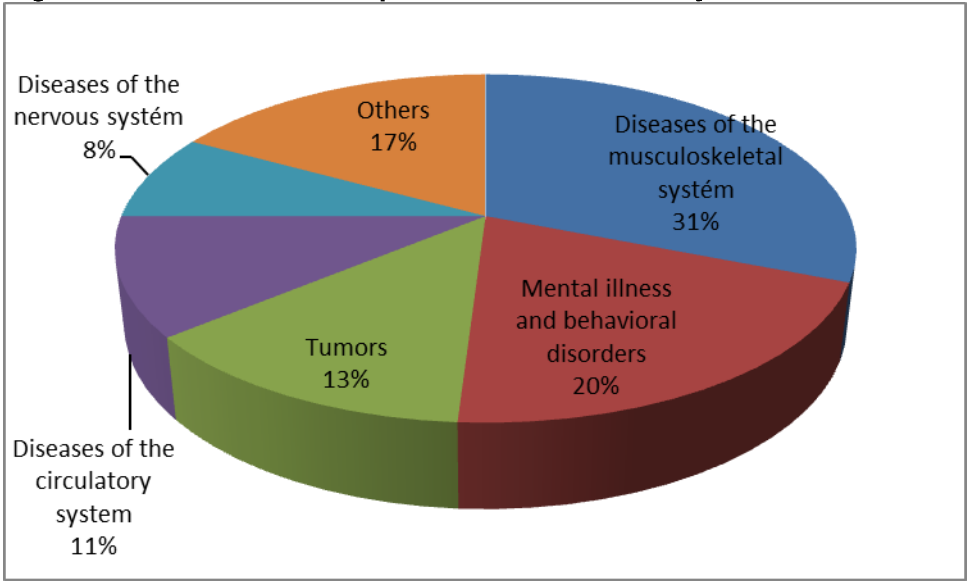


Source: Health care and health services in the Czech Republic 2011.

Diseases of the musculoskeletal system and connective tissue are the most frequent causes

Diseases of the musculoskeletal system and connective tissue are the most frequent causes of disability according to data from Czech Social Security (Figure 3-4). Invalidity is divided into 3 categories depending on seriousness of disease in the Czech Republic. Disability's benefits were paid 42,988 patients with 3rd degree of disability of musculoskeletal system and connective tissue, 20,769 patients with 2th degree of disability of musculoskeletal system and connective tissue and 65,155 patients with 1th degree of disability of musculoskeletal system and connective tissue in 2011. The monthly costs of invalidity benefit were CZK10,853 (443 euros), CZK6,597 (269 euros) and CZK5,039 (206 euros) for the third, the second and the first degree of disability, respectively. It follows that the total costs of disability per year in terms of the social security system are approximately CZK915 million (37 million euros). (Institute of Health Information and Statistics of the Czech Republic, Czech Health Statistics Yearbook, 2012).

Figure 3-4 The most frequent cause of disability



Source: Czech Social Security 2010-2011.

In the Czech Republic there is extensive research on indirect costs – especially productivity costs, which are the most relevant from societal perspective. Productivity costs were estimated among patients with rheumatoid arthritis (RA), ankylosing spondylitis (AS), psoriasis (Ps) and psoriatic arthritis (PsA) on the basis of the friction costs approach using friction period of 130 work-days and an average monthly gross income as the basis of placing a monetary value on productivity loss.

Klimeš et al. (2011b) estimated productivity costs of rheumatoid arthritis. Reduced productivity of patient was assessed using the Work Productivity and Activity Impairment Questionnaire (WPAI: RA) in a cross-sectional study comparing patients treated with biologics and patients on disease-modifying antirheumatic drugs (DMARDs). Patients treated with biologics and patients on DMARDs missed 1.12 and 2.33 hours weekly due to RA, respectively. Percentage impairment while working (presenteeism) due to RA was more than 20% and approximately 40% in patients treated with biologics and DMARDs, respectively. The overall work impairment for biologic and DMRDs patients was almost 40% and 50 %. Average annual productivity costs per patient on biologics and for DMARDs patient were CZK53,160 (2,102 euros) and CZK67,019 (2,650 euros), respectively. DMARDs patients with RA generated by 22% higher productivity costs than patients with RA treated with biologic therapies.

Productivity costs of patients with RA according to HAQ scores were calculated in a retrospective cross-sectional study (Klimeš et al. 2011c), whose direct costs were described above. Productivity costs associated with sick-leave and disability depend on HAQ score were divided into 5 categories (<0.6, 0.6-<1.1, 1,1-<1,6, 1.6-<2.1. ≥2.1). Mean annual productivity costs per patient were CZK12,177 (481.5 euros), CZK29,807 (1178.6 euros), CZK32,060 (1267.7euros), CZK40,100 (1585.6 euro), and CZK53,678 (2122.5 euros), respectively.

Kruntorádová et al. (2011) assessed the impact of ankylosing spondylitis (AS) on work productivity, examined the factors influencing work productivity and estimated the productivity costs incurred by AS in the Czech Republic through a cross-sectional study. The WPAI: AS questionnaire was applied to measure losses of productivity. Work-active patients missed approximately 4 hours per week of work due to AS (absenteeism, 10.8%) and their work performance was reduced by 33% (presenteeism). Overall work productivity loss was 40.7% in work-active patients with AS. Work-disabled patients reported significantly greater loss in overall work impairment of productivity compared to work-active patients, by 35.6%. Work-active patients group revealed lower age, Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and HAQ scores. Absenteeism was weakly correlated with BASDAI and HAQ whereas presenteeism and overall work impairment was moderately correlated with BASDAI and HAQ. All WPAI domains were weakly correlated with age and disease duration. Patients on biological therapies had lower overall work impairment in comparison to patients who were not treated with biologics. Average annual productivity costs per patient were €2,923.

The productivity costs of patients with AS were also calculated in pursuance of studies – Beda I and Beda II (Petříková et al. 2013). Productivity costs were incurred by long and short-term absence from paid work, including days on sick leave, reductions in working time because of AS and early retirement (owing to partial and full disability). Average productivity costs per patients with AS in the sample per year were CZK74,250 (2,970 euros) - Beda I and CZK80,450 (3,218 euros) - Beda II. Full disability, partial disability and absenteeism contributed to productivity costs to the tune of 47,5%, 27,9%, 24,6% in study Beda I and 46,5%, 30,6%, 22,9% in study Beda II.

Other studies have examined the productivity impact of psoriasis and psoriatic arthritis. Petříková et al. (2011) and Klimeš et al (2011) assessed societal burden of psoriasis/psoriatic arthritis and estimated the productivity costs associated with absenteeism and early retirement. Mean productivity costs associated with absenteeisms, partial disability and full disability were CZK6,062 (248 euros), CZK5,872 (240 euros)and CZK 9,519 (389 euros), respectively among patients with Ps/PsA. Mean productivity costs associated with absenteeism, partial disability and full disability were higher by 57%, 82% and 44% in subgroup patients with PsA. The total productivity costs of patients with Ps/PsA and subgroup PsA were CZK21,454 (877 euros) and CZK33,964 (1389 euros), respectively. Klimes et al. (2011) presented productivity costs in more detail, in another study. Losses of work productivity were measured by the WPAI: Psor using a cross-sectional study design. Patients were absent from work for an average of 6.3 hours weekly due to disease, i.e. absenteeism is 14,9%. Presenteism was 36.1%. Work productivity was impaired by 42.8% among work-active patients and 43.9% among all patients including disabled patients. The productivity costs of psoriasis and psoriatic arthritis were CZK86,451 (3,536 euros) and CZK53,760 (2,219 euros), respectively. Average productivity costs were CZK61,845 (2,529 euros) in group of all patients.

Kruntorádová et al. (2012) compared the impact of RA, AS, Ps on work productivity, estimated productivity costs in the Czech Republic using data from WPAI Questionnaire and evaluated the effect of functional status and disease activity of these diagnosis on productivity. Absenteeism for patients with RA, AS and Ps (PsA) was 8.39%, 10.79% and 14.90% (20.32%). Presenteeism was 40.26% for patients with RA, which was greater by 7.29% and 5.83% compared to AS and Ps patients. Presenteeism of patients with PsA was 54.21%. Patients with AS, RA and Ps (PsA) reported overall work productivity loss of 40.85%, 42.92% and 42.82% (59.97%), respectively. Average annual productivity costs per patient with RA, AS and Ps (PsA) were CZK48,380 (1,913 euros),CZK45,750 (1,809 euros) and CZK48253 (1,908 euros) (CZK67,600 (2,673 euros)), respectively. Patient reported outcomes (PROs) as HAQ (Health Assessment Questionnaire) and BASDAI (Bath Ankylosing Spondylitis Disease Activity Index) were identified as major predictors of overall losses of work productivity and productivity cost, respectively. Overall work productivity loss or productivity costs strongly correlated with PROs, whereas correlations with clinical parameters (DAS28 - Disease Activity Score, BSA - Body Surface Area, PASI - Psoriasis Area Severity Index) were weak.

3.4.3 Total costs

Calculating the costs for specific MSDs is fraught with the same difficulties as for MSDs as a whole. The majority of studies estimating the economic burden of RA have provided cost estimates specific to the US population and healthcare system (Cooper, 2000). The cost of

AS to society is less well established (Chorus et al., 2002) as well as the costs of psoriatic arthritis. More research has been done on cost in Canada and other European countries, particularly the Netherlands, France and Belgium, than in the Czech Republic. However, findings across countries with respect to work disability rates are generally not directly comparable given the differences in working terms and conditions, such as the length and conditions of statutory sick pay (Sieper et al., 2002) as well as the methodology of calculation of indirect costs. However, a number of studies have provided data about the cost of MSDs to the Czech Republic.

Lundkvist et al. (2008) estimated that the total cost of treating RA patients in the Czech Republic was 5,924 euros per patient per year, or 401 million euros in total annually. These included medical costs, drug costs, non-medical costs, the costs of informal care and other indirect costs, but do not differentiate between those of working age and those above retirement age. These figures are considerably lower, per patient, than those for other Western European countries (17,153 euros per patient per year) but they are slightly higher when compared with Eastern European countries (4,889 euros per patient per year.)

Klimeš et al. (2011c) estimated the total costs of treating RA in the Czech Republic in a retrospective cross-sectional study. Total costs amount to CZK180,470 (7,136 euros) per patient with RA per year. Total costs are constituted from 80% of direct costs and only 20% of indirect cost associated with sick-leave and early retirement due to RA. The inclusion of the other types of indirect costs could result in an increase the proportion of indirect costs to total costs. Direct costs included drug costs (anti-TNFs, DMARDs, corticosteroids, NSAIDs), out-patient costs related to RA (such as number of office visits by physicians' specialisation, imaging techniques), physiotherapy, spa, surgery and hospital admissions related to RA. Klimeš et al. (2011c) stratified the total costs of RA according to HAQ score. Total costs for group of patients with HAQ score <0.6 were CZK115,272 (4,558 euros), 6.6-<1.1 were CZK180,292 (7,129 euros), 1.1-<1.6 were CZK150,703 (5.959 euros), 1.6-<2.1 were CZK215,420 (8.518 euros), ≥2.1 were CZK223,817 (8,850 euros).

The total costs of ankylosing spondylitis in the Czech Republic was assessed by Petříková et al. (2012) in studies Beda I (CZK119,550 (4,782 euros)) and Beda II (CZK145,150 (5,806 euros). Direct costs and indirect costs add up to 37.9% and 62.1% in Beda I and 44.6% and 55.4% in Beda II, respectively. Indirect costs could be actually higher because are associated only with early retirement and absenteeism but not with presenteeism.

The costs of treating patients with moderate and severe psoriasis with/without psoriatic arthritis and subgroup patients with psoriatic arthritis were calculated on CZK94,497 (3,864 euros) and CZK109,462 (4,477 euros) by Petříková et al. (2011) and Klimeš et al. (2011) . Indirect costs made up 77% of total costs in all group and 69% of total costs in subgroup patients with psoriatic arthritis. Indirect costs were associated with early retirement and absenteeism. Indirect costs increase when including the presenteeism to the calculation.

The limitations of data collection outlined above highlight some of the difficulties encountered in trying to cost the impact of MSDs for employers and society.

3.5 Summary

In this section we have considered the impact that MSDs have on a person's ability to work, both physically, as a result of the condition itself, and from the associated effects, such as loss of concentration from pain. We have also discussed the impact that the workplace can have on MSDs, both at onset and during the development of the conditions. Whilst there are many intrinsic risk factors for MSDs it is clear that the workplace has the potential to expose employees to other risk factors, both physical and psychosocial. Some of the well-established workplace risk factors such as vibrations and workstation ergonomics are already recognised by many employers and assessed in order to minimise their impact. However, the impact of other workplace risk factors such as job quality, are not as widely understood.

We have also highlighted that it is important to distinguish between risk factors for the onset of MSDs and risk factors for chronic illness and disability. 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 (Waddell and Burton, 2006b).

Finally, we have looked at the economic and social impact of MSDs and have discussed the direct, indirect and total costs of MSDs. Unfortunately, total costs estimates as found in the literature do not always take into account the enormous intangible costs borne by people with MSDs. This is due to the difficulty of expressing intangible costs in monetary terms. However, data for RA in particular, point out how direct and indirect costs increase with the progression of the disease. As a consequence, the development of strategies and interventions to stop this progression and ensure that those with MSDs are enabled to enjoy full and productive working lives appears necessary. The next section will discuss for each condition the most common and appropriate interventions outside and within the workplace.

4 Interventions

The impact of MSDs, as we have seen, can be significant to the people living with them, to employers and to society as a whole. Their impact on the workforce has recently started to receive greater recognition. Whilst it is widely acknowledged that early intervention is an essential part of addressing the onset of MSDs and absence caused by these conditions, there is still some way to go before people with MSDs are given the best support possible to remain in work or return to work. Long waiting times for care, certain employer's lack of capacity to deal with sickness, lack of employee awareness about conditions and their management, and mixed messages on the effectiveness of various methods of workplace interventions or return to work programmes are all barriers to making good and healthy work a reality for those with MSDs.

This section looks at the kinds of interventions which are most likely to help workers with MSDs to stay in work, to return to work, to remain productive, to derive health benefits from work and to continue to make a contribution to society.

4.1 The case for early intervention

Ensuring that workers who have MSDs get access to the appropriate treatment and support as quickly as possible must be a top priority for employers and healthcare professionals. 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 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 (although the evidence on the cost-effectiveness of specific return to work programmes is inconclusive).

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

Job retention and return to work programmes are contingent on patients receiving appropriate medical care as quickly as possible. Yet the length of time that it takes to be seen by a medical professional is a complaint that is heard frequently from individuals and employers. Moreover, since GPs are the first point of call for most people with MSDs and the signatory of sick notes, they have a vital role to play in ensuring that patients are able to manage their conditions, and are pivotal in either obstructing or facilitating an individual's return to work.

4.2 The social security regime for the work disabled

It is clear that, in most EU member states, interventions made by the social security system can make a significant difference to citizens of working age with long-term, chronic or work-disabling conditions.

In 2005, the Czech Republic spent 1.1 per cent of GDP on disability benefits and 1 per cent of GDP on sickness programmes (OECD 2009b). Between 2000 and 2006, disability recipiency rates rose slightly between 2000 and 2006 compared with other countries. Between 2000 and 2007, disability beneficiaries rose from 400,000 to approximately 475,000. In 2007, MSDs accounted for almost 40 per cent of all inflows into disability benefits in the Czech Republic. (OECD, 2009b)

The sickness insurance system is intended for people in paid employment in the short-term for example, temporary inability to work due to an illness, injury or quarantine, caring for a family member, pregnancy and maternity or caring for a child) (Ministry of Labour and Social Affairs, 2009).

Sickness benefits are paid from the 15th calendar day of the duration of a temporary inability to work and per calendar day. After the first 14 calendar days an employee whose sickness insurance remains effective will receive salary compensation from their employer. The salary compensation is calculated per working day and, in the case of a temporary inability to work, from the 4th working day (Ministry of Labour and Social Affairs, 2009). An insured person can qualify for a full disability pension provided that they:

- have become fully disabled and have completed the required period of insurance and have not fulfilled conditions for entitlement to old age pension on the date of the beginning of the full disability, or, if they have been awarded a permanently reduced early old-age pension because they have not reached retirement age.

- have become fully disabled as a result of an injury at work or an occupational disease.
- An insured person can also qualify for a partial disability pension if they:
- have become partially disabled and were insured for the necessary period.
- have become partially disabled as a consequence of an injury at work or an occupational disease

People with disabilities also receive a higher degree of protection in the labour market. They may receive vocational rehabilitation, training for a job or specialised retraining courses (Ministry of Labour and Social Affairs, 2009).

The Czech Republic also offers sheltered work positions and sheltered workshops for people with disabilities. A sheltered work position is created by an employer for an individual with a disability based upon a written agreement with the Labour Office. It must be maintained for at least two years from the day specified in the agreement. A sheltered workshop is an employer's work unit in which a minimum of 60 per cent of employees have disabilities. (Ministry of Labour and Social Affairs, 2009).

The Labour Office may award an employer a contribution towards the creation of a sheltered work position and a sheltered workshop. An employer who provides training for disabled individuals could receive the full costs of such training for disabled individuals, from the Labour Office. (Ministry of Labour and Social Affairs, 2009).

An employer whose workforce is comprised of more than 50 per cent of people with disabilities is entitled to a financial contribution. (Ministry of Labour and Social Affairs, 2009). Research reveals that 60 per cent of men and 40 per cent of women with disabilities are active in employment (Siška, 2007).

4.3 Condition-specific interventions

For those with specific musculoskeletal conditions, speedy referral to the appropriate specialist for investigation and treatment is usually vital. Those 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.

4.3.1 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. The limitations imposed by sick notes, statutory sick leave and formalised return to work programmes may serve to reinforce the 'illness' of the patient and can tie employers hands. 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 on 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. The following section provides a brief overview of the biopsychosocial model and outlines the implications that it has for the workforce.

4.3.2 Rheumatoid arthritis

The importance of effective and early treatment of RA in reducing joint damage and disability is now widely acknowledged (Pugner et al., 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 (Scottish Intercollegiate Guidelines Network (SIGN), 2000). One study found that there is 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 et al., 2006).

Clinical evidence is also growing which demonstrates that anti-TNF 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, 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.

4.3.3 Spondyloarthropathies

Prompt referral to specialists for confirmation of diagnosis and the start of treatment is also essential for those with AS and other rheumatic conditions. Since (similarly to RA) there is no cure for AS, 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. The prescription of non-steroidal anti-inflammatory (NSAIDS) or anti-TNF drugs coupled with regular physiotherapy forms the current basis for the treatment of AS.

As AS 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).

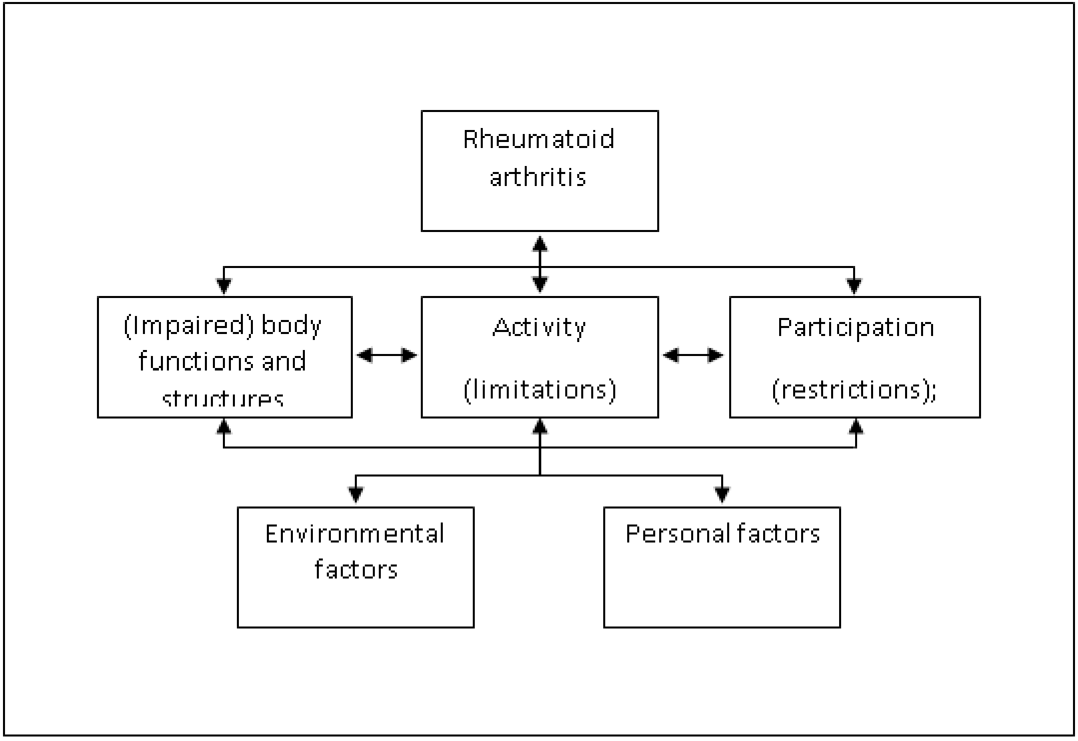
4.4 The biopsychosocial model and work

The biopsychosocial model advocates that clinicians, occupational health professionals and others should assess the interplay between the **biological** (eg disease, joint damage), the **psychological** (eg disposition, anxiety) and the **social** (eg work demands, family support). Clearly, the psychological disposition and behaviour of a patient can have a significant impact on the way a physical 'injury' (such as back pain) is approached by a patient. 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). It is evident that the interaction of the biological, psychological and social dimensions can have a significant impact on the development, progression of, and rehabilitation from, a musculoskeletal condition.

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). On the issue of social support, studies have shown that limitations in functioning attributable to MSDs can stress family systems and lead to family conflicts if the patient is unable to perform normal 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 the patient to adopt a 'disabled' role (Kerns, Haythornthwaite, Southwick, and Giller, 1990; Block, Kremer, and Gaylor, 1980).

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. In Figure 4-1, below, the authors highlight how wider environmental and personal factors enhance the explanatory power of the *International Classification of Functioning, Disability and Health (ICF)* in the case of work disability and RA.

Figure 4-1 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 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* (ICF) which has been widely embraced as an authoritative guide for vocational rehabilitation (WHO Scientific Group, 2001).

An example of 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 (CBT) method of functional behaviour analysis according to which risk factors for long-term sick leave due to musculoskeletal symptoms were identified in 4 different domains: the community, the workplace, the family/spare time and the healthcare 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 significantly reduce sick leave and social security expenditure already 4 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.

4.5 The role of employers

4.5.1 Awareness of conditions and their management

Many employers remain unaware of the nature of MSDs, both in terms of the immediate impact on functional capacity at work and, where relevant, the manifestations and progression of the conditions. For example, employees with RA or SpA may be susceptible to periodic ‘flares’ of inflammation and severe pain followed by fatigue and possible depressed mood. Unless employers are aware that these symptoms are expected or ‘typical’, they can adopt an unhelpful or over-cautious approach to return to work.

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 become common currency. Changing attitudes and raising awareness about the management of MSDs is an important part of reducing their burden to employers and society. However, it is not just employers that need to know more about MSDs and their treatment. 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 that experiencing pain does not necessarily mean that the condition has worsened or that being active is bad for you (Buchbinder, Jolley and Wyatt, 2001). This demonstrates that with sufficient commitment and investment from central government, campaigns of this scale can have an impact on public perceptions of common MSDs.

4.5.2 Intervention and adjustment of work demands

Not only has evidence shown that work is good for you but returning to modified work can help recovery (Feuerstein et al., 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 and as sustainably as 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 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 re-adjustment during return to 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.

There are numerous types of work-based intervention for assisting those with MSDs, ranging from ergonomic adjustments to providing access to physiotherapy, modifying work programmes to cognitive behavioural therapy, or a combination of various strategies. Evidence on the success of these interventions at tackling non-specific MSDs is mixed (Meijer et al., 2005).[x] A systematic review of multidisciplinary treatments of patients with low back pain, for example, demonstrated that whilst the treatment improved function and decreased pain in individuals, it could not be demonstrated that this was linked to employees returning to work earlier than those who had not received it (Guzman et al., 2001). Whilst biomechanical or ergonomic factors may be related to the onset of back pain, evidence that interventions based on these principals will prevent re-occurrence or progression to chronicity is thin on the ground (Burton, 1997). In fact, it has proved virtually impossible to determine whether one treatment is significantly more effective than another (Ekberg, 1995). Even for specific conditions such as RA, the evidence for the effectiveness of vocational rehabilitation is slim (Backman, 2004; de Buck, Schoones, Allaire and Vliet Vlieland, 2004)[g]

There is nonetheless broad agreement on the principles for managing non-specific MSDs, particularly back pain, that are outlined in

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[x] Findings from an evaluation of the effectiveness of return-to-work treatment programmes were inconsistent.

[g] Backman, 2004 found only six studies for the period 1980 to 2001

Table 4-1. This includes advice and a number of relatively simple measures for employees and employers to follow on how to deal with back pain.

Table 4-1 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

This requires employers to think beyond their statutory duty to address 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). Much is dependent on raising awareness about how to manage the symptoms of MSDs amongst employees and their managers, and ensuring that the latter have the skills and confidence to support employees in work.

4.5.3 Line managers

What is clear is that 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 may find 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 Czech government provides incentives through financial reward to employers if they employ people with disabilities, making 'reasonable accommodation' to support employees with long-term illness or injury by re-designing the job is likely to prove difficult, irritating and disruptive.

Given that MSDs are 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 who have them, or the costs to their organisation may be significant, particularly for small and medium enterprises. Small employers also have issues with employees with MSDs, as their absence from work can have, potentially, more impact on customer service, productivity and business performance.

4.5.4 Improved employer-clinician dialogue

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. In addition, many GPs feel uncomfortable or incompetent when asked to assess 'workability' (Arrelov, Alexanderson, Hagberg , Lofgren, Nilsson, Ponzer, 2007; Swartling, Hagberg, Alexanderson, 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 GP's 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-focused 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.

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 to return swiftly to, work.

4.6 Summary

This section has outlined the case for early intervention, first and foremost to benefit the health of those with MSDs, but also to ensure that they remain productive members of the workforce. However, it also demonstrates that intervention should ideally begin before those experiencing musculoskeletal pain visit their GP, and extend beyond the signing of a sick note. The biopsychosocial model clearly illustrates the need for a more comprehensive understanding of the factors that contribute to the development of non-specific MSDs, taking into account individual or psychological factors as well as the social milieu in which individuals live their lives, in which work plays a large part. To achieve this, employers, employees and clinicians need to talk to one another more effectively. Whilst this is challenging, and undoubtedly not common practice today.

5 Conclusions and recommendations

Work is, unambiguously, 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. If the Czech Republic'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 the Czech Republic are, or will be, directly affected by MSDs. This can have very significant social and economic consequences for these individuals and their families, it can impede the productive capacity of the tot\al workforce and parts of the Czech industry and it can draw heavily on the resources of both the health service and the benefits regime.

As in many countries, there is a disappointing shortage of clinical, epidemiological, psychological and economic evidence on the nature, extent and consequences of the MSD problem in the Czech Republic, but we know enough to be able to conclude that MSDs will affect a growing proportion of the working age population in the coming years. However, there seems to be a lack of coherence or 'joined-up' thinking and action by government, clinicians and employers which focuses on the MSD **patient as worker**. While the numbers advocating the application of the biopsychosocial model to MSDs is growing, we noted that some of those who can have most impact on fulfilling the labour market participation of workers with MSDs have yet to embrace its principles as fully as they might.

The Work Foundation has a number of recommendations for several interested parties in this field. Our intention is to encourage some of the key players to recognise that more can be done to ensure that continued active participation in the labour market is almost always a strongly positive force for health, fulfilment and for prosperity.

5.1 Recommendations for employers

- Managerial awareness-raising and training must include a health and well-being component. Managers are in the front line of staff absence and are in a good position to spot the early warning signs of a problem and to help rehabilitate employees after a period away from work. Managers in Czech organisations need to be aware that MSDs can be a significant problem for their staff and for the whole organisation.

- Imaginative job design will assist rehabilitation. Managers can change the ways work is organised (including simple changes to working time arrangements) to help prevent MSDs getting worse and to help people with MSDs to return to work. They need to do this in a way which preserves job quality, avoids excessive or damaging job demands and takes heed of ergonomic good practice.
- Challenge GPs. If sick notes from GPs are not providing a clear enough indication of the nature of the health problem an employee has, and its impact on their capacity to work, employers should challenge and clarify the GP’s assessment, if only to help understand which tasks the employee can still perform, or what support they might need to return to work.
- Intervene early. Employers should always take action sooner rather than later because caution and delay can only make matters worse. As long as they behave compassionately and make decisions based on evidence and on expert opinion, early intervention cannot be construed as harassment and can often hasten recovery or rehabilitation.
- Use occupational health advice. Vocational rehabilitation carefully organised and tailored to the individual, can make a real difference to return to work, productivity, morale and sustainability of performance. Involve occupational health professionals as early as possible.
- Beyond legal compliance. Try to avoid a ‘risk management’ mentality when dealing with an employee with an MSD, this can often lead to delay and ambiguity. In almost all cases, the employee is better off at work.
- Use the biopsychosocial framework. Thinking about the physical symptoms of the MSD without considering the psychological and social dimensions, can mean that the work-related *causes* of an MSD, or the work-related *benefits* of rehabilitation can be underestimated.
- Focus on capacity not incapacity. Employers can catastrophise too! 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.

5.2 Recommendations for employees

- 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, discomfort or mobility problems, you can still contribute in many ways. Work with your managers and your colleagues to find out how you can maximise your impact at work within the constraints of your condition. 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.
- Play an active part in the management of your condition. Your MSD is bound to get you down sometimes and you will feel like it's 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, watch for patterns in pain or fatigue and learn how you can minimise its impact on your functioning and your mood. 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.
- 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.
- Family involvement 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.

5.3 Recommendations for GPs

- Identify where job retention or early return to work is *good* for the patient. 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. Consider carefully whether, with some adjustments, you can recommend 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. Bring to bear your understanding of the biopsychosocial model and the limitations of the biomedical model in your diagnosis of the patient and – most importantly – your assessment of the role that their job might play in helping them stay active and avoid isolation. As a GP you are ideally placed to identify the early presentation of many MSDs. Where appropriate, you should seek to refer patients to specialist teams as early as practicable, to enable management of the condition to begin.
- Avoid catastrophising. 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.
- Encourage self-management. Try to ensure that the patient can adopt 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.
- Early 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 action, preferably in partnership with the patient and their employer, can help achieve a balance between the individual’s need for respite and their need to work.

5.4 Recommendations for occupational health professionals

- Think beyond the physical symptoms. More importantly, ensure employers, employees and GPs fully appreciate how this multi-factor perspective can contribute to constructive, active, participative and sustainable rehabilitation. Shape your interventions and advice around the three domains of the biopsychosocial model and help employers see how small workplace adjustments can bring wider benefits than just compliance with the Labour Code and Public Health Protection Act.
- Early intervention. OH professionals, above all others, understand the benefits of early interventions with MSDs. They must play a proactive part in mediating between employer and employee, or employer and GP to ensure that the patient can use return to work as a positive part of the way they learn to manage their condition and maintain their sense of self-worth and self esteem.

- Encourage self-management. Working with the employee, their colleagues and their manager, help the individual to find strategies to manage their own condition. This will enable them to make their own decisions about their working arrangements.
- Support managers with job design interventions. Making changes to work demands is often seen by managers as a way of complying with the law. Helping managers to look at job redesign as a more constructive way of meeting the needs of a patient/worker with an MSD and meeting changing customer demands can help them to see the business benefits of more flexible working arrangements.

5.5 Recommendations for government

- Take seriously the existing evidence that the proportion of the Czech workforce with MSDs is likely to grow over the next few decades. The Czech Republic has the benefit of learning from good practice elsewhere and the government should act now to put such measures in place. It has already made good progress through the sheltered posts and sheltered workshops to encourage disabled people into work and to provide incentives to employers to employ disabled people; nevertheless, there is still a significant proportion of disabled people among those who are unemployed.
- The government should also consider a national service framework for the treatment of people with MSDs. This framework should enshrine the principle that job retention or return to work are legitimate clinical outcomes.
- Review the definitions of MSDs in the current classification of occupational diseases beyond their current focus. In addition, formally acknowledge that many MSDs and other chronic conditions (such as rheumatic diseases, multiple sclerosis) are not caused by work, but may inhibit participation at work.
- Access to clinical expertise needs to improve. The apparent shortage of consultant rheumatologists is affecting the ability of citizens of working age to get access to early interventions which may save their jobs. Similarly, the government should conduct some workforce planning in the medical profession to establish if it will have sufficient clinical staff (eg physiotherapists) to accommodate the projected growth in MSDs as the population, and the workforce, ages.
- Help make GPs more effective in handling occupational health issues. This will require an input into GP training, through postgraduate medical education and training. In fact, we believe that medical training at all levels, from undergraduate to continuing professional development would benefit from inclusion of health and work issues, especially if the health of the working age population is set to deteriorate.

- Bring forward proposals to replace the current system of incapacity with a UK-style ‘Fit Note’ which encourages GPs to indicate what a worker is still capable of performing. This would help other healthcare professionals and employers to plan return to work and to make appropriate adjustments to job demands and/or working time.
- Consider the piloting of the allocation of trained occupational health advisors in selected GP surgeries to offer advice on the best way of supporting patients with MSDs staying in work or returning to work.
- Managing a phenomenon which is not being measured is very hard and can lead to the misdirection of effort and resources. The quality of data in the Czech Republic on the health of its working age population could be improved, particularly where measuring the cost implications of MSDs is concerned. This would help to reinforce evidence-based policy-making and promote the pragmatic targeting of expertise and resources.

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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.

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