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Fit For Work?

Musculoskeletal Disorders and the Polish Labour Market

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A message from Lech Wałęsa



Dear Readers,

The right to work and the dignity of work serve as the basis for a modern society. They are also the guarantee of economic prosperity. I started my public career as a union member. I was building the Solidarity movement in the Gdynia Shipyard and other factories of Poland's coastal region. I won the Peace Nobel Prize and later, leaving the union world for politics, became the President of the Republic of Poland. As a union member I was always fighting for the good life and well being of the working people.

Today I am proud to be able to carry on this struggle. Fit for Work is an initiative to improve the quality of life of active workers. I am glad to learn that in times of economic crisis there are people who are willing to promote new ideas, ready to and capable of fighting for a better future. It is an opportunity to remind ourselves of the meaning of the word 'solidarity', decide what we can do together, and how we can help and change our society. We must stand and fight for the sustainable development of our economy, firmly commit ourselves to building a civic society and create a community based on solidarity, within which we can successfully achieve previously set goals.

If we ask people when they feel safe and optimistic about future, most of them will answer that health is what matters most as everything else can be obtained through hard work. A real crisis starts when there is a shortage of healthy workers. Only as a healthy society we can hope for the sustainably growing economy, both of our nation and our globe. In the future, economic downturns can be caused by the want of able workers. This will be much more dangerous than the current turbulences in the financial sectors and budget problems.

Considering all these, I ask you to read the Fit for Work and please do it carefully. The findings of this report ought to persuade us to start a serious debate on the social and economic effects of delays in responding to health conditions which exclude people from the labour market.

All doctors know that it is better to prevent than to treat and all economists know that to prevent a crisis from happening costs much less than to fight one. We must remember, work drives growth.

A handwritten signature in black ink, which appears to be 'L. Wałęsa'.

Lech Wałęsa
1983 Nobel Peace Prize Winner
President of Poland 1990-1995

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1. Executive summary

As Poland is making progress towards becoming a 'knowledge economy', the retention of skilled employees will be key for securing its sustainable development. Many Polish employees are leaving the labour market prematurely because they are not healthy enough to perform their jobs: musculoskeletal conditions such as back pain, arm and neck strains or diseases of the joints, inhibit performance of at least half of the Polish workforce. Indeed, almost 10 per cent of the working age population are already inactive due to full or partial disability.

Now that Poland has assumed the presidency of the European Union (EU), it should lead to positive changes in the way the societal burden of chronic disease and work-related health conditions are managed by investing in best practice approaches to disease prevention and workplace health promotion. However, reactive treatment of chronic conditions is not enough to tackle work incapacity and early retirement in the long-term. In order to achieve the goals set in the Europe 2020 strategy¹ with regard to *primary prevention of chronic disease*, Poland has to anticipate and reduce the costs of poor health and ageing to its health care and the welfare systems by taking steps to ensure that more of its workforce can remain in, or return to work, even if they have work-limiting health problems.

Fundamental changes need to occur in the way policy-makers, medical professionals, employers and even individuals themselves approach the management of long-term conditions. *Work has to become more of a priority outcome*, as job retention and return to work can positively affect physical health and psychological well-being, and reduce the social burden of disease in Poland. Better mechanisms of timely diagnosis and vocational rehabilitation need to be developed in order to prevent and minimise the long-term impact of musculoskeletal conditions on work productivity, healthcare costs and social exclusion.

**The
'Fit for Work?'
project**

This project, part of a wider programme of work across a number of European and other countries, has looked in some detail at the impact that musculoskeletal disorders (MSDs) have on the working lives of thousands of Polish 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 spondyloarthritis (SpA), specific conditions that are often progressive and increasingly incapacitating. We conducted a review of the recent academic and practitioner

¹ Europe 2020 is an EU growth strategy for a smart, sustainable and inclusive growth economy, aiming to deliver high levels of employment, productivity and social cohesion.
See http://ec.europa.eu/europe2020/priorities/inclusive-growth/index_en.htm

research on the relationship between these MSDs and labour market participation, and conducted interviews with acknowledged Polish experts in this field.

The Impact of MSDs on the Polish workforce

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

- Over a half of all Polish workers experience muscular pain at work at any one time.
- About 300,000-400,000 individuals may have RA or inflammatory SpAs.
- In 2010 over 26 million sick days resulted from MSDs and carpal tunnel syndrome.
- Musculoskeletal conditions incurred costs of almost 330 million euros in sickness absence and another 470 million euros in costs of disability in 2009. Up to 874 million euros were spent on the welfare benefits of the work disabled with only 38 million euros put to preventative rehabilitation.
- In 2010 total direct costs of the conditions of musculoskeletal system added up to 937 million euros, of which only 223 euros were spent on preventative health care.
- The average age of the recipients of the rehabilitation benefits in Poland was 46 years meaning that increasingly more individuals of prime working age require support for managing their long-term conditions.
- At least 12 per cent of registered unemployed people in Poland do not seek work due to poor health condition.

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.

Delays in treatment 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.

It is becoming clearer that people with MSDs are likely to catastrophise their condition. Some will leave the labour market prematurely, claiming disability allowances when – with support – they may still be able to work; others will be reluctant to disclose their disease until it is too late

to manage it most efficiently, increasing costs to the health care and the welfare systems. A significant proportion of general practitioners (GPs) and employers do not fully appreciate the long-term impact of poor health on the work performance of individuals and their ability to stay in work. However, they are equally unaware of the positive effect that work may have in preserving an individual's functional capacity and psychological wellbeing for longer, enabling people with MSDs to live fulfilling and productive lives.

Work can be both cause and cure. Whilst the physical demands of work, or the working environment, may cause or aggravate musculoskeletal symptoms, the degree to which these result in prolonged absence from work or work disability is often also determined by psychosocial factors such as job satisfaction or psychological resilience. Concerned with legal compliance, many GPs and employers mistakenly believe that employees have to be 100 per cent fit to return to work and to perform their jobs effectively. However, evidence suggests that phased or graduated return to work can help ameliorate the deterioration of many conditions and help recovery from MSDs. 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.

Looking to the future, with prospects for an ageing Polish workforce, projected growth in obesity and high smoking rates, 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 Polish workers, and that the productive capacity of the Polish workforce will be adversely affected at a time when we need it to be on top form.

What can be done?

There are six main principles which health care professionals, employers, employees and the government should focus on if they are to improve the workability of individuals 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 psychologically. Early action, preferably in a partnership between GPs, specialist consultants, the patient and their employer, can help those with MSDs to stay in their jobs and to achieve a balance between the individual's need for respite and their need to work. For some MSD patients early diagnosis and subsequent access to physiotherapy and 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. Patient groups may be a valuable source of support and information on dealing with long-term health conditions.

- **Educate health care professionals.** Clinicians should understand that work is an important outcome of treatment and be aware of the most cost-effective treatment to achieve those outcomes. GPs are ideally placed to identify the early presentation of many MSDs and have to be able to recognise specific conditions and refer patients to specialist teams as early as practicable, to enable management of the condition to begin. Additionally, they should explain the positive impact of work on health outcomes to the people with MSDs and encourage those individuals to remain in quality jobs. Health care professionals should direct individuals to relevant patient support groups, which may often provide advice on job retention and returning to work.
- **Introduce a system of phased return to work.** In order to ensure that more individuals who are able to work return to part-time or full-time employment, a better system of monitoring individuals' health must be established. Employees may overestimate the impact of MSDs on their ability to continue working. If GPs were asked to issue patients with a 'Fit Note' rather than a 'Sick Note' then it would be clearer what the worker was still able to do at work, better guidance on workplace adjustments to support job retention and rehabilitation could be given, and support could be focused on preventing early withdrawal from the labour market due to disability. This approach is being introduced in the UK and is well developed in other member states, and should be considered in Poland too.
- **Establish a structured system of vocational rehabilitation.** Employers have to become aware of the impact of the ill health of employees on their engagement and productivity and of the positive impact of work on overall well-being. It is not enough to keep people with long-term conditions in employment. Cooperation of managers and employees should be guided by an occupational health professional to adjust the ways work is organised, while preserving job quality, avoid excessive or damaging job demands and take heed of ergonomic good practice. Simple interventions, such as alternative work tasks or flexible working hours, will provide great support for an individual's journey back to full productive capacity.
- **Think strategically about reducing direct and indirect costs of MSDs.** Better measures should be developed to assess the social, economic and work impact of MSDs to allow the National Health Fund (NFZ) and Social Security Institution (ZUS) to monitor both the clinical and labour market impact of MSDs in a more 'joined-up' way. Good

analysis should inform decision makers in anticipating and preventing the significant and growing societal burden of chronic disease in the long term.

- **A National Plan for MSDs.** Such is the impact of MSDs on the working age population of Poland we suggest that a National Plan for the early diagnosis, treatment and rehabilitation of people with MSDs be established. This Plan might establish national standards of diagnosis and treatment, support coordinated effort between government departments and agencies and establish mechanisms which help clinicians and employers to support job retention and return to work among people of working age with MSDs. At the same time, it will allow decision-makers to monitor the improvement in diagnosis and access to appropriate therapy in Poland. Other countries (eg Ireland) have also appointed a National Clinical Director with oversight of such plans. We recommend that Poland considers such an appointment.

The evidence presented in this report illustrates that a large proportion of working age people in Poland 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 Polish 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 Poland. However, there still seems to be a lack of coherence or 'joined-up' thinking and action which focuses on the MSD **patient as worker** and on societal burden of MSDs in addition to their direct cost. While the number of advocates of the biopsychosocial model as it applies to all 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.

2. Introduction

2.1 Poland is one of the fastest-growing economies in Europe. Even through the economic downturn it was affected less than other Organisation for Economic Co-operation and Development (OECD) countries, especially those in Eastern Europe, retaining the best real growth outcome in the OECD in 2009 (OECD, 2010). The economy is developing steadily as Poland is on its way to becoming a knowledge economy. As sustainable progress would require a reliable and healthy workforce, achieving a higher employment rate is one of the top priorities for the Polish economy (World Bank, 2011).

**Why is
workforce
health
in Poland
important?**

Poland is one of the few OECD countries to have a fall in unemployment rates by 1.4 per cent over the 2007-2009 period of economic crisis (OECD, 2011), reaching 9.7 per cent in 2010.² However, it is not just unemployment but the inactivity of the working age population that may hamper sustained economic growth. The employment rate among the working age population at 59.3 per cent is still much lower than the OECD average of 66.1 per cent (OECD, 2011). On average, Polish workers withdraw from the labour market earlier than individuals in any other countries in the European Union (EU).³ Aiming to achieve the same-level or higher performance targets with a smaller workforce, organisations may present employees with more demanding tasks, potentially exacerbating both physical and mental well-being.

With the strategic goals for economic growth in view (World Bank, 2011), Poland is understandably keen to place emphasis on the need to maximise the productivity of its workforce in order to extract the most economic benefit. Along with skills, training and qualifications, one of the most significant drivers of labour productivity in Poland is workforce health and well-being. At the same time the health status of many Polish employees is poor. While in previous years a lot has been done to monitor health and safety in workplaces to reduce the number of occupational diseases in Poland, more recent surveys confirm that the number of new cases of occupational diseases is starting to grow again (von Hirschberg, Kähler and Nienhaus, 2009). Central Register of Occupational Diseases at the Nofer Institute of Occupational Medicine (Instytut Medycyny Pracy im. prof. Jerzego Nofera w Łodzi, IMP) reports the increase of overall number of cases of occupational diseases (see Figure 2.1).

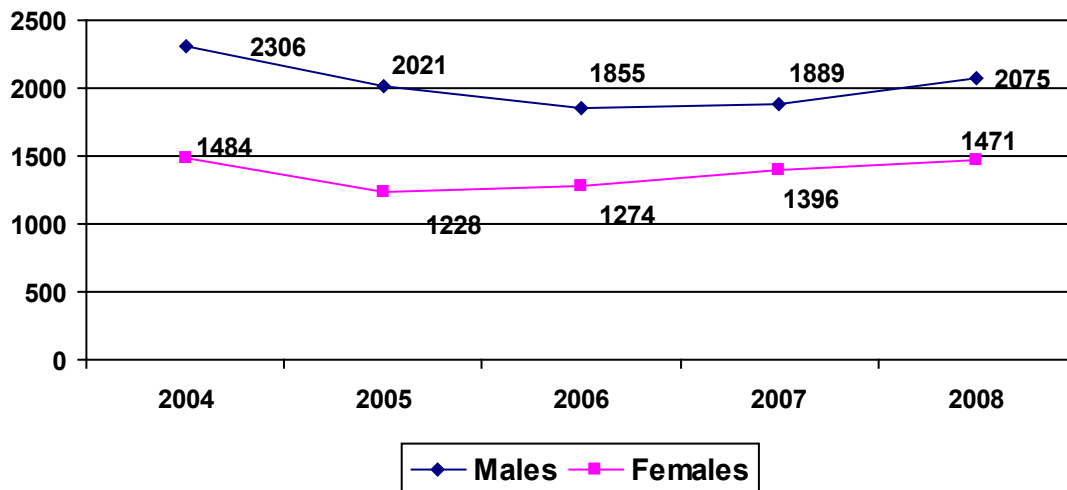
In 2006 chronic diseases of the locomotor system represented at least 2.7 per cent of all cases of occupational diseases (Wilczyńska, Szeszenia-Dąbrowska and Szymczak, 2007); by 2008 that proportion increased to 3.4 per cent.⁴ Overall prevalence of MSDs among the Polish workforce might be much higher, as there are challenges in accounting for those cases of MSDs that are

² See OECD Statistics Portal <http://www.oecd.org/>

³ Eurostat Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>

⁴ See IMP <http://www.imp.lodz.pl/>

Figure 2.1: Number of cases of occupational diseases in Poland



Source: IMP⁵

related to but not caused by work.⁶ As a result, the conditions of that group are one of the leading causes of sickness absence: Social Insurance Institution (Zakład Ubezpieczeń Społecznych (ZUS)) estimates that at least 12.8 per cent of time taken off work is attributed to MSDs and carpal tunnel syndrome.⁷

Over time, chronic health conditions drain the Polish market of workers with much needed skills and experience: disability is the main reason for the inactivity of 45-59 year-old men and 45-54 year-old women in Poland (World Bank, 2011). In 2005-2009 at least 15.7 per cent of the working age population abstained from work due to health reasons; a further 2.5 per cent remained unemployed, having to take care of disabled or elderly household members (Czapiński and Panek, 2010).

Reducing labour market inactivity of ill workers and their informal carers would yield substantial economic benefits (World Bank, 2011). As poor health and chronic health conditions may have a significant impact on performance – even in a favourable economic climate – special care has to be taken in preserving the ability of the elderly to work longer and support their competitiveness against younger workers. Furthermore, reducing the burden of ill-health or chronic disease will prevent a number of damaging social consequences. These arguments inform a number of important implications.

⁵ See IMP (n.d.) <http://www.imp.lodz.pl/>

⁶ Expert interview

⁷ Data provided by ZUS

First, the competitiveness of the Polish economy has been – and will be – substantially driven by the skills, experience and knowledge of its workforce. While Poland has been making good progress towards becoming a ‘knowledge economy’ as envisaged by the EU’s 2000 Lisbon Strategy (Lisbon European Council, 2000) a 2006 report estimated that the number of knowledge workers in Poland was still 27 per cent below the European average (Technopolis, 2006). The risk is that poor health will drain the Polish economy of the much-needed skills and knowledge it requires and makes the longer-term vision of the ‘knowledge economy’ more difficult to attain and sustain.

Second, 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). As more jobs are created to engage a larger proportion of the working age population, it is crucial that those are ‘good’ jobs.

Third, 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 returning to work are severely damaged. On the way to achieving higher employment rates, it is important to encourage those with illnesses or long-term conditions to maintain productive and fulfilling working lives and keep those individuals out of poverty.

Fourth, the enormous societal burden of chronic disease has to be acknowledged by decision-makers in Poland. Economic progress is inhibited equally by a shortage of skilled, motivated and healthy workers and increasing costs of disability. It is on this last point which much of this report focuses.

The health and well-being of the Polish population and 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 the ageing of the Polish workforce (World Bank, 2011). The following data points illustrate some of the highlighted trends:

- The fourth European Working Conditions Survey (EWCS, Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2007) found that in 2005 nearly 46 per cent of Polish workers experienced work-related back pain. Labour Force Survey (Główny Urząd Statystyczny (GUS), 2008) indicates that work caused or exacerbated at least 1.7 million cases of back pain in 2006.

- Parent-Thirion et al. (2007) report that almost 44 per cent of employees experienced muscular pain in neck, shoulders and limbs (EU average 22.8 per cent). According to the Labour Force Survey 2006-2007 nearly 1 million Polish workers reported episodes of work-related muscular pain in their neck, shoulder, arm or hand (GUS, 2008).
- In 2010 nearly 26.3 million sick days resulted from MSDs and carpal tunnel syndrome.⁸
- Average age of withdrawal from the labour market in Poland is 61.4 years for men and 57.5 years for women, compared to 61.9 and 60.5 EU average respectively.⁹
- In 2008 at least 3.1 million people were inactive due to full or partial disability.¹⁰ That is 10 per cent of the working age population.¹¹ At the same time, increasing number of people in the working age population have a disability: in 2010 up to 21.9 per cent of those employed were disabled, compared to 19.4 per cent in 2007.¹²
- In 2005 at least 5 per cent of individuals were unemployed due to MSD-related disability with another 2.8 per cent unable to live independently; the work capacity of 16.3 per cent employees was reduced due to MSDs (Roman-Liu and Bartuzi, 2007).
- At least 12 per cent of registered unemployed do not seek work due to poor health condition (Czapiński and Panek, 2010).
- In 2009 at least 5,835 people were granted a disability pension due to diseases of the muscular and osteoarticular systems, including 866 individuals, completely unable to work.¹³

Despite the significant impact of health on the Polish workforce, demonstrated above, tackling high rates of musculoskeletal conditions among Polish employees has not yet become a priority for policy-makers and employers. It is important therefore to raise awareness of direct and indirect costs of ill health for organisations and society and to evaluate its potential long-term consequences. Now that Poland has assumed the presidency of the EU, it should lead positive changes in the way the societal burden of chronic disease is managed by investing in best practices for the prevention of long-term health conditions.

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) while MSDs affect more than 40 million workers in the EU and

⁸ Data provided by ZUS

⁹ See Eurostat Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

¹⁰ See Office of the Government Plenipotentiary for the Disabled (Biuro Pełnomocnika Rządu do Spraw Osób Niepełnosprawnych) <http://www.niepelnosprawni.gov.pl/>

¹¹ See Central Statistical Office for Poland (Główny Urząd Statystyczny) <http://www.stat.gov.pl/>

¹² Data provided by an in-country expert, based on GUS statistics

¹³ Data provided by an in-country expert, based on ZUS statistics

account for about half of all work-related disorders in EU countries (European Trade Union Institute, (ETUI) 2007), representing an estimated cost to society of between 0.5 and 2.0 per cent of gross domestic product (GDP) (Cammarota, 2005).

The fourth European Working Conditions Survey (EWCS) published by the European Foundation (Parent-Thirion et al., 2007) has shown that 25 per cent of workers across the EU report work-related backache and 23 per cent report muscular pain. Indeed, the European Commission estimates that MSDs account for 50 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 with 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 Poland in this wider EU context and assesses where Poland is doing well and where it has challenges to confront. In addition, Appendix 3 compares labour market, welfare and health care systems indicators across a number of European countries.

2.3 Objectives of the study

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

1. What is the impact of MSDs on employment and economic performance in Poland? 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 Polish 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 Poland.
3. Expert interviews: We have conducted interviews with Polish experts across a number of disciplines (including social burden of disease, occupational health, disability and rheumatic disease) to identify the main areas of policy and practice which need to be addressed by policy-makers, health professionals and 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 exacerbated by, work. They manifest themselves in disparate ways and may cause periods of intense discomfort and incapacity which may affect the ability of individual workers 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, and occupational health practitioners typically deal with these conditions.

On the other hand, RA and SpA are specific and chronic progressive rheumatic diseases which are not caused by work, but may be exacerbated by it and are often handled by general practitioners (GPs) 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 at least half of Polish 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 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 Polish 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 (World Health Organisation, WHO, 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 (2007), meaning ‘any affliction of the musculoskeletal system that appears at work and causes discomfort, difficulty or pain when performing work’.

**A note
on definition**

Many problems with the evaluation of the extent of MSDs in Poland arise from poorly defined distinctions between the conditions affecting work and those caused by the work environment.¹⁴ In Poland, the existing list of occupational diseases is a closed system (von Hirschberg, Kähler and Nienhaus, 2009a). An occupational disease is considered a disease named in the list of occupational diseases, if the evaluation of working conditions can establish clearly or with a high probability that the disease was caused by the impact of harmful factors occurring in the workplace or by the way the work is performed (Rada Ministrów, 2009c). There is a significant variability in the criteria used to collect data on the prevalence and incidence of MSDs, which may take into consideration either the part of the body affected or causes of the conditions (Sula, 2007). The official list of occupational diseases in Poland includes only the following MSDs (Rada Ministrów, 2009b):

1. Chronic diseases of the locomotor system, induced by the way the job is performed:
 - a. Chronic inflammation of the tendon and its sheath;
 - b. Chronic bursitis;
 - c. Chronic disorder of menisci;
 - d. Chronic disorder of joint capsule
 - e. Chronic periarticular inflammation of the shoulder;
 - f. Chronic lateral humerus epicondylitis;
 - g. Fatigue fracture;
 - h. Osteonecrosis of the wrist.

2. Chronic diseases of peripheral nervous system, induced by the way the job is performed:
 - a. Carpal tunnel syndrome;
 - b. Guyon’s canal syndrome;
 - c. Common peroneal nerve dysfunction, caused by work in a squatting position.

¹⁴ Expert interview

3. Vibration white finger:
 - a. Affecting blood vessels and nerves;
 - b. Affecting bones and muscles;
 - c. Affecting both blood vessels and nerves, and bones and muscles.

These conditions focus predominantly on upper limb and soft tissue disorders, while other EU countries more frequently include low back pain, inflammatory conditions and spinal conditions. Discrepancies in definition and failure to adhere to ICD-10 classification of diseases lead to difficulties in collecting and monitoring data on prevalence and incidence of MSDs in Poland.¹⁵ Further distinctions arise depending on whether a disease has a legal status of a 'chronic' condition.¹⁶ For example, only aggressive form of rheumatoid arthritis (RA) is included in the list of chronic diseases in Poland (Rada Ministrów, 2009a), which increases the cost of treatment for some patients.¹⁷ Producing a descriptive national register of occupational diseases as well as expanding the list of chronic diseases would be conducive to a consistent approach to prevention and management of occupational diseases in Poland.

2.5 Structure of the report

This report is structured as follows:

- Section 3 examines the extent of MSDs in Poland and the impact they have on productivity and attendance at work, on labour market participation and on the wider Polish economy.
- Section 4 reviews the range of interventions, including vocational rehabilitation, which can improve job retention and labour market participation among those with MSDs.
- Section 5 sets out our recommendations for employers, employees, GPs, occupational health professionals and for the Polish government.
- Appendix 3 provides a benchmarking grid in which a number of indicators covering the labour market, the welfare system and the health care system are presented for each of the country involved in the Fit for Work project.

¹⁵ Expert interview

¹⁶ Expert interview

¹⁷ Expert interview

3. Work and MSDs in Poland

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

1. The inadequacy of the data on MSDs in Poland and the consequences of this;
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 Poland.

We begin by looking at data quality.

3.1 An unclear picture

Although many have tried, it remains difficult to quantify precisely the extent of MSDs in the working age population of Poland. The European Foundation for the Improvement of Living and Working Conditions (Eurofound, 2007) has repeatedly found it difficult to build a reliable statistical portrait of MSDs in Poland. Although the data is collected through various methods, the criteria for identifying the cases of MSDs are not consistent in terms of the part of the body affected and causes (Sula, 2007). Additionally, the degree of some episodes of MSDs may be over reported, as employees attempt to take advantage of welfare benefits.¹⁸ Even the official government institutions have only limited data about the prevalence of MSDs among the working age population (Sula, 2007). This is a troubling picture for a number of reasons::

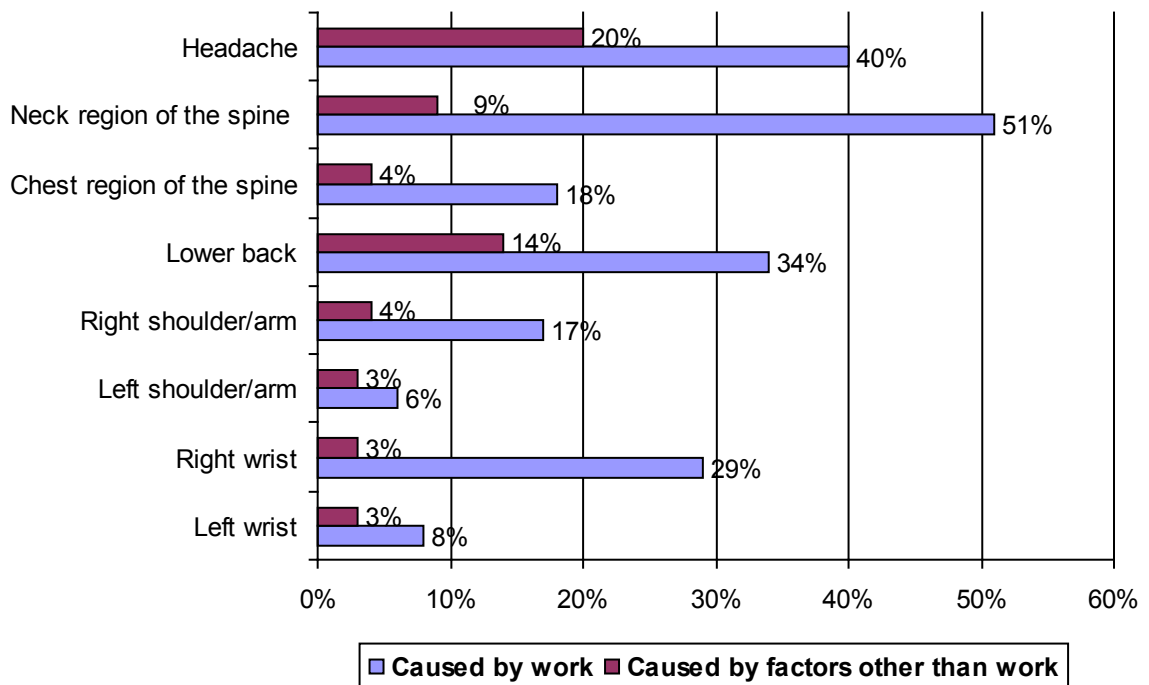
- It is impossible to be accurate about the economic consequences of MSDs, their productivity impact or their social costs to the nation, to its workers and to their families.
- If, as is likely, the prevalence of MSDs increases as the average age of the Polish workforce increases, the absence of good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

Despite these difficulties, The Work Foundation feels that there is sufficient evidence in Poland to argue strongly for MSDs to be a policy priority in the coming years.

¹⁸ Expert interviews

What we do know is that Poland ranks second among EU countries by the number of workers who report regular backache or muscular pain (Parent-Thirion et al., 2007).¹⁹ About 300,000-400,000 individuals are believed to have RA or inflammatory SpAs.²⁰ A survey of call-centre workers conducted at the Central Institute for Labour Protection – National Research Institute (Centralny Instytut Ochrony Pracy - Państwowy Instytut Badawczy, CIOP-PIB) (Kamińska, Kazenas, Najmiec, Roman-Liu, Tokarski et al., 2008) has shown that at least 51 per cent of the workforce experience muscular pain at work at any one time (see Figure 3.1).

Figure 3.1: Prevalence of muscular pain among Polish workers by body region and cause



Source: Kamińska et al., 2008

Closer attention has to be paid to the impact of MSDs considering the forecasted ageing of the workforce. Experience from economies with older age distributions indicates that the burden of MSDs can have progressively more significant economic and social consequences. Poland 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’ (ETUI, 2007).

¹⁹ See Appendix 3 for cross-country comparison

²⁰ Data provided by an in-country expert

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 at work. 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, Badley, Lacaille, Cott, Adam 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 (SpAs). Other, largely non-specific MSDs are described in relation to two main categories, back pain and work-related upper limb disorders (WRULDs). The effects of pain from MSDs can thus impact on the following aspects of one's performance at work:

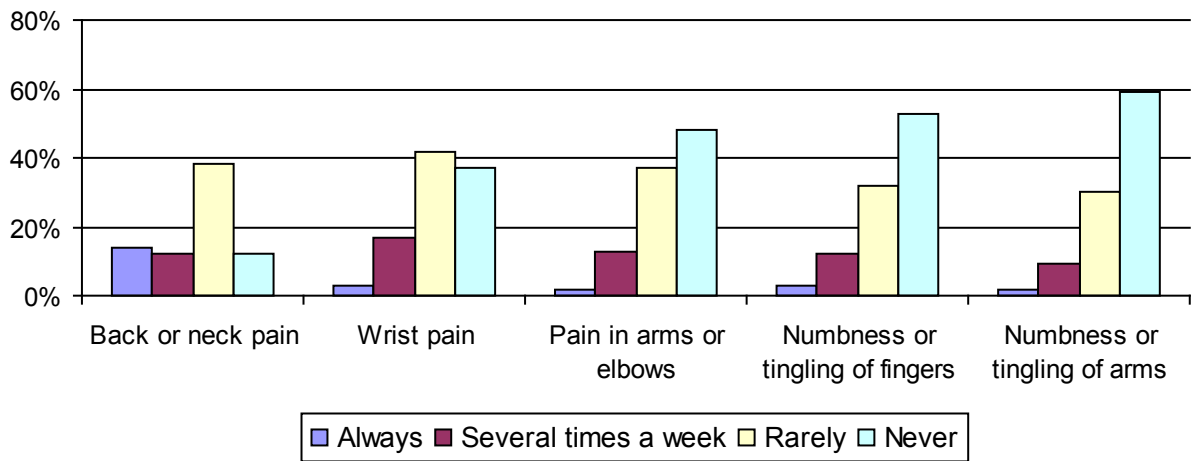
- Stamina and resilience;
- Cognitive capacity or concentration;
- Rationality/mood;
- Fatigue;
- Mobility;
- Agility.

The results of the 2007 survey of 8,306 employees²¹ conducted in Poland by CIOP-PIB and IMP show that up to 94 per cent of office workers experienced some sort of discomfort when sitting at work. Figure 3.2. on the next page illustrates reported prevalence of pain and frequency of its occurrence by body region.

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.

²¹ See ErgoTest (n.d.). <http://www.ergotest.pl/>

Figure 3.2: Frequency of occurrence of MSDs by body region



Source: Ergo-Test²²

3.2.1 Back pain

Back pain is a very common complaint in Poland, though the data on prevalence are not collected systematically, as the condition is not singled out in the list of occupational diseases in Poland (Rada Ministrów, 2009a). Accounting for the episodes of chronic diseases of the locomotor system *induced by work*, IMP registered just 85 new cases in 2006 (Wilczyńska, Szeszenia-Dąbrowska and Szymczak, 2007). On the other hand, back pain may *affect work* of larger numbers of employees. The fourth EWCS (Parent-Thirion et al., 2007) found that in 2005 nearly 46 per cent of Polish workers experienced work-related back pain, far more than the EU average of 25 per cent. Data from the Labour Force Survey (GUS, 2008) indicate that work caused or exacerbated at least 1.7 million cases of back pain in 2006, with women reporting discomfort slightly more frequently than men.

Back pain is common, episodic, often recurrent and generally self-limiting. It is defined as recurrent if several episodes occur in one year for a duration of less than six months, acute if an episode lasts for less than six weeks, sub-acute (7-12 weeks) and chronic if it endures for over 12 weeks. Up to 72 per cent of individuals with back pain in Poland experience reduction in daily activity, with 38 per cent reporting reduced productivity due to backache; in 38 per cent of cases pain limited the range of available leisure activities (Łukowicz, Gembala, Weber-Zimmermann, Ciechanowska and Zalewski, 2008; Rutkowska, 2003; Depa and Druźbicki, 2008).

²² See ErgoTest (n.d.). <http://www.ergotest.pl/>

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, Henriks, Koes, Oostendorp, Ostelo et al., 2003). Recorded absence is greatest amongst the minority of individuals whose condition is chronic or recurrent. Most people who are affected by back pain either remain in work or return to work promptly. About 85 per cent of people with back pain take less than seven days off, yet this accounts for only half of the number of working days lost. The rest is accounted for by the 15 per cent who are absent for over one month (Bekkering et al., 2003). In 2010 episodes of back pain resulted in almost 2.7 million days of sick leave in Poland.²³

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). Janowski, Steuden and Kuryłowicz (2010) report that deprivation of social support, older age and lower educational level were strong predictors of greater subjective feelings of being disabled among Polish individuals, while pain severity had no effect on psychosocial functioning domains.

3.2.2 Work-related upper limb disorders

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

²³ Data provided by ZUS

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.

According to the Labour Force Survey, in 2006-2007 nearly one million Polish workers reported episodes of work-related muscular pain in their neck, shoulder, arm or hand (GUS, 2008). At least 12 per cent more women reported WRULDs, compared to men in Poland (GUS, 2008). Again, there is a large discrepancy between the number of WRULDs categorised as occupational diseases and the number of episodes self-reported by employees. In 2006 IMP reported only 80 new cases of vibration syndrome and 108 new cases of chronic disease of the peripheral nervous system such as carpal tunnel syndrome or Guyon's canal syndrome, classified as occupational diseases (Wilczyńska, Szeszenia-Dąbrowska and Szymczak, 2007). Another study conducted in Poland estimated that carpal tunnel syndrome affects approximately 5.8 per cent of women and 0.6 per cent of men (Zyluk and Puchalski, 2008). On the other hand, Parent-Thirion et al. (2007) report that almost 44 per cent of employees experienced muscular pain in neck, shoulders, and upper and lower limbs that may not be caused by work but affects performance (EU average 22.8 per cent). Potentially higher prevalence of WRULDs among Polish employees is confirmed by the rates of sickness absence: carpal tunnel syndrome is estimated to have caused over 807

thousand days of sickness absence in 2010.²⁴ Lack of consistency in definition may explain the discrepancy between the relatively low number of registered occupational diseases in Poland and the self-reported prevalence.

3.2.3 Rheumatoid arthritis

RA is an example of a specific MSD. This form of inflammatory arthritis affects people of any age, although peak incidence is in the mid age range of the working age population, between the ages of 35 and 45 years (Tłustochowicz, 2009b). Epidemiological studies have shown that RA shortens life expectancy by around 8-10 years (Tłustochowicz, 2009b).

Prevalence of RA is between 0.6 per cent and 1 per cent in Poland,²⁵ which is slightly higher than in many industrialised countries (WHO, 2003). Lundkvist, Kastäng and Kobelt (2008) report 252,000 RA patients in Poland. Another recent estimate suggests that 131,546 Poles over 19 years old have RA (Kobelt and Kastaeng, 2009). In addition, the activity of RA in Poland is one of the highest in Europe, with the average DAS 28 (Disease Activity Score) above 5.1.²⁶

The exact cause of RA is unknown. Evidence suggests that it is an immune disease, presenting as an inflammation affecting joints and other tissues. Risk factors include gender, family history of RA and specific leukocyte antigen (HLA) (WHO, 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 eventually structural damage 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. Moskalewicz (2002) highlights that although RA is rarely a cause of death, it is most likely to lead to progressive disability.

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

²⁴ Data provided by ZUS

²⁵ Expert interviews

²⁶ Data provided by an in-country expert

workloads challenging. Managing these 'flares' in employment requires close communication and understanding between employees and employers.

RA has a significant negative impact on individuals' quality of life, which decreases as the condition exacerbates (Bączyk, Samborski, Pieścikowska, Kmiecik and Walkowiak, 2007). In an international study Bugajska, Brzosko, Jędryka-Góral, Głuszko, Żołnierczyk-Zreda et al. (2010) find that 95 per cent of Polish patients felt rejected from social activities, compared to 62 per cent of German patients. The effects of the disease can make it difficult to complete every day tasks, forcing many people to give up work because of the condition. Even among those employed the condition is suggested to inhibit educational and promotional opportunities (van Jaarsveld, Jacobs, Schrijvers, van Albada-Kuipers, Hofman et al., 1998).

One study has shown that only 38 per cent of people with RA in Poland were satisfied with their life as a whole, with the disease having the greatest impact on vocational and financial situation (Tasiemski, Angiaszwili-Biedna and Wilski, 2009). Up to 61.9 per cent of those surveyed were employed before the onset of the disease, however, as many had to stop working soon after the diagnosis, at least half of RA patients in the study had to rely on disability benefits and were at high risk of poverty (Tasiemski, Angiaszwili-Biedna and Wilski, 2009). Experts suggest that after five years from the onset of the disease only half of individuals with RA are working; after ten years from the onset the number of those remaining in employment drops to 20 per cent.²⁷ At least 12.1 per cent of all sickness absence in Poland results from rheumatic diseases.²⁸

However, a variety of financial and personal considerations may impact the decisions to leave work among individuals with chronic health conditions. Indeed Young, Dixey, Kulinskaya, Cox, Davies et al. (2002) found a 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. It appears that Poland has one of the lowest rate of employment for people with RA. For 20-44 year-old RA patients in Poland the employment rates are 64 per cent for women and 77 per cent for men; only about 44 per cent of female and 60 per cent of 45-64 year-old male RA patients were working (Kobelt and Kastaeng, 2009). This finding is consistent with the experts' view that Polish workers may take advantage of welfare benefits early in the course of their disease, while up to half of them may continue to work in the 'shadow economy'.²⁹

²⁷ Expert interview

²⁸ Data provided by an in-country expert

²⁹ Reiterated in the expert interviews

3.2.4 Spondyloarthropathies

Spondyloarthropathies (SpAs) 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). Compared to the estimated prevalence of SpAs among Caucasians at 0.2-0.9 per cent (Kolczewska, 2004), the spread of the condition in Poland is somewhat higher at 1 per cent of the population (Tłustochowicz, 2009a).

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, and may cause considerable disability (Sierakowska, Karpińska, Sierakowski, Krajewska-Kułak, Kamieńska et al., 2006). 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). In Poland AS affects 0.2 to 1 per cent of the general population (Wiland, 2006).

First diagnosis is often made when people are in their teens and early twenties mostly among 18-25 year-olds (Tłustochowicz, 2009b). 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) estimate an average of seven years between disease onset and diagnosis, which is similar to the delay suggested by experts in Poland.³⁰ 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. Additionally, the condition may lead to depression, apathy, low compliance with treatment and

³⁰ Expert interviews

rehabilitation (Sierakowska et al., 2006). Again, as with RA, the temporal aspects of the disease require good management to ensure that individuals can perform their job.

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, Chorus, Miedema, van der Heijde, Landewé 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, Maksymowych, Evers, Ament, Schachna et al., 2010) 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 2 and 3 per cent of the general population in Poland and between 6 and 39 per cent of individuals with psoriasis (Lewicki, Dutkewicz, Widuchowska and Kucharz, 2008). 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, Skomsvoll, Koldingsnes, Rødevand, Mikkelsen 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 to the general population has also been reported among people with PsA (Wallenius et al., 2008).

3.3 Risk factors for MSDs The risk factors for MSDs are wide ranging. Whilst there is broad consensus among experts that work may exacerbate MSDs, non-work activities such as sport and housework can contribute to musculoskeletal strain. For example, National Health Plan 2007 – 2015 (Rada Ministrów, 2007) calls for addressing some of the risks that may exacerbate health conditions of individuals in Poland, such as obesity, lack of physical exercise and ageing.

3.3.1 Intrinsic factors and lifestyle choices

Progress of MSDs may be influenced by an array of factors. 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. WHO (2003) suggests several intrinsic risk factors for non-specific MSDs, including:

- Obesity and 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.

Great concerns arise over the ageing of the Polish workforce (Bugajska, Makowiec-Dąbrowska and Wągrowaska-Koski, 2010). The proportion of the population aged 65 and above is at least 13.5 per cent³¹ and has been forecasted to more than double by 2050 (European Communities, 2007). While currently just over a third of Polish individuals aged between 55 and 64 years remain in employment, that proportion is increasing steadily,³² partially because some individuals will have to continue working due to financial hardship.³³ That means that in the decades to come a decreasing proportion of the working age population will have to support increasing number of

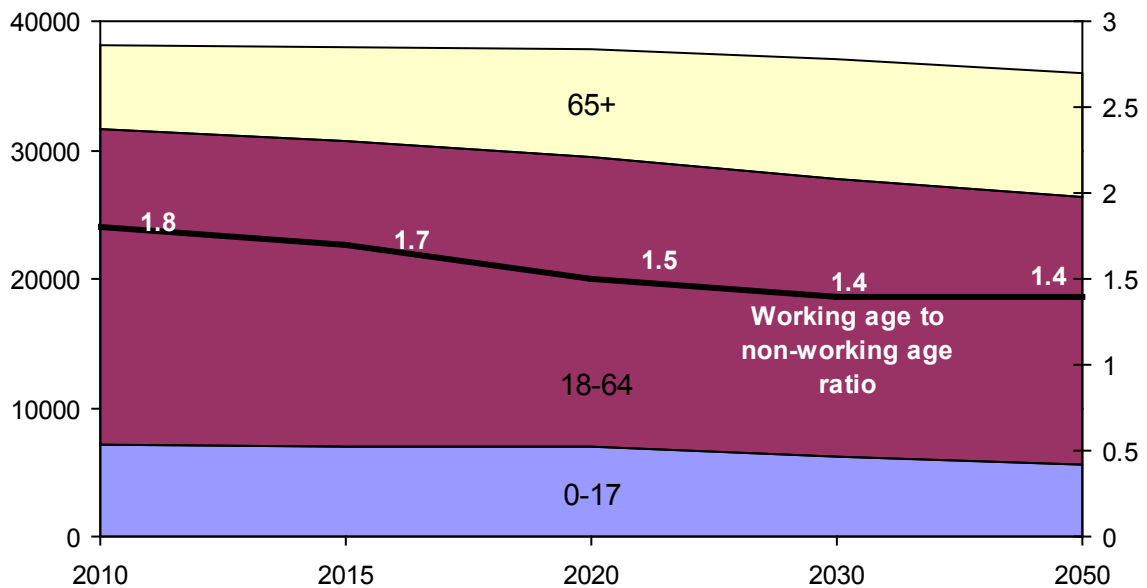
³¹ See Eurostat. Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

³² See Eurostat. Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

³³ Expert interview

people of non-working age (see Figure 3.3). Deteriorating health, in particular higher rates of MSD prevalence among the older workforce, affects individuals' capacity to perform work due to changes in physical and psychophysical fitness (Bugajska, Makowiec-Dąbrowska and Wągrowka-Koski, 2010). At the same time, job requirements will remain the same irrespective of age, putting a strain on the resilience of older workers. Work environments must be accommodated, as the needs of workers change with their age: flexible schedules and rhythm of work, adapted work stations should match workers' capacities.

Figure 3.3: Population projection to year 2050 in Poland



Source: GUS, 2010a

An other important health issue in Poland is the growth of obesity (OECD, 2009) – a risk factor for bone and joint conditions (as well as cardiovascular disease and diabetes). In 2008 almost 23 per cent of adults over 20 years old were obese (WHO, 2011). At the same time fewer individuals engage in regular physical activity. Moreover, increasing demand for knowledge workers means that larger number of employees may spend work days sitting at their desks. Several studies (Zejda, Bugajska, Kowalska, Krzych, Mieszkowska et al., 2009; Malińska and Bugajska, 2010) highlight that prolonged computer use contributed to the development of MSDs among Polish employees. Sedentary lifestyles may aggravate the severity of MSDs, in particular back pain, and contribute to obesity; on the other hand excessive weight exacerbates disability, meaning that many people may find themselves in a 'vicious cycle' of becoming progressively overweight and incapacitated (Piechota, Małkiewicz and Karwat, 2005).

Smoking has been found to have an impact on the progress of RA (Bone and Joint Decade, 2005). While OECD average of adult smokers is 23 per cent (OECD, 2010), the proportion in Poland is relatively high at 30.3 per cent, with further risks associated with the exposure of children and non-smokers to second-hand tobacco smoke (Maria Skłodowska-Curie Cancer Center and Institute of Oncology; Medical University of Warsaw; Center for Disease Control and Prevention, 2010).

Finally, it seems that negative attitudes to disability may contribute to delays in seeking care. Learned helplessness is a trend particularly typical of the Polish workforce (Luszczynska, Schwarzer, Lippke and Mazurkiewicz, 2011). Patients are often not aware of the beneficial impact of work on their health and catastrophise their condition, taking advantage of incapacity benefits while they are still capable of doing some work.³⁴ Men are more likely to claim disability benefits than women, as they often do not consider taking up less physically-demanding jobs.³⁵ Roman-Liu (2008) suggests that both physical and psychological factors may contribute to the development of MSDs. Up to 9.5 per cent of individuals experience psychosomatic pain in the shoulders or neck, or muscle pain/tension; and 8.0 per cent experience pain in the entire body (Czapiński and Panek, 2010). At the same time poor awareness of the link between health and performance among many employers often leads to neglecting health issues at the workplace.³⁶

3.3.2 The impact of the workplace on MSDs

In terms of evidence and risk factors for the impact of work on MSDs once again 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, Raynaud'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 in Poland (Bortkiewicz, Gadzicka, Jędrasik, Merecz, Pas-Wyroślak et al., 2007). However, as mentioned above there are considerable discrepancies between the recorded number of occupational diseases and the number of work-related conditions reported by the employees. EWCS 2010³⁷ reports that over 31 per cent of Polish workers feel that work negatively affects their health.

It is clear that work is not the cause of rheumatic diseases such as RA and SpAs, though RA has been linked to occupational risks such as vibrations, repetitive trauma, knee bending and lifting heavy weights (Prüss-Üstün and Corvalán, 2006). Additionally, physical work demands, lack of support, self-stigma and lack of flexibility over working time can make job retention or return to

³⁴ Reiterated in expert interviews

³⁵ Expert interview

³⁶ Expert interview

³⁷ See EWCS 2010 <http://www.eurofound.europa.eu/surveys/smt/ewcs/results.htm>

work more difficult for patients with specific MSDs (der Tempel and van der Linden, 2001; Gignac et al., 2004).

The evidence linking 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. As the demographic of the working population in Poland is changing, the work environments will have to be adapted to the needs of older workers, as well as those with disabilities (Koradecka and Konarska, 2002).

The most frequently cited risk factors for MSDs encountered in the workplace 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. A strong correlation has been found between physically-demanding jobs and backache and muscular pain (Parent-Thirion et al., 2007). In a study conducted in Poland, Bortkiewicz et al. (2007) highlight that physical overload and awkward postures contributes to the incidence of occupational diseases and exacerbates work-related MSDs, resulting in high rates of carpal tunnel syndrome and back pain in particular. This is partially due to the distribution of occupational sectors in the Polish economy: large proportions of the workforce are employed in physically demanding industries, such as manufacturing and agriculture. Almost 41 per cent of Polish employees are involved in handling heavy loads and over 58.1 per cent of Polish employees are continuously performing repetitive hand and shoulder movements, which may exacerbate existing MSDs (Parent-Thirion et al., 2007). Furthermore, poor ergonomic standards increase the negative impact of physically demanding jobs on health. For example, up to 70 per cent of workplaces might not meet the requirements for vibration levels, resulting in higher levels of muscular pain (Bortkiewicz 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, for example, by performing workstation assessments and giving guidance on manual handling. 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 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 or fear of losing a job. Just under 35 per cent of Polish workers report work-related stress (Parent-Thirion et al., 2007).

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, 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, Kastäng and Kobelt, 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 Poland.

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

- **Direct costs** including medical expenditure, such as the cost of prevention, detection, treatment, rehabilitation, long-term care and ongoing medical and private expenditure. They are often further separated into medical costs occurring in the health care sector and non-medical costs occurring in other sectors (Lundkvist, Kastäng and Kobelt, 2008).
- **Indirect costs** including lost work output attributable to a reduced capacity for activity, such as lost productivity, lost earnings, lost opportunities for family members, lost earnings of family members and lost tax revenue.
- **Intangible costs** including psychosocial burden resulting in reduced quality of life, such as job stress, economic stress, family stress and suffering (WHO Scientific Group, 2003).

These costs vary considerably depending on the condition, 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;
- Treatment costs or outcomes due to treatments (the year costs were calculated which is also a factor not least because treatment processes can change);

- Change in health care 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, the two measures most 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 0.97 per cent of all DALYs lost in Poland, which is the highest percentage among the countries in the study (Lundkvist, Kastäng and Kobelt, 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 the most significant direct costs are related to physical therapy, inpatient services, drugs and primary care (Dagenais, Caro and Haldeman, 2008). Nachemson, Waddell and Norlund (2000) calculated that some 80 per cent of health care costs are generated by the 10 per cent of those with chronic back pain and disability. For RA, although direct health care costs have been relatively small in the past (Lundkvist, Kastäng and Kobelt, 2008), a number of studies indicate that direct costs increase as functional capacity decreases – making functional capacity a major cost driver (Huscher, Merkesdal, Thiele, Schneider and Zink, 2006; Kobelt, 2007; Leardini et al., 2002).

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

Some of the specific direct costs associated with musculoskeletal conditions 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, Caro and Haldeman, 2008) include:

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

Data from the National Health Fund (Narodowy Fundusz Zdrowia, NFZ) confirm that the cost of medical treatment in Poland is only a minor fraction of the total health care expenditure on treating MSDs. In 2009 about 150,000 patients were receiving pharmacological treatment for RA.³⁸ Estimates suggest that overall there are 300,000-400,000 individuals with RA or inflammatory SpAs in out-patient clinics.³⁹ The Polish Society for Rheumatology (Polskie Towarzystwo Reumatologiczne)⁴⁰ reports that in 2008 overall costs of rheumatic disease to NFZ added up to 39.4 million euros, including 30.8 million euros for hospital treatment and 8.6 million euros for out-patient treatment. Of those total costs only 16.9 million euros were spent on pharmacological treatment, including 15.2 million euros on biological treatment of 2,168 patients. At least 57.8 million euros were spent on rehabilitation of patients with rheumatic diseases in sanatoriums (40 per cent of all expenditure on sanatorium rehabilitation).

³⁸ Data provided by an in-country expert

³⁹ Data provided by an in-country expert

⁴⁰ See Polish Society for Rheumatology (Polskie Towarzystwo Reumatologiczne)

http://www.reumatologia.ptn.net.pl/index.php?option=com_content&view=article&id=6&Itemid=5&lang=pl

Recent data from NFZ suggests that while over the years 2004-2009 only 44.2 million euros were spent on biological treatment of RA, juvenile idiopathic arthritis and SpAs in Poland, the number of people receiving biological treatment for those conditions increased to 2,936 in November 2010. The total costs of treating RA and juvenile idiopathic arthritis added up to 22.6 million euros in 2010.⁴¹

Hospital costs constitute one of the main chapters of costs of treatment of MSDs in Poland.⁴² In 2009 musculoskeletal and connective tissue disorders (M00-M99) were the cause of almost 357,000 hospitalisations, compared to just 122,000 hospital stays in 2006. At the same time average length of hospitalisation resulting from MSDs in 2009 is almost 25 per cent lower at 8.6 days than in 2006 (see Table 3.1 below). The longest hospital stays are recorded among patients aged 65 years and over.

Table 3.1: Number of hospitalisations resulting from MSDs in 2006-2009

Main reason for hospitalisation		2006	2007	2008	2009
M00-M99	Musculoskeletal system diseases and connective tissue	121,970	122,348	138,685	357,255
M16	Hip arthrosis	9,375	9,952	11,663	31,198
M17	Knee arthrosis	5,017	5,344	6,154	25,150
M23	Internal derangement of knee	11,333	13,046	15,881	25,518
M00-M15, M18-M22, M24-M25	Other arthropathies	22,921	22,937	27,245	89,898
M30-M36	Systemic connective tissue diseases	2,301	2,505	2,987	15,565
M40-M49	Deforming dorsopathies and spondylopathies	20,077	19,119	30,524	48,536
M50-M51	Cervical and other intervertebral disk disorders	24,925	24,276	26,807	44,248
M54	Back pain	4,164	3,920	10,537	18,926
M60-M79	Soft tissue disorders	13,708	13,229	15,014	32,590
M53, M80-M99	Other dorsopathies, other osteopathies and chondropathies, other musculoskeletal system and connective tissue disorders	8,149	8,020	11,592	25,626
Average length of stay (days)		11.4	9.7	9.1	8.7

Source: National Institute of Hygiene - Państwowy Zakład Higieny, see <http://www.statystyka.medstat.waw.pl/wyniki/wyniki.htm>

⁴¹ See National Health Fund (Narodowy Fundusz Zdrowia, NFZ) <http://www.nfz.gov.pl/new/index.php?katnr=3anddzialnr=19andartnr=1483>

⁴² See NFZ <http://www.nfz.gov.pl/>

NFZ reports that in 2010 total direct costs of the conditions of musculoskeletal system (M00 – M99.9) added up to 937 million euros.⁴³ Of those only 223 euros were spent on preventative health programmes.⁴⁴ Figure 3.4 on page 39 reports on the dynamic of direct costs of the conditions of this group.

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 ZUS and other public institutions. 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.

3.4.2 Indirect costs

There are two main types of indirect costs most commonly measured in association with ill health in employees. These are absence from work and what is termed ‘presenteeism’, or loss of productivity in an employee while they are at work with an illness or incapacity. Presenteeism is extremely difficult to measure and there are no Polish data on presenteeism costs.

Most estimates of indirect costs are therefore based on absence data. Employers compensate the first 33 days of absence, with days 34 to 182 paid from the Social Insurance Fund (Fundusz Ubezpieczeń Społecznych (FUS)). However, the data are rarely collected accurately. 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). This is partially due to the inefficiency of the social security system, which may be incentivising employees to take advantage of the social benefits. Czarzasty (2010) reports high levels of abuse of the sickness absence system in Poland.⁴⁵ After a stricter schedule of inspections was introduced by ZUS, about 10 per cent of approved leave was revoked as illegitimate in 2008 (Czarzasty, 2010). Yet sickness absence, in particular long-term absence, continues to grow: in 2010 over 26 million sick days resulted from MSDs and carpal tunnel syndrome, which represents 10 per cent of the total number of days of sickness absence in Poland.⁴⁶ ZUS (2009) reports that sick leave associated with MSDs is up to 13.6 days on average, compared to 11.9 days of sick leave in general.

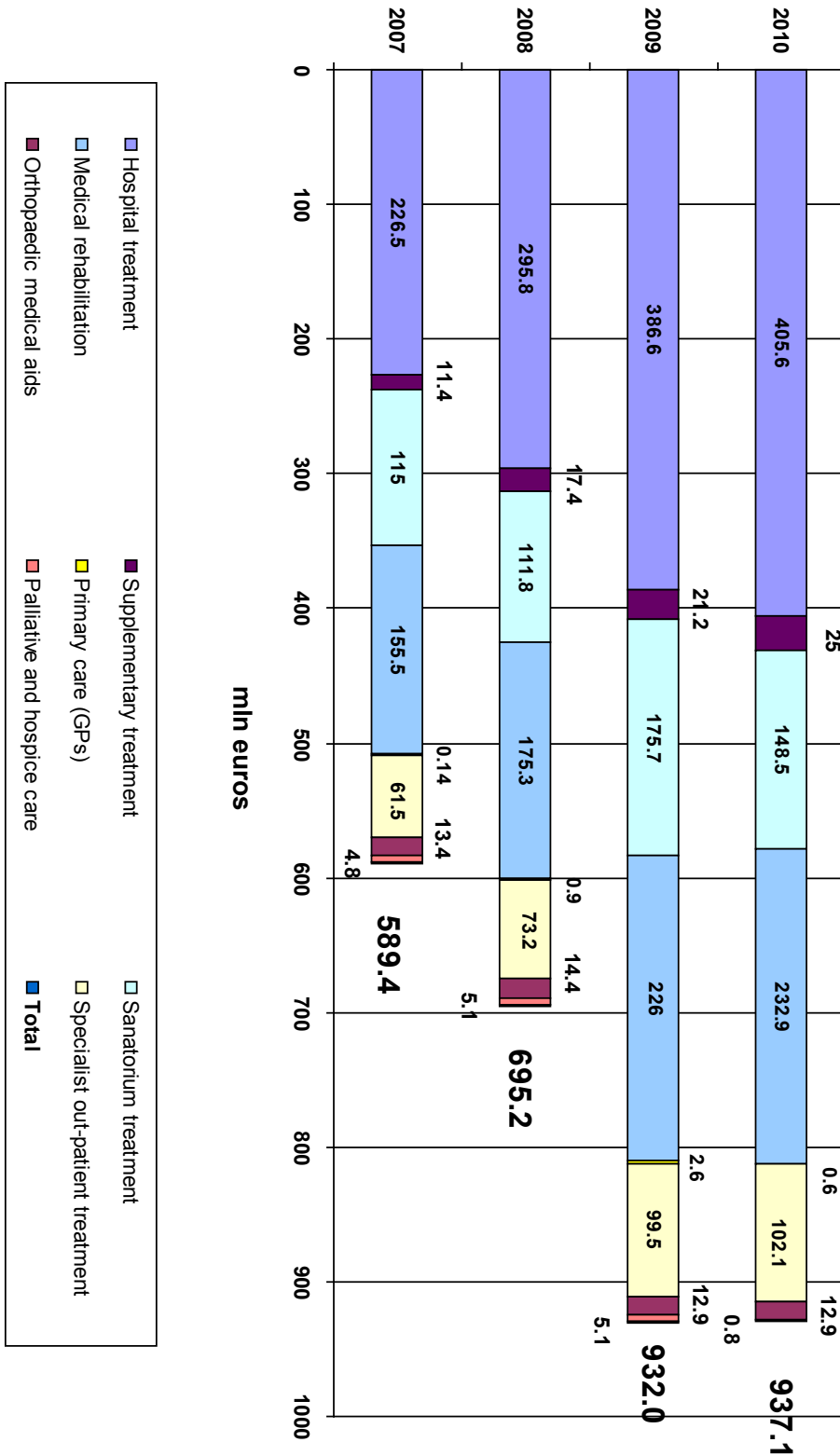
⁴³ Data provided by NFZ

⁴⁴ Data provided by NFZ

⁴⁵ Reiterated in expert interviews

⁴⁶ Data provided by ZUS

Figure 3.4: Direct costs of MSDs in Poland in 2007-2010



Source: data provided by NFZ

On the other hand, the Labour Force Survey⁴⁷ has shown that although more than two-thirds of Polish respondents reported limitations to their daily activities resulting from poor health, only half of them took sick leave. Almost a quarter of employees, according to the early findings of EWCS 2010,⁴⁸ reported coming to work when sick. Those findings hint at potentially high levels of presenteeism, among Polish workers (Czarzasty, 2010).

Early retirement among people with MSDs incurs additional indirect costs (Dagenais, Caro and Haldeman, 2008; Alavinia and Burdorf, 2008). In Poland, poor health, and MSDs in particular, are one of the major causes for early retirement (Szubert and Sobala, 2004). Experts estimate that patients with rheumatoid diseases in Poland lose their jobs on average after three to five years from the onset of the disease (Tłustochowicz, 2009b). Full disability comes on average 20 years after the onset of the disease (Tłustochowicz, 2009b).

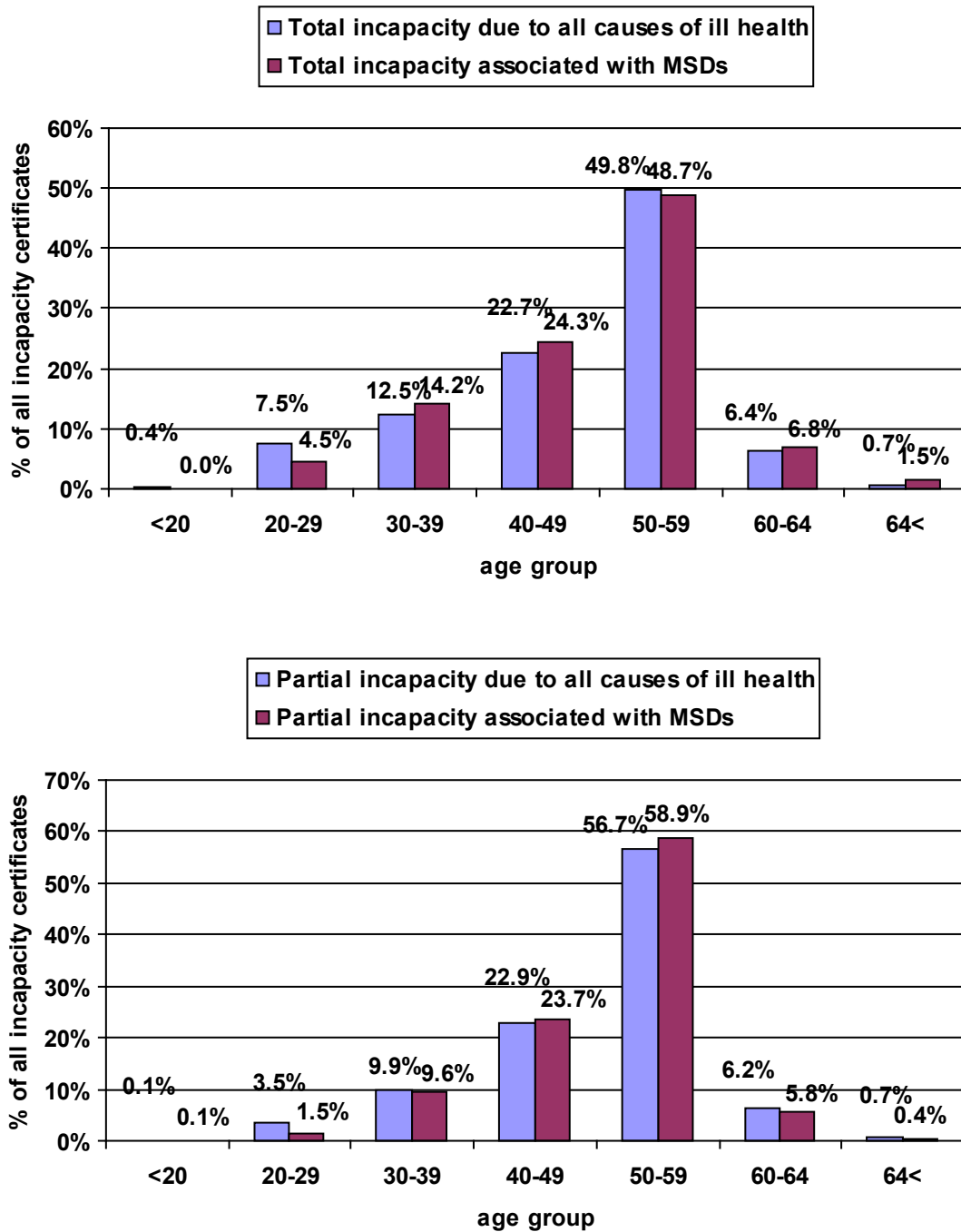
In 2009 about 50.2 thousand individuals were certified as unable to work for up to 24 months, which is a 4.6 per cent decrease, compared to 2008 (ZUS, 2011). Of these 48.5 per cent were totally incapacitated with the remaining 51.5 per cent recognised as having partial incapacity (ZUS, 2011). Diseases of the osteoarticular system led to at least 11.6 per cent of all incapacity cases (ZUS, 2011). The average age of incapacitated individuals was 49.2 years (50.2 and 47.3 years for men and women respectively) and decreased by an average of 2 months as compared with 2008 (see Figure 3.5). At least half of individuals with incapacity aged between 50 and 59 were unable to work and live independently due to MSDs, compared to about 38 per cent in 2008 (ZUS, 2011).

Rehabilitation benefit provides up to 12 months of financial support for individuals with a temporary work incapacity until they recover and return to work. In 2009 the largest number of rehabilitation benefits were issued to people with musculoskeletal and connective tissue disorders, representing 24.7 per cent of the total number of benefits (ZUS, 2011). The average age of the recipients of the rehabilitation benefits in Poland was 46 years (see Figure 3.6). This is a worrying trend, considering the projections for ageing of the Polish population in the decades to come. If increasingly more people seek support due to ill health in their prime working years, fewer healthy individuals will have to support an increasingly older population affected by long-term disease.

⁴⁷ See Eurostat. Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

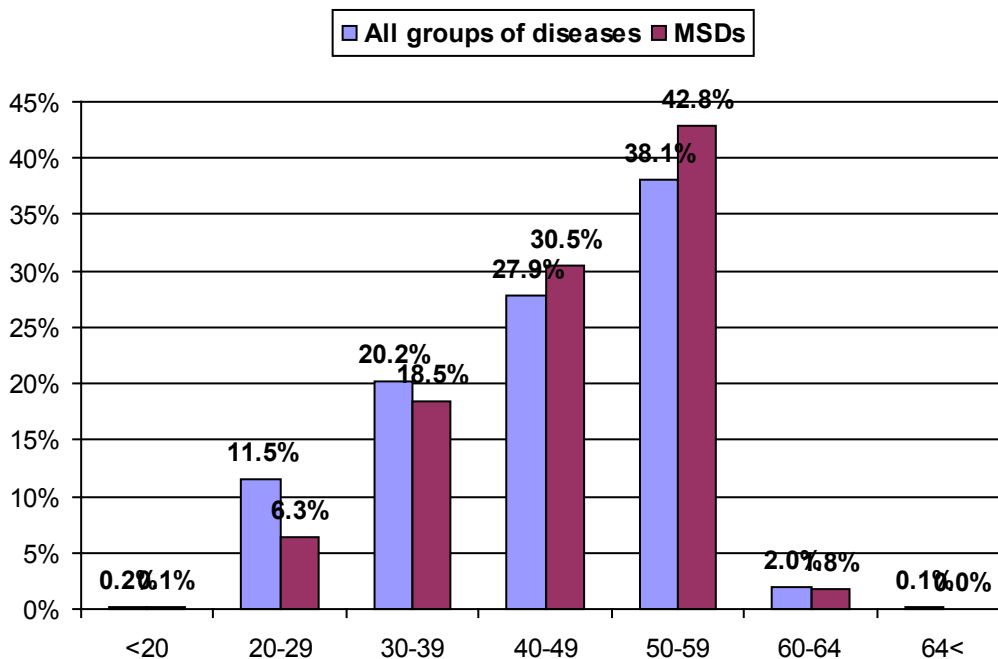
⁴⁸ See EWCS 2010 <http://www.eurofound.europa.eu/surveys/ewcs/2010/index.htm>

Figure 3.5: MSD-related total and partial incapacity in 2009, by age group



Source: ZUS, 2011

Figure 3.6: Rehabilitation benefits in 2009, by age group



Source: ZUS, 2011

In 2009 at least 462 million euros were spent on disability allowance, where work incapacity was caused by diseases of the musculoskeletal system, however the number of individuals receiving the allowance is decreasing.⁴⁹ A large proportion of disabled persons (82.6 per cent) do not even attempt to look for a job; 96.3 per cent of respondents declared that they are not ready to take up employment in the near future (Czapiński and Panek, 2010). In 2009 at least 469.2 million euros were spent on the welfare benefits of the work disabled; at least 13.2 per cent of those costs were attributable to MSDs.⁵⁰ It is suggested that societal costs of RA are 2-3 times bigger than the direct costs of health care.⁵¹ Yet, RA is not recognised as a disease of significant social impact.⁵²

Figure 3.7 below reports on the growing expenditure associated with inability to work in Poland due to ill health. While up to 3.6 billion euros were spent on incapacity benefits for 1.3 million individuals unable to work due to ill health, only 38 million euros were put to preventative rehabilitation for 73.4 thousand persons (ZUS, 2011). Wider access to preventative care would offer significant savings on the consequences of poor health.

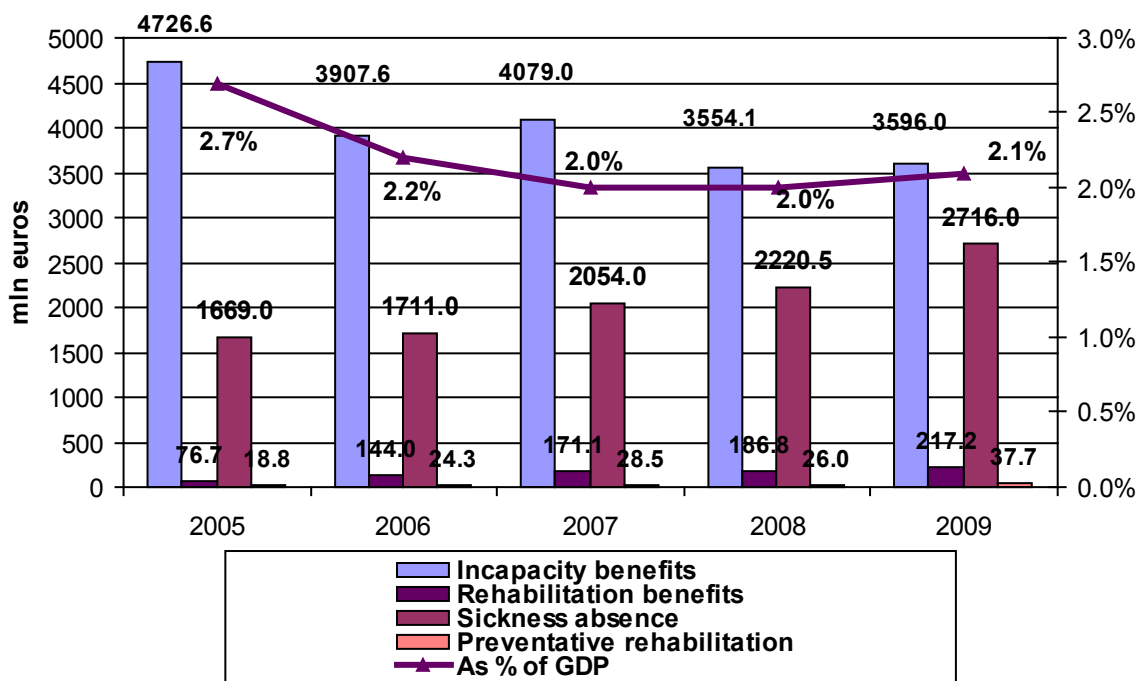
⁴⁹ Data provided by ZUS

⁵⁰ Data provided by ZUS

⁵¹ Expert interview

⁵² Expert interview

Figure 3.7: Costs associated with inability to work due to ill health



Source: ZUS, 2011

However, these figures still underestimate the true cost of conditions such as MSDs. Most people with MSDs (even those with diagnosed conditions) continue to work (Waddell and Burton, 2006a), experiencing the emotional distress of fearing to lose wages and jobs. Additional costs are associated with the reduced ability of an individual to live independently. Such indirect costs may include hiring household help (Kavanaugh, 2005), as well as the lost income of the family members who leave the labour market to provide informal care (Pugner, Scott, Holmes and Hieke, 2000). 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, Kastäng and Kobelt (2008) reported that for RA the annual cost of informal care in Poland was equal to 830 euros per patient. In a different study Kobelt and Kastaeng (2009) arrived to a lower estimation of 579 euros per patient, which was significantly below the European average of 2,012 euros, but slightly higher compared to other Eastern European countries (average 513 euros).

ZUS reports that in 2009 total costs of disability resulting from the conditions of locomotor system and carpal tunnel syndrome added up to 874 million euros.⁵³ Table 3.2 on the next page presents a summary of available evidence on costs of specific conditions.

⁵³ Data provided by ZUS

Table 3.2: Burden of MSDs in Poland in 2009

Condition	Number of people recorded on sick leave, '000	Days of sick leave, '000	Costs of sickness absence, mln euros		Expenditure on disability allowance, mln euros	Total expenditure associated with work incapacity, mln euros
			Employers	FUS		
Carpal tunnel syndrome (G56)	19.2	735.2	2.7	5.8	4.5	15.3
Seropositive rheumatoid arthritis (M05)	8.4	334.7	1.0	2.4	28.2	33.2
Other rheumatoid arthritis (M06)	7.9	229.6	0.8	1.6	13.7	17.1
Psoriatic and enteropathic arthropathies (M07)	1.5	58	0.2	0.5	4.0	4.9
Juvenile arthritis (M08)	0.3	5.6	0.0	0.0	0.3	1
Ankylosing spondylitis (M45)	3.6	110.5	0.4	0.9	15.9	17.7
Other inflammatory spondylopathies (M46)	3.5	76.6	0.4	0.7	1.2	2.3
Spondylosis (M47)	181	5 061.80	20.8	45.8	136.9	217.7
Other spondylopathies (M48)	27.8	648.5	3.2	5.7	2.8	12.4
Spondylopathies in diseases classified elsewhere (M49)	1.4	29.8	0.2	0.3	1.0	2
Cervical disc disorders (M50)	36.5	1 149.50	4.7	10.8	11.3	30
Other dorsopathies, not elsewhere classified (M53)	3	65	0.3	0.5	0.7	1.7
Dorsalgia (M54)	138.6	2 579.90	15.0	18.3	3.4	37.9
Soft tissue disorders related to use, overuse and pressure (M70)	113.4	2 049.40	10.6	12.4	2.5	26.9
Shoulder lesions (M75)	14.6	467.1	1.8	4.1	1.5	8.7
Other soft tissue disorders, not elsewhere classified (M79)	2.6	37	0.2	0.2	0.1	0.6
Diseases of the musculoskeletal system	no data	26 187.90	111.0	214.5	469.2	874.0

Source: data provided by ZUS

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 health care system (Cooper, 2000). The cost of AS to society is less well established (Chorus et al., 2002). More research has been done on cost in the US, Canada and other European countries, particularly the Netherlands, France and Belgium, than in Poland. 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).

Lundkvist, Kastäng and Kobelt (2008) found that the total cost of treating RA patients in Poland was 5,633 euros per patient per year resulting in 1,419 million euros overall costs. A later estimation by Kobelt and Kastaeng (2009) concluded lower RA costs of 3,720 euros per patient per year, or almost 490 million euros in total. 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. The cost of RA is significantly lower, per patient, than those for other Western European countries, but comparable to Eastern European average.

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 some 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. In 2010 total direct costs of the conditions of musculoskeletal system added up to 937 million euros, of which only 223 euros were spent on preventative health care. The main components of direct costs are hospitalisation and rehabilitation, while costs of medication are only a minor proportion of total costs. Indirect costs of those conditions added up to 330 million euros in sickness absence and 470 million euros in costs of disability in 2009. Up to 3.6 billion euros were spent on incapacity benefits associated with ill health, however only 38 million euros were put to preventative rehabilitation. These figures indicate that MSDs incur at least twice as large indirect costs as the costs to the health care system. However, some of those costs could be avoided by a more proactive approach regarding prevention of, and early intervention for, long-term incapacity resulting from MSDs. The significant societal burden of MSDs needs to be taken into consideration when planning intervention and prevention.

Unfortunately, total costs estimates as found in the literature do not 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. Total overall costs of RA were found to be up to 490 million euros for all patients over 19 years old annually. 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 supported 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 regarding 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. In addition, Appendix 3 provides a wide number of indicators that may help to identify both enablers and barriers to early intervention in Poland, and to compare Poland to countries with similar or different labour market, welfare and health care systems.

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 health care 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, Sinclair, Hogg-Johnson, Shannon, Bombardier et al., 1998; Meijer, Sluiter, Heyma, Sadiraj and Frings-Dresen, 2006). Sick leave has also been shown to have a negative psychological impact on employees (Meijer, Sluiter and Frings-Dresen, 2005). Early intervention is therefore crucial to individual recovery and self-management and may contribute to reducing the number of working days lost and reduced productivity caused by MSDs (although the evidence on the cost-effectiveness of specific return to work programmes is inconclusive).

It is also in the 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, Langworthy and Bagust (2005) recommend that employees and employers should discuss and adjust work within the first week of diagnosis. If employees have concerns about their conditions they should consult a health care professional and, following referral or diagnosis, advice and planned action, a review of the recovery plan 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. 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.

Experts agree that MSD patients in Poland do not have problems accessing the treatment options after the diagnosis is established. However, waiting for an appointment with a specialist consultant and receiving the correct diagnosis may take a long time (Europ Assistant Group and Cercle Santé Société, 2010). At the same time the number of rheumatologists in Poland is sufficient⁵⁴ and is comparable with many countries in Western Europe at 2.3 rheumatologists per 100,000 inhabitants.⁵⁵ It is suggested that many GPs in Poland may be unable to recognise early symptoms of specific MSDs, such as RA and SpAs, thus failing to provide prompt intervention.⁵⁶ Relatively higher activity of RA in Poland⁵⁷ may be one outcome of prolonged waiting times.

At the same time delays in access to health care in Poland is difficult to monitor. One successful practice has been established by The Watch Health Care Foundation,⁵⁸ which collects self-reported cases of limitations of access to public health care in Poland across a range of medical specialisations.

Ebner, Palotai, Codreanu, Géher, Pahor et al. (2008) found that the average time between first symptom of SpA and diagnosis in Poland was about four years. Recent evidence suggests that the diagnosis may come up to five to seven years too late (Stanisławska-Biernat, 2010). For RA the average waiting time between the onset of the disease and a visit to a rheumatologist is three to six months.⁵⁹

It is a common misconception, even among the medical care professionals, that RA only affects individuals in their 60s.⁶⁰ GPs often do not see work as a valued outcome of treatment, and therefore do not prioritise restoring the workability of their patients.⁶¹ At the same time, epidemiological data confirm that many young and middle-aged workers are affected by RA symptoms (Moskalewicz, Goryński and Wojtyniak, 2008). Without appropriate and timely treatment half of the patients withdraw from the labour market five years after the onset of the disease.⁶² It is important to start intervention early to prevent the progress of disability (Moskalewicz, Goryński and Wojtyniak,

⁵⁴ Expert interview

⁵⁵ See Eurostat. Statistics Database <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>

⁵⁶ Expert interview

⁵⁷ Data provided by in-country expert

⁵⁸ See The Watch Health Care Foundation <http://www.korektorzdrowia.pl>

⁵⁹ Expert interview

⁶⁰ Reiterated in expert interviews

⁶¹ Expert interviews

⁶² Expert interview

2008). Optimal time to access treatment for RA is suggested to be within four weeks of the onset of disease; in practice the waiting time is at least two months or more.⁶³

Furthermore, a comparative study of treatment practice in Central and Eastern Europe finds the guidelines of treating RA to be generally more restrictive than in Western European countries (Orlewska, Ancuta, Anic, Codrenau, Damjanov et al., 2011). Currently only about 2 per cent of individuals with RA in Poland are accessing biological treatment (Śliwczyński, Kruszewski, Binkowski, Gryglewicz, Tłustochowicz et al. 2010). Published evidence and interviewed experts highlight the importance of *consistent* treatment of individuals with RA in Poland (Jędryka-Góral and Łastowiecka, 2002).⁶⁴ Current schedule of treatment with anti-TNF drug therapies prescribes that the treatment is discontinued after six months of continuously low disease activity, until the next relapse.⁶⁵ If a patient's condition qualifies him to receive the anti-TNF therapy again, they are once again put on the waiting list to access the treatment they were previously receiving.⁶⁶

Delays in accessing the therapy may aggravate the impact of RA. The average severity of RA in Poland is already one of the highest in Europe leading to increased health care expenditure, which may be explained by the fact that many patients do not receive treatment early enough. Experts suggest that six months may be too short a time period to judge the dynamic of a patients condition. If the review period could be increased to a year, improved results of treatment could be achieved sooner.⁶⁷

Many delays arise from the issues with funding. Because a certain amount of financial resources is allocated to each budget year, some patients may have to wait until the new funding is received to access the treatment.⁶⁸ The way the funding for in-patients and out-patients is allocated may incentivise some doctors to hospitalise patients unnecessarily to help them access treatment earlier.⁶⁹ The costs of such treatment would be much higher in the long run due to the cost of bed-days that could be avoided. In 2009 National Health Care Register (Krajowy Rejestr Zakładów Opieki Zdrowotnej) recorded 73,485 rheumatology in-patients, requiring 626.2 thousand bed-days, with an average stay of 8.5 days (GUS, 2010b).

⁶³ Expert interview

⁶⁴ Reiterated in expert interviews

⁶⁵ See Ministerstwo Zdrowia. Leczenie reumatoidalnego zapalenia stawów (RZS) i młodzieńczego idiopatycznego zapalenia stawów (MIZS) o przebiegu agresywnym (ICD-10 M 05, M 06, M 08). http://www.mz.gov.pl/wwwfiles/ma_struktura/docs/zalacznik1_rzs_22122010.pdf

⁶⁶ Expert interviews

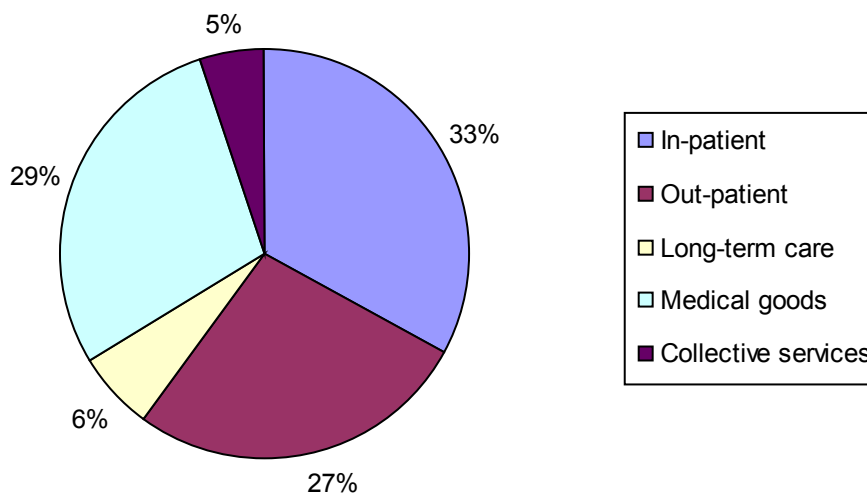
⁶⁷ Expert interviews

⁶⁸ Expert interviews

⁶⁹ Expert interviews

On the other hand, reduced funding for in-patient care may mean that a clinic would admit fewer patients than it has the capacity to treat.⁷⁰ Such practice points at inefficiency in allocating resources and underutilisation of manpower. Figure 4.1 illustrates the distribution of health care expenditure in Poland.

Figure 4.1: Health expenditure by function of health care in Poland, 2007



Source: adapted from OECD, 2009

Receiving medical help may be particularly difficult for individuals living in rural and remote areas. Due to the concentration of specialist consultants and health care facilities in the cities, there is a great variation in access to care between different regions of Poland (Europ Assistant Group and Cercle Santé Société, 2010).⁷¹ Further concerns arise with the low numbers of new professionals being trained in rheumatology: in 10-15 years, when the older generation of rheumatologists retires, there is a risk of a skill gap and worse access to specialists.⁷²

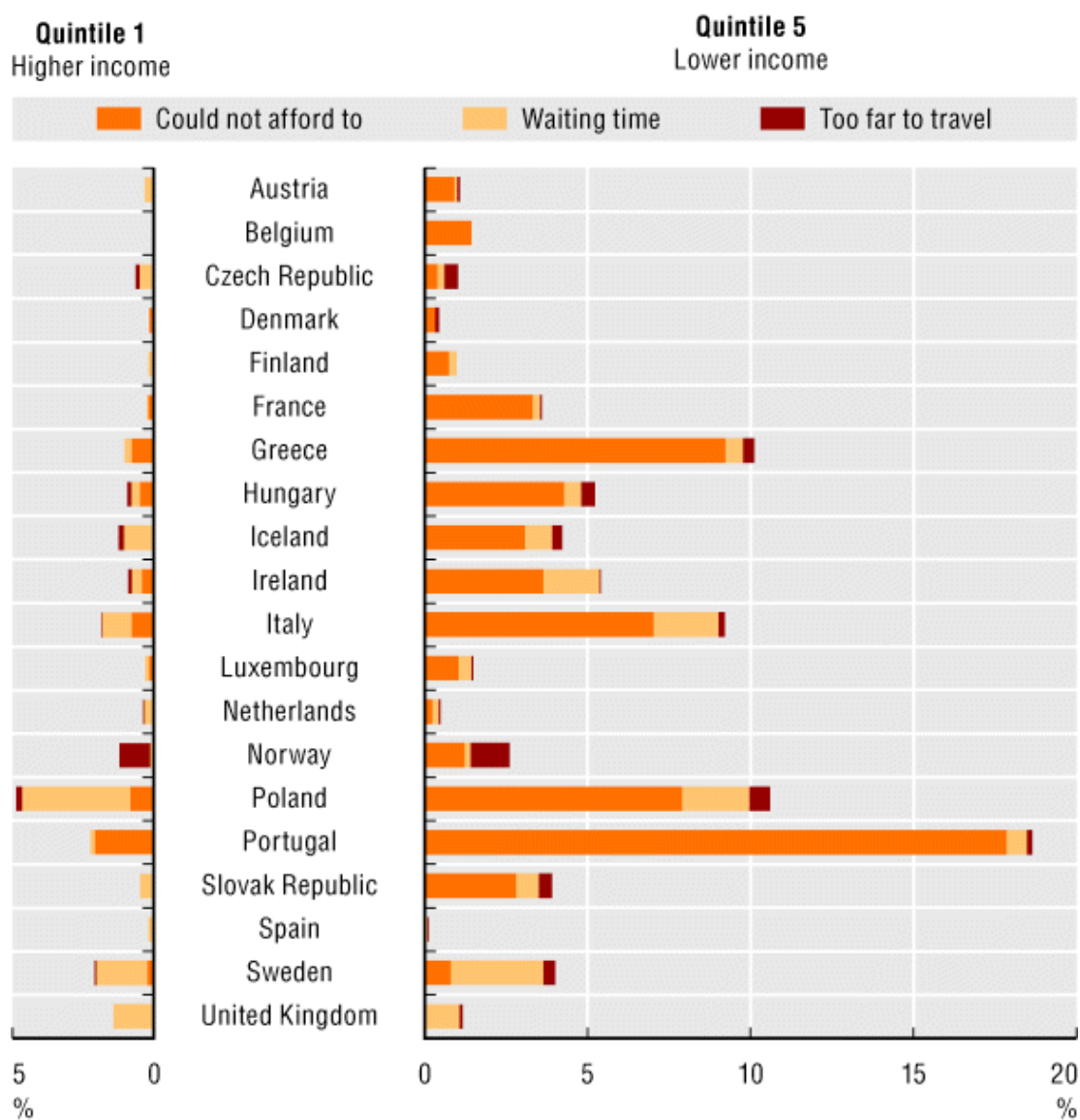
Poor access to medical services in remote areas of Poland, long waiting times and limited funding for the provision of health care may significantly delay health interventions, particularly for those with low income. Figure 4.2 illustrates how access to health care in Poland compares with that in other European countries.

⁷⁰ Expert interview

⁷¹ Also reiterated in expert interviews

⁷² Expert interview

Figure 4.2: Unmet need for a medical examination, by selected reasons and income quintile, 2007



Source: OECD, 2009

There are some best practice examples of early diagnosis and intervention for RA in Poland. The case study below presents an initiative for reducing the time between the onset of RA and the time of diagnosis and treatment.

Box 1: Programme for early diagnosis of RA

In 2010 the Clinical Department of Rheumatology and Connective Tissue Diseases of the teaching hospital in Bydgoszcz (Szpital Uniwersytecki Nr 2 im. dr Jana Biziela w Bydgoszczy) launched an Early Arthritis Clinic for early diagnosis of rheumatoid arthritis. The main activities include:

- Diagnosis and treatment of patients with rheumatic diseases;
- Training and educational activities for students of the Faculty of Medicine and 6th year students of rehabilitation, doctors specialising in internal medicine, orthopaedics, pediatrics, rehabilitation and rheumatology;
- Conducting research and scientific work.

Waiting times for accessing medical help for RA in Poland may be up to three months. The diagnosis often requires multiple specific tests, which are expensive and difficult to access. In addition, early signs of systemic disease of connective tissue diseases including rheumatoid arthritis and seronegative spondyloarthopathy group, as ankylosing spondylitis or psoriatic arthritis are not easy to recognise. As RA affects many individuals in their prime working years, early diagnosis and intervention become a priority for preventing early retirement of individuals with RA.

The new approach is to provide priority consultant appointments for RA patients from all over the *Kuyavia and Pomerania Region*, who have been experiencing RA symptoms from between six weeks and one year. The implementation of this programme will rely on early referral to the clinic of the patients who meet the time criteria of the disease's symptoms by GP/family medicine specialist physicians or rheumatologists after only basic research for further diagnostic tests. Those who register online receive a consultant appointment within 15 days. Within 30 days the patient receives recommendations for treatment supervised by their GPs or rheumatologists.

The Department is equipped with upgraded three-bed rooms for patients and modern infusion room, where patients receive biological treatment for RA. Diagnostic tests are performed in immunological laboratories. During the diagnosis, if there is a necessity to perform specific

Cont.

Cont.

tests, patients will be directed to a three day stay on the ward. Diagnosis will include, among others, immunological tests, laboratory, X-ray, ultrasound, video-capillaroscopy, densitometry and MRI examination of joints, depending on their needs. A range of rehabilitation therapies, including occupational rehabilitation is available to patients, under the collaborative supervision of physicians and physiotherapists.

The programme allows for faster and more efficient communication between medical professionals. One of its goals is to accelerate the availability of diagnostic tests, eliminate unnecessary ones and to shorten patient stay on the ward to minimise the costs of hospitalisation.

Clinic Objectives:

3. Quick and easy access (up to 15 days);
4. Patient education;
5. Early initiation of optimal therapy;
6. Comprehensive evaluation of the patient in order to make a proper diagnosis;
7. Collection of relevant medical data.

Since May 2010 at least 85 regional out-patient clinics cooperates in the programme, which is financed by NFZ. It is important to establish similar clinics throughout the country to ensure faster access of patients with rheumatic diseases to appropriate treatment.⁷³ Another initiative is to design an online tool for evaluating the chances of developing a rheumatic disease on an individual case basis to assist GPs in timely diagnosis of RA and SpAs.⁷⁴ In addition, it is crucial to raise the awareness of employers of the impact that MSDs, and rheumatic diseases specifically, have on an individual's workability.⁷⁵

Sometimes medical help is available, but patients do not refer to it in time. While work-related MSDs may be clinically diagnosed, employees continue to work and may disclose the conditions to their employers when it is already too late to adapt the work environment to fit an individual's health status. For example, while SpA patients in Poland experience their first symptom at an average age of 27, they only seek medical help at an average age of 45 (Ebner, Palotai, Codreanu, Géher, Pahor et al., 2008). Neither employers nor employees recognise the long-term

⁷³ Re-iterated in expert interviews

⁷⁴ Expert interview

⁷⁵ Expert interview

impact of delays in diagnosis and rehabilitation. It is important to raise awareness of availability and importance of early disease management.

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.

Disability is a considerable burden to Polish society. In 2004 almost six million people lived with a disability in Poland, representing 15.5 per cent of the population (Eurofound, 2007). Of those over 2.7 million were affected by conditions associated with limited mobility (GUS, 2007). Poor health drains the labour market of people in their prime working years and incurs significant costs to the welfare system. Up to 20 per cent of patients in long-term care facilities are 19-60 years old (GUS, 2010b). In 2009 at least 405.5 thousand families benefited from monetary and non-monetary community support due to long-term or chronic disease (GUS, 2010c). MSDs are one of the leading causes of disability and early retirement in Poland (Jędryka-Góral and Łastowiecka, 2002). Many of those people are able and willing to work. Jędryka-Góral and Łastowiecka (2002) estimate that many individuals affected by MSDs seek medical rehabilitation (39.7 per cent of claims) and retraining (16.1 per cent of cases).

As hard as it is for people with disabilities to retain their jobs, it may be even more difficult for them to re-enter the labour market. Following the global economic crisis many organisations dismissed less qualified workers and suspended new employment (Czapiński and Panek, 2010). Individuals with limited work ability may be particularly vulnerable in accessing employment opportunities if the number of less-demanding jobs is cut. For example, RA is most often diagnosed among 40-50 year-old individuals, who might find it particularly difficult to learn new skills (Jędryka-Góral and Łastowiecka, 2002). Low rates of employment among disabled people are likely to present individuals and their families with financial challenges: up to 12.9 per cent of those with disabilities rely on their salaries as their main source of income.⁷⁶

One survey conducted in Poland reports the low professional activity of disabled persons: only 13.5 per cent of them stated they had worked in the previous week. The factors conducive to the better chances of employment of the disabled were: being male, being in the 24-44 age group, having higher education, living in a larger city and having a lower degree of disability (Czapiński and Panek, 2010). Additionally, significant regional variation in access to employment was observed (Wapiennik, 2007; Czapiński and Panek, 2010).

⁷⁶ Data provided by an in-country expert based on GUS statistics

The positive impact of work on recovery and health status in general has to be recognised in Poland. Results of another Polish study highlight that work may help people with disabilities to overcome the psychological pressure of being labelled 'unemployed' or 'disabled' (Brzezińska, Kaczan, Piotrowski, Sijko, Rycielski et al., 2008). While many individuals with acquired moderate disability strive to stay in employment, those who were born with a disability or those with significant levels of disability may be discouraged from participation in the labour market (Brzezińska et al., 2008). There is not enough early vocational guidance to prepare individuals with disabilities to manage the changes in their condition (Wapiennik, 2007). On the other hand, active employment status mitigates the effects of disability and improves life satisfaction (Brzezińska et al., 2008). Improved opportunities for part-time work and phased return to work would support the workability of those people for longer.⁷⁷

Almost 88.6 per cent of economically inactive disabled persons of working age do not look for jobs because of their illness or disability (Towalski, 2009). Many work environments do not have the capacity to accommodate the needs of people with disabilities. In addition, legislation does not provide a definition of 'reasonable accommodation' that employers would have to provide to avoid the discrimination of a disabled person (Wapiennik, 2007). Towalski (2009) points out the main groups of barriers faced by disabled people in the workplace:

- Shortage of work stations adapted to the needs of disabled persons;
- Poor access to rehabilitation services;
- Architectural barriers;
- Difficulties in commuting to the workplace.

Simple interventions could overcome those barriers. However, employers are not incentivised to be creative about the inclusion of people with disabilities in work environments, as they fail to recognise the business case of retaining employees with valuable professional skills and creating quality jobs for people with varied capabilities (Wapiennik, 2007). Only 20 per cent of employers are aware of the government subsidies and cost reimbursements available for employing disabled people (Wapiennik, 2007). There were attempts to introduce a system of incentives for organisations to employ disabled people, however, due to high misreporting of the numbers of employees with disabilities, that programme was stopped.⁷⁸ Yet, the employment level of people with disability is on the increase, reaching 25.9 per cent in 2010, compared to 22.6 per cent in 2007.⁷⁹

⁷⁷ Expert interview

⁷⁸ Expert interview

⁷⁹ Data provided by an in-country expert

At the same time, many people with disabilities are reluctant to look for a job (Czapiński and Panek, 2010). This may be explained both by poor health of disabled people, but also with the structure of the welfare system. Czapiński and Panek (2010) found that up to 19 per cent of unemployed men and at least 8 per cent of unemployed women are satisfied with the standard of living provided by received social benefits. Similarly, Zyluk and Puchalski (2008) note that up to 14 per cent of patients do not return to work after carpal tunnel syndrome surgery. The study hints that patients may be physically able, but not willing to return to work, calling for improved rehabilitation services and stricter control over criteria for sick leave and disability allowance.

Equally, some employers may support abuse of the welfare benefits by illegally employing people who are receiving state support for not working. The Law on Occupational Medicine obliges employers to conduct periodical check-ups and introduce workplace prevention programmes (Kuszewski and Gericke, 2005). However, evidence indicates that shadow employment saves the organisation costs of contributions to the social security system and costs of staff turnover. It is estimated that in Poland the shadow economy is 29 per cent of GDP (Kearney, 2009).

Major costs of disability result from the impact of long-term health conditions on individual's ability to participate in the labour market. A focus on rehabilitation services will increase the social inclusion of disabled people, as well as maintain the pool of skilled workers participating in the labour market. Coping with the impact of health conditions has to become a priority both at the state and organisational level.

4.3 For those with specific musculoskeletal conditions, speedy access 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 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.

Painful shoulders, often caused by working with the limbs raised above the head, is one of the most common upper limb disorders reported by Polish patients to their GPs (Piechura, Skrzek, Rozek and Wróbel, 2010). One study reports that a 10-day cryotherapy and kinesitherapy rehabilitation course resulted in statistically significant reduction of pain and increase of muscles strength (Piechura et. al., 2010). However, there was no evidence as to the link between treatment effects and age, gender or level of physical activities.

Zwolińska, Kwolek and Skrzypiec (2007) evaluated the effectiveness of physiotherapy in the treatment of carpal tunnel syndrome. Thirty patients (50 hands) who were treated with ultrasonic waves, massage and neuromobilization of the medianus nerve reported a significant decrease of pain both during the day and during the night as well as a decrease of vegetative disorder (Zwolińska, Kwolek and Skrzypiec, 2007). As physiotherapy can considerably improve patients' well-being it is recommended as an alternative to surgical treatment at least for some patients (Zwolińska, Kwolek and Skrzypiec, 2007).

Physiotherapy and medical interventions are 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 of non-specific musculoskeletal pain (Burton, 2005).

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

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

The biopsychosocial model is an explanatory framework that recognises the importance of psychological and social factors in determining how those with MSDs cope with their conditions. The following section provides a brief overview of the biopsychosocial model and outlines of 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 patients 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, Hennell, Estrach, Birrell, Bosworth 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, only under 1.5 per cent of people with RA in Poland receive biological treatment due to restrictive treatment guidelines (Orlewska et al., 2011).

The recommendations on treating RA in Poland are in line with the European League Against Rheumatism (EULAR) recommendations for previously treated patients with *moderate* or *aggressive* RA (Smolen, Landewé, Breedveld, Dougados, Emery, Gaujoux-Viala et al., 2010; Tłustochowicz, Brzosko, Filipowicz-Sosnowska, Głuszko, Kucharz, Maśliński et al., 2008). However, in practice TNF inhibitors (infliximab, adalimumab, etanercept) are only prescribed for

patients with *severe* forms of RA⁸⁰ and are only occasionally available to patients with *moderate* forms of RA. It is particularly difficult for younger patients to access biological treatment, as they are often at earlier – and less severe – stages of the disease. At the same time, delays in intervention mean that more people of working age will withdraw from the labour market due to ill health. If a ‘treat to target’⁸¹ approach was adopted by the Polish health care professionals, more RA patients could benefit from anti-TNF drug therapies. However, even when treatment is available the correct diagnosis may take a long time:⁸² due to the inability of GPs to refer patients to the appropriate consultant help promptly, as well as due to the insufficient number of consultants in some regions (Niewada and Jakubczyk, 2009).

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, their employers and patient groups, which may provide invaluable expertise on the management of the conditions.

In addition, rehabilitation services are available for patients with rheumatic diseases. In 2009 almost 5,000 patients have undergone government-sponsored rehabilitation.⁸³ Over 16.5 thousand individuals received rehabilitation for rheumatic diseases as in-patients.⁸⁴ At the same time, some decision-makers in Poland do not recognise the value of rehabilitation treatment that supports drug therapy.⁸⁵ If work is to become a valued clinical outcome for individuals with long-term health conditions, non-pharmacological treatment (eg physiotherapy psychosocial and vocational adjustment) has to be part of the routine course of patient rehabilitation.

The case study below explains how a holistic approach to treating RA may improve clinical and quality-of-life outcomes for patients.

⁸⁰ See, for example, Rekomendacja nr 15/2010 Prezesa Agencji Oceny Technologii Medycznych dnia 24 maja 2010r. w sprawie zmiany warunków realizacji świadczenia gwarantowanego „Leczenie reumatoidalnego zapalenia stawów i młodzieńczego idiopatycznego zapalenia stawów lekami modyfikującymi o dużej i umiarkowanej aktywności choroby w warunkach ambulatoryjnych”. http://www.aotm.gov.pl/assets/files/rada/rekomendacje_stanowiska/2010/R26-2010-Leczenie_stawow/R_15_2010_rzs_mizs_ambu.pdf

⁸¹ ‘Treat to target’ means to treat until a set objective is reached. For example, the target may be to put the disease in remission or to reach a level whereby work could be considered

⁸² Expert interviews

⁸³ Data provided by an in-country expert

⁸⁴ Data provided by an in-country expert

⁸⁵ Expert interviews

Box 2: Working with RA

Patient A was diagnosed with RA in 2001, within two months from the onset of the disease. She was promptly started on disease-modifying drugs first and was then recommended biological treatment. However, after the patient's status improved, the therapy was suspended in accordance with the treatment guidelines, causing A to experience a severe relapse of the disease. It took another two months to start receiving biological treatment again.

Since the onset of RA, the patient often experiences unbearable pain which makes it difficult to focus on anything else than the pain itself. At those times she feels depressed and her range of movement is severely restricted. The patient and her husband both receive support from patient group for individuals with RA.

Because she was self-employed, A was able to adjust the workload to the condition. The patient admits that employers are likely to be cautious about employing a person with RA. On the other hand, some patients do not know enough about their condition and might overestimate the negative impact of the disease on their workability. Finally, the patient finds that GPs know little about rheumatic diseases, rarely addressing the needs of RA patients as workers. It is important for all of those stakeholders to realise that people with early stages of RA, receiving appropriate treatment, are capable of doing much more at work.

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. 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. Again, the recommendations for treatment of SpAs in Poland match standards set by EULAR (Braun, van den Berg, Baraliakos, Boehm, Burgos-Vargas, Collantes-Estevez et al., 2011; Zochling, van der Heijde, Burgos-Vargas, Collantes, Davis, Dijkmans et al., 2006; Wiland, Filipowicz-Sosnowska, Głuszko, Kucharz,

Maśliński, Samborski et al., 2008; Szepietowski, Adamski, Chodorowska, Gliński, Kaszuba, Placek et al., 2010), patients with moderate forms of PsA and AS may experience delays in receiving appropriate treatment. As AS typically affects relatively young people, the potential of delayed treatment 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).

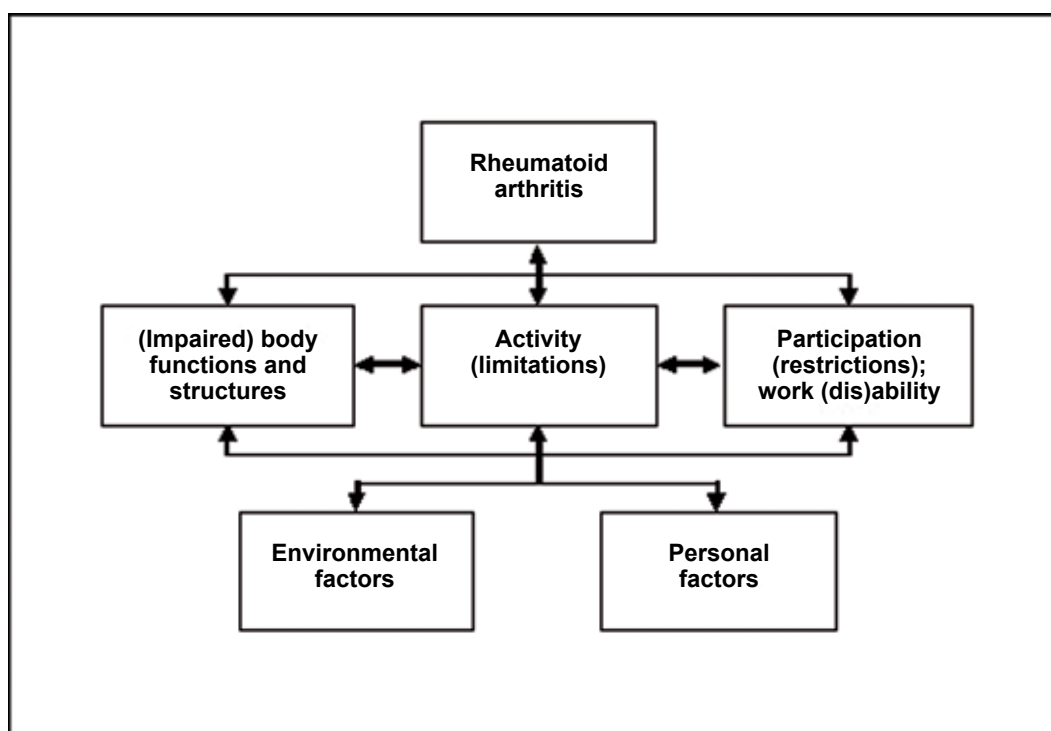
The affected emotional state of patients with AS means that support and help are much needed by those living alone or in scarcely populated areas (Sierakowska et al., 2006). Professional care, psychic support, education of the patient and of persons caring for him, and early preparation to the progress of disease have potential to improve individuals' quality of life (Sierakowska et al., 2006).

4.4 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 satisfaction can be an important predictor of speedy and successful return to work (Bigos, Battie and Spengler, 1992; Brzezińska et al., 2008). 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, Sluiter, Nijssen, Dijkmans, Lankhorst 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 4.3 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 4.3: ICF model applied to work disability in RA



Source: de Croon et al., 2004

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

of *Functioning, Disability and Health* (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 uses cognitive behavioural theory (CBT) to address the psychological aspects related to rehabilitation, in addition to physical rehabilitation (Ektor-Andersen, Ingvarsson, Kullendorff and Ørbæk 2008). Ektor-Andersen et al. developed a tool using CBT and identified four domains that can contribute to long-term sick leave due to musculoskeletal symptoms: the community, the workplace, the family/spare time and the health care system. Results from the study show that this type of intervention is effective in significantly reducing sick leave and social security expenditure after four months of the intervention. The cost-benefit analysis presented by Ektor-Andersen et al. probably underestimated the total savings, but suggested that the costs of the intervention are balanced out by the reduced social security expenditure 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 4.5.1 Awareness of conditions and their management

The role of employers

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. One of the most common misconceptions about MSDs is that those conditions only affect older workers.⁸⁶ However, quality-of-life studies indicate that the patients’ ability to perform daily activities is already affected among 40-year-olds and worsens by the time the individuals reach their 60s (Moskalewicz, Goryński and Wojtyniak, 2008). That means that many employees may experience reduced productivity during their prime working years, and later when retaining a job is vital for their financial sustainability. Employers should

⁸⁶ Expert interviews

recognise the value of work in improving health outcomes for patients, as well as the costs of losing skilled workforce, and assist their recovery through accommodating work environments to the needs of patients (Moskalewicz, Goryński and Wojtyniak, 2008).

Changing attitudes and raising awareness about the management of MSDs is an important part of reducing their burden to employers and society. Focus on employee needs and appropriate application of ergonomic interventions may prevent some MSDs and slow down the progression of others. Simple changes, such as adjustable keyboard trays, adjustable chair armrests or additional keyboards for laptops, can make a considerable difference for the workers well-being in the long run (Malińska and Bugajska, 2010). At the same time, due to financial constraints some employers, particularly organisations in the public sector and SMEs may have reduced opportunities to invest in the health and well-being of their staff.⁸⁷

However, it is not just employers that need to know more about MSDs and their treatment. Employees are equally unaware of the principles of healthy behaviour.⁸⁸ Few workers recognise the value of preventive measures and comply with standard requirements or recommendations to reduce health risk associated with poor ergonomic standards at work (Kowalska and Bugajska, 2009). Employers have to take the responsibility to educate their staff about healthy behaviour within the work environment.

One of the most persistent (and pernicious) myths about back pain, for example, is that bed rest is the best solution. Health promotion campaigns, such as 'Lighten the Load' 2007,⁸⁹ have successfully got 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; Bone and Joint Decade, 2005), and have provided recommendations on how to prevent and manage pain in the workplace. 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, Shaw, Lincoln, Miller and Wood, 2003; van Duijn and Burdorf, 2008). Among occupational health specialists, the use of vocational rehabilitation has long been an accepted mechanism for ensuring that individuals with illness, injury or incapacity can return to

⁸⁷ Expert interview

⁸⁸ Expert interviews

⁸⁹ See European Agency for Safety and Health at Work. Poland.

http://osha.europa.eu/pl/campaigns/ew2007/teaser/news_article.2007-01-05.7797538317

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.⁹⁰ 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 incapacity itself is (at least in part) caused by or related to work.

There are numerous types of work-based interventions 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).⁹¹ 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, Esmail, Karjalainen, Malmivaara, Irvin 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, 2002).

⁹⁰ Reiterated in expert interviews

⁹¹ Findings from an evaluation of the effectiveness of return-to-work treatment programmes were inconsistent

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

Box 3: Principles of managing non-specific MSDs

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

Source: Health and Safety Executive, 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 therefore unable to manage the disclosure of ill health appropriately. Additionally, managers may be 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 may also be ignorant of, or uncomfortable with, the idea of rehabilitation. Although the Labour Code and the Act on Disabled Persons require employers to make adjustments to support employees with long-term illness or injury, there is no specific definition of 'reasonable accommodation', providing few incentives for managers to think proactively about changing job design and schedule to accommodate employee needs.

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 organisations may be significant, particularly for small and medium sized 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. Medical students in Poland spend a very small proportion of their time learning about occupational health, in disease prevention (WHO, 2009). In addition, many GPs feel uncomfortable or incompetent when asked to assess 'workability' (Arrelov, Alexanderson, Hagberg, Lofgren, et al., 2007), as they often have little understanding of specific tasks undertaken by employees and the work environment in general. As a result, GPs may feel that a return to work would exacerbate a condition unless an individual is 100 per cent fit. Health care professionals need to work together with individuals and their employers to understand the needs of a particular job and individual patterns of the course of the disease in order to make appropriate recommendations for a phased return to work (Bijlsma, 2010). Preservation and rehabilitation of the functional ability of a *patient as a worker* should become a recognised clinical outcome (Jędryka-Góral and Łastowiecka; 2002; Kuncewicz, Samborski, Szpera, Krawczyk-Wasielewska, Sobieska et al., 2009).

For their part, employers will rarely consider the potential for a beneficial return to work for a patient outside the GP's sick note. The consequence of this mutual lack of understanding and resulting dearth of dialogue can often be that the MSD patient leaves the labour market prematurely. 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. Patients should be issued with a 'Fit' Note, which is proving to be a successful practice to help partially incapacitated people to return to work – without compromising the safety norms.

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. Consideration of the impact of the disease on quality of life and psychological well-being of patients should be part of routine clinical practice (Bugajska et al. 2010). The biopsychosocial model 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 This section has outlined the case for early intervention, first and foremost to benefit the health of those with MSDs, but also to relieve the enormous societal burden of MSD-related sickness absence and disability. We also demonstrated that interventions 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. 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, the costs of not addressing this problem were highlighted in this chapter.

5. Conclusions and recommendations

Work is good for our health. It provides us with income, generates social capital and gives us purpose and meaning. Even when unwell or injured, remaining in work – at least in some capacity – is often better for recovery than long periods away from work. If the workforce in Poland 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 Poland are, or will be, directly affected by MSDs. This can have very significant consequences not only for these individuals and their families, but also the Polish economy and society. Poor health can impede the productive capacity of the total workforce and parts of Polish 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 disappointingly low awareness of the extent and consequences of the MSD problem in Poland, 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. Appropriate legislation and a ‘joined-up’ approach among all the stakeholders involved are the first steps towards reducing the societal burden of MSDs. As Poland presides over the work of the EU Council, it has an opportunity to lead positive changes in management of long-term health conditions across the EU by initiating and promoting examples of best practice in managing chronic diseases, such as MSDs.

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 Think proactively about managing employees’ health at the workplace. Welcome the introduction of phased return to work and adjust work pressure to the health status of staff. Recognise the value of retaining skilled workers in their jobs beyond legal compliance and support their recovery and rehabilitation.

**Recommendations
for employers**

- Support phased return to work. Employers can catastrophise too! Most workers with MSDs can continue to make a great contribution at work if they are allowed to. They don’t 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.

- Use occupational health advice. Vocational rehabilitation that is 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. Make use of government incentives supporting workplace interventions. Long-term reduction in absenteeism, presenteeism and staff turnover are likely to outweigh immediate costs of health and well-being programmes.
- Imaginative job design will assist rehabilitation. Simple changes in the ways work is organised (including flexible working time arrangements) will help prevent MSDs getting worse and help people with MSDs to return to work. Managers in Polish organisations need to be aware that MSDs affect not only older employees, but equally young and middle-aged individuals. Even with an occupational health specialist within an organisation, managers are in the front line of staff absence and are in a better position to spot the early warning signs of a problem and to help adjust work environment to individual needs.
- Provide your employees with 'good work'. When thinking about prevention and accommodation of the MSDs, employers have to consider the psychological and social dimensions, such as job quality and the impact of excessive job demands.

5.2 Don't catastrophise your health condition and prepare to anticipate changes in your health status in the future. Acknowledge that work is likely to help you to continue living a fulfilling and productive life for longer and discuss with your manager how to accommodate your condition early. Remember that you are the best expert on your condition and explain to your employer how you can preserve your workability.

**Recommendations
for employees**

- Focus on capacity not incapacity. Leaving your job because of your MSD is not the only solution. You still have skills 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 experience mobility problems. 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.
- Play an active part in the management of your condition. 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. Patient groups may be a valuable source of support and information on dealing with health conditions.

- 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.
- 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 ill, without fear of losing your job. If you are a trade union member, your union should be able to guide you on much of this.

5.3 Become trained in occupational health issues and support the introduction of a phased return to work. It is crucial that the health care system professionals support individuals in retaining for their jobs and refer patients to the appropriate specialists as soon as possible. Advise policy-makers on best practice for early diagnosis and intervention for MSDs.

**Recommendations
for GPs and
specialist
consultants**

- See the patient as a worker too. Work has to become a valued clinical outcome for treating patients with chronic health conditions to help them maintain financial sustainability and feelings of self-worth. At the same time a gradual return to work is likely to assist recovery and prevent an exacerbation of health conditions, disability and early retirement.
- Intervene early. GPs are ideally placed to identify the early presentation of many MSDs. Make use of the health care support programmes (including online tools for diagnosing rheumatic diseases) to learn to identify the conditions in time for appropriate treatment. Where appropriate, refer patients to specialist teams as early as practicable, to enable management of the condition to begin.
- 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. 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. Highlighting what patients can do in their jobs *can* help achieve a balance between the individual's need for respite and their need to work.
- 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. Collaborate with patient support groups, which may often provide advice on job retention or return to work.

5.4 **Recognise the need in vocational rehabilitation of individuals. Recognise that diseases not caused by work are affecting performance too and advise employers and policy-makers on appropriate management of those conditions. Encourage a culture of inclusion of people with long-term conditions in workplaces, as work is a meaningful part of individuals' lives.**

Recommendations for occupational health services

- Intervene early. Where possible, provide interventions which prevent symptoms escalating and which prevent short-term absence becoming long-term absence or even permanent work disability. Work with GPs, other health care professionals (eg physiotherapists), employers and workers to facilitate early interventions which maximise job retention or facilitate successful rehabilitation and prompt return to work.
- Review the definitions of work-related and occupational diseases. Establish criteria for evaluating the impact of poor health on work and develop guidelines for a phased return of patients to quality jobs.
- Encourage dialogues between employer and employee, or employer and GP to ensure that the patient recognises the value of returning to work as a positive way of managing their condition, but at the same time ensuring they are not afraid to admit being unwell and take reasonable time off work.
- Encourage self-management. Working with the employee, their colleagues and their manager, help individuals to find strategies to manage their own conditions. This will enable them to make their own decisions about their working arrangements.

5.5 **Prioritise reducing the costs of MSDs for individuals and their families, employers and the labour market. Policy-makers should acknowledge that current health and social policies do not consider job retention or return to work as desirable clinical outcomes, leading to inefficient allocation of health care and welfare resources. The government should consider a national plan for people with MSDs – driven forward by a National Clinical Director for MSDs – which monitors the improvement in diagnosis and access to appropriate therapy and vocational rehabilitation in Poland, reducing the societal burden of MSDs.**

Recommendations for government

- Take seriously the existing evidence that the proportion of the Polish workforce with MSDs is likely to grow over the next few decades. Societal costs of MSDs are at least twice as big as the costs to the health care system. As Poland already has a high prevalence of MSDs, it has the benefit of learning from local good practices and the government should act now to reduce the financial burden of disability on the welfare system and use the funds to support early diagnosis and prevention of severe incapacity.

- Expand the definitions of MSDs in the current classification of occupational diseases beyond their current narrow focus, formally acknowledging that many MSDs and other chronic conditions (such as rheumatic diseases, multiple sclerosis) are not caused by work, but may inhibit participation at work. With regard to rheumatic disease in Poland, the current policies and treatment practices focus predominantly on RA. More should be done to improve diagnosis and early intervention for other rheumatic conditions, such as SpAs.
- Access to clinical expertise needs to improve. The apparent lack of training among GPs on MSDs and variation in access to specialist consultants by some patients are 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. 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 sickness certificates with a UK-style 'Fit Note' (sample presented in Appendix 2) which encourages GPs to indicate what a worker **is still capable of performing**. The welfare system may discourage partially disabled individuals from retaining active employment status and incentives should be introduced to ensure that those who are able and willing to work could return to the labour market. Focusing on the capacity of the employee would help other health care professionals and employers to plan return to work interventions and to make appropriate adjustments to job demands and/or working time.
- Recognise the value of vocational rehabilitation that supports clinical treatment of MSDs. Establish better system of referral to rehabilitation programmes, making sure that patients receive the most cost-effective, but also the most appropriate treatment for their health status. Recognise that prevention of long-term conditions is an investment in the future of health care and welfare systems. The government should review the extent of collaborative working between the welfare and the health care systems to assess financial resources and act on the health profile of Polish workforce.

- Akkoc, N. (2008). Are spondyloarthropaties as common as rheumatoid arthritis worldwide? A review. **Current Rheumatology Reports**, 10, 371-378
- Alavinia, S. M. and Burdorf, A. (2008). Unemployment and retirement and ill-health: a cross-sectional analysis across European countries. **International Archives of Occupational and Environmental Health**, 82, 39-45
- Aptel, M., Aublet-Cuvelier, A. and Cnockaert, J. C. (2002). Work-related musculoskeletal disorders of the upper limb, **Joint Bone Spine**, 69 (6), 546-555
- Armstrong, K. (2006). **Life After Rover**. London: The Work Foundation
- Arrelov, B., Alexanderson, K., Hagberg, J., Lofgren, A., Nilsson, G. et al. (2007). Dealing with sickness certification - a survey of problems and strategies among general practitioners and orthopaedic surgeons. **BMC Public Health**, 7(1), 273. Published online on 2 October. doi: 10.1186/1471-2458-7-273
- Backman, C. L. (2004). Employment and work disability in rheumatoid arthritis. **Current Opinion in Rheumatology**, 16, 148-152
- Bączyk, G., Samborski, P., Pieścikowska, J., Kmiecik, M. and Walkowiak, I. (2007). Comparison functioning and quality of life of patients with osteoarthritis and rheumatoid arthritis. **Advances in Medical Science**, 52 (Suppl 1), 55-59
- Bekkering, G., Henriks, H., Koes, B., Oostendorp, R., Ostelo, R., et al. (2003). Dutch Physiotherapy Guidelines for Low Back Pain. **Physiotherapy**, 89 (2), 82-96
- Bigos, S. J., Battie, M. C. and Spengler, D. M. (1992). A longitudinal, prospective study of industrial back injury reporting. **Clinical Orthopaedic Related Research**, 279, 21-34
- Bijlsma, J. W. J. (2010). Optimal treatment of rheumatoid arthritis: EULAR recommendations for clinical practice. **Polskie Archiwum Medycyny Wewnętrznej**, 120 (9), 347-353
- Block, A. R., Kremer, E. F. and Gaylor, M. (1980). Behavioral treatment of chronic pain: the spouse as a discriminative cue for pain behaviour. **Pain**, 9 (2), 243-252
- Bodolay, E., Derfalvi, B., Gergely, P. and Poor, G. (2007). [When does an autoimmunie disease begin? Importance of the early diagnosis.] **Orv Hetil**, 148, (Suppl1), 25-30. [Abstract]
- Bone and Joint Decade. (2005). **European Action Towards Better Musculoskeletal Health: A public health strategy to reduce the burden of musculoskeletal conditions**. Lund: The Bone and Joint Decade, Department of Orthopedics, University Hospital. Retrieved 15 April 2009 from http://ec.europa.eu/health/ph_projects/2000/promotion/fp_promotion_2000_frep_15_en.pdf
- Boonen, A., Chorus, A., Miedema, H., van der Heijde, Landewé, D. R. et al. (2001). Withdrawal from labour force due to work disability in patients with ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 60, 1033–1039
- Bortkiewicz, A., Gadzicka, E., Jędrasik, T., Merecz, D., Pas-Wyroślak, A. et al. (2007). **Zagrożenia Zdrowia Kierowców Pojazdów Silnikowych Związane ze Szkodliwymi i Uciążliwymi Warunkami Środowiska Pracy**. Łódź: Instytut Medycyny Pracy im. prof. J. Nofera

- Braun, J., van den Berg, R., Baraliakos, X., Boehm, H., Burgos-Vargas, R., Collantes-Estevez, E. et al. (2011). 2010 update of the ASAS/EULAR recommendations for the management of ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 70, 896-904
- Breen, A., Langworthy, J. and Bagust, J. (2005). Improved early pain management for musculoskeletal disorders. **HSE Research report**, 399 London: Health and Safety Executive
- Brinkley I., Clayton, N., Coats D., Hutton W. and Overell, S. (2008), **Hard Labour: Jobs, Unemployment and the Recession**. London: The Work Foundation
- Brzezińska, A. I., Kaczan, R., Piotrowski, K., Sijko, K., Rycielski, P. et al. (2008). Uwarunkowania aktywności zawodowej osób z ograniczeniami sprawności: czynniki społeczno-demograficzne. **Nauka**, 1, 129-150
- Buchbinder, R., Jolley, D. and Wyatt, M. (2001). Population based intervention to change back pain beliefs and disability: three part evaluation. **British Medical Journal**, 322, 1516-1520
- Bugajska, J., Brzosko, M., Jędryka-Góral, A., Głuszko, P., Żołnierczyk-Zreda, D. et al. (2010). Psychological stress in rheumatoid arthritis patients: a comparative Polish–German study. **Autoimmunity Reviews**, 9, 211-215
- Bugajska, J., Makowiec-Dąbrowska, T. and Wągrowaska-Koski, E. (2010). Zarządzanie wiekiem w przedsiębiorstwach jako element ochrony zdrowia starszych pracowników. **Medycyna Pracy**, 1, 55-63
- Burton, A. K. (1997). Back injury and work loss. Biomechanical and psychosocial influences. **Spine**, 22, 2575-2580
- Burton, A. K. (2005). How to prevent low back pain. **Best Practice and Research in Clinical Rheumatology**, 19 (4), 541-555
- Cammarota, A. (2005). **The Commission's initiative on MSDs: Recent developments in social partner consultation at the European level**. Presentation to the Conference on MSDs – A challenge for the telecommunications industry. Lisbon, 20-21 October
- Carter, L. E., McNeil, D. W. and Vowles, K. E. (2002). Effects of emotion on pain reports, tolerance and physiology. **Pain Research Management**, 7(1), 21-30
- Chorus, A. M. J., Miedema, H. S., Wevers, C. W. J. and van der Linden, S. (2001). Work factors and behavioural coping in relation to withdrawal from the labour force in patients with rheumatoid arthritis. **Annals of the Rheumatic Diseases**, 60, 1025-1032
- Chorus, A. M. J., Boonen, A., Miedema, H. S. and van der Linden, S. (2002). Employment perspectives of patients with ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 61, 693-699
- Chorus, A. M. J., Miedema, H. S., Boonen, A. and van der Linden, S. (2003). Quality of life and work in patients with rheumatoid arthritis and ankylosing spondylitis of working age. **Annals of the Rheumatic Diseases**, 62, 1178-1184

References

- Coats, D. and Lehki, R. (2008). **'Good Work': Job Quality in a Changing Economy**. London: The Work Foundation
- Coats, D. and Max, C. (2005). **[Healthy Work, Productive Workplaces: Why the UK needs More Good Jobs](#)**. London: The Work Foundation
- Cooper, N. (2000). Economic burden of rheumatoid arthritis: a systematic review. **Rheumatology**, 39 (1), 28-33
- Czapiński, J. and Panek, T. (2010). **Social Diagnosis 2009. The Subjective Quality and Objective Conditions of Life in Poland**. Warsaw: The Council for Social Monitoring. Retrieved 23 June 2011 from http://analizy.mpips.gov.pl/images/stories/publ_i_raporty/Social%20Diagnosis%202009.pdf
- Czarzasty, J. (2010). **Absence from work – Poland**. European Working Conditions Observatory. Retrieved 23 June 2011 from <http://www.eurofound.europa.eu/ewco/studies/tn0911039s/pl0911039q.htm>
- Dagenais, S., Caro, J. and Haldeman, S. (2008). A systematic review of low back pain cost of illness studies in the United States and internationally. **The Spine Journal**, 8, 8-20
- Dagfinrud, H., Mengshoel, A. M., Hagen, K. B., Loge, J. H. and Kvien, T. K. (2004). Health status of patients with ankylosing spondylitis: a comparison with the general population. **Annals of the Rheumatic Diseases**, 63, 1605-1610
- de Buck, P., Schoones, J. W., Allaire, S. H. and Vliet Vlieland, T. P. M. (2002). Vocational rehabilitation in patients with chronic reumatoid diseases: A systematic literature review. **Seminars in Arthritis and Rheumatism**, 32 (3), 196-203
- de Croon, E. M., Sluiter, J. K., Nijssen, T. F., Dijkmans, B. A. C., Lankhorst, G. J. et al. (2004). Predictive factors of work disability in rheumatoid arthritis: a systematic literature review. **Annals of the Rheumatic Diseases**, 63, 1362-1367
- Depa A. i Druzbicki M. (2008): Ocena **częstości** występowania zespołów bólowych lędźwiowego odcinka kręgosłupa w zależności od charakteru wykonywanej pracy. W: Przegląd Medyczny Uniwersytetu Rzeszowskiego, s. 34-41
- Department for Work and Pensions. (2010). **Statement of Fitness to Work. A guide for General Practitioners and other doctors**. Retrieved 21 April 2011 from <http://www.dwp.gov.uk/docs/fitnote-gp-guide.pdf>
- der Tempel, H. and van der Linden, S. (2001). Withdrawal from labour force due to work disability in patients with ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 60, 1033-1039
- Devereux, J., Rydstedt, L., Kelly, V., Weston, P. and Buckle, P. (2004). The role of work stress and psychological factors in the development of musculoskeletal disorders. **Health and Safety Executive Research Report 273**. London: Health and Safety Executive

- Ebner, W., Palotai, T., Codreanu, C., Géher, P., Pahor, A. et al. (2008). Ankylosierende spondylitis in Mittel- und Osteuropa. **Zeitschrift für Rheumatologie**, 67 (6), 503-510
- Ekberg, K. (1995). Workplace changes in successful rehabilitation, **Journal of Occupational Rehabilitation**, 5, 253–269
- Ektor-Andersen, J., Ingvarsson, E., Kullendorff, M. and Ørbæk, P. (2008). High cost-benefit of early team-based biomedical and cognitive-behaviour intervention for long-term pain-related sickness absence. **Journal of Rehabilitation Medicine**, 40, 1-8
- Europ Assistant Group and Cercle Santé Societé. (2010). **European Survey on the major areas of health debate. Overview**. Retrieved 28 June 2011 from <http://www.europ-assistance.com/uk/medias/pdf/presse/2010CSAHEALTHBAROMETERSYNTHESES.pdf>
- European Communities. (2007). **The social situation in the European Union 2005-2006**. Luxembourg: Office for Official Publications of the European Communities. Retrieved 24 June 2011 from http://ec.europa.eu/employment_social/social_situation/docs/ssr2005_2006_en.pdf
- European Foundation for the Improvement of Living and Working Conditions (Eurofound) (2007). **Managing Musculoskeletal Disorders**. Retrieved 15 April 2009 from <http://www.eurofound.europa.eu/ewco/studies/tn0611018s/tn0611018s.htm>
- European Trade Union Institute (ETUI) (2007). **Musculoskeletal disorders: An ill-understood pandemic**. Brussels: ETUI
- Eurostat (2004). **Occupational Diseases in Europe in 2001**. Statistics in Focus, 15/2004. Retrieved 20 April 2009 from http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-NK-04-015/EN/KS-NK-04-015-EN.PDF
- Feuerstein, M., Shaw, W. S., Lincoln, A. E., Miller, V. I. and Wood, P. M. (2003). Clinical and workplace factors associated with a return to modified duty in work-related upper extremity disorders. **Pain**, 102, 51-61
- Feuerstein, M., Shaw, W. S., Nicholas, R. A. and Huang, G. D. (2004). From confounders to suspected risk factors: psychosocial factors and work-related upper extremity disorders. **Journal of Electromyography and Kinesiology**, 14, 171-178
- Frank, A. O. and Chamberlain, M. A. (2006). Rehabilitation: an integral part of clinical practice. **Occupational Medicine**, 56, 289-293
- Frank, J., Sinclair, S., Hogg-Johnson, S., Shannon, H., Bombardier, C. et al. (1998). Preventing disability from work-related low-back pain. New evidence gives new hope – if we can just get all the players onside. **Canadian Medical Association Journal**, 158 (12), 1625-1631
- Gignac, M., Cao, X., Lacaille, D., Anis, A. and Badley, E. (2008). Arthritis-related work transitions: A prospective analysis of reported productivity losses, work changes, and leaving the labour force, **Arthritis Care and Research**, 59 (12), 1805-1813

References

- Gignac, M. A. M., Badley, E. M., Lacaille, D., Cott, C. C., Adam, P. et al. (2004). Managing arthritis and employment: Making arthritis-related work changes as a means of adaptation. **Arthritis and Rheumatism**, 51 (6), 909-916
- Gordeev, V. S., Maksymowych, W. P., Evers, S. M., Ament, A., Schachna, L. et al. (2010). The role of contextual factors on health-related quality of life in ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 69, 108-112
- Główny Urząd Statystyczny (GUS). (2007). **Stan Zdrowia Ludności Polski w Przekroju Terytorialnym 2004**. Warszawa: GUS. Retrieved 8 August 2011 from http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_stan_zdrowia_2004_teryt.pdf
- GUS. (2008). **Accidents at Work and Work-Related Health Problems**. Warsaw: GUS. Retrieved 25 May 2011 from http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_Wypadki_przy_pracy_i_problemy_zdrow_zwiazane_z_praca.pdf
- GUS. (2010a). **Concise Statistical Yearbook of Poland**. Warsaw: GUS
- GUS. (2010b). **Podstawowe Dane z Zakresu Ochrony Zdrowia w 2009 r.** Warsaw: GUS. Retrieved 23 June 2011 from http://www.stat.gov.pl/gus/5840_1899_PLK_HTML.htm
- GUS. (2010c). Pomoc Społeczna w 2009 r. – **Infrastruktura**, Beneficjenci, Świadczenia
- Guzman, J., Esmail, R., Karjalainen, K., Malmivaara, A., Irvin, E. et al. (2001). Multidisciplinary rehabilitation for chronic low back pain: systematic review. **British Medical Journal**, 322, 1511-1516
- Halpern, M. T., Cifaldi, M. and Kvien, T. K. (2008). Impact of adalimumab on work participation in rheumatoid arthritis: comparison of an open-label extension study and a registry-based control group, **Annals of the Rheumatic Diseases**, 68 (6), 930-937
- Hamberg, K., Johansson, E., Lindgren, G. and Westman, G. (1997). The impact of marital relationship on the rehabilitation process in a group of women with long-term musculoskeletal disorders. **Scandinavian Journal of Social Medicine**, 25 (1), 17-25
- Health and Safety Executive (HSE) (2002). **Initiative Evaluation Report: Back to Work**. London: HSE
- Huscher, D., Merkesdal, S., Thiele, K., Schneider, M. and Zink, A. (2006). Cost of illness in rheumatoid arthritis, ankylosing spondylitis, psoriatic arthritis and systemic lupus erythematosus in Poland. **Annals of the Rheumatic Diseases**, 65, 1175-1183
- Husted, J. A., Gladman, D. D., Farewell, V. T. and Cook, R. J. (2001). Health-related quality of life of patients with psoriatic arthritis: a comparison with patients with rheumatoid arthritis. **Arthritis and Rheumatism**, 45, 151-158
- Janowski, K., Steuden, S. and Kuryłowicz, J. (2010). Factors accounting for psychosocial functioning in patients with low back pain. **European Spine Journal**, 19 (4), 613-623
- Jędryka-Góral, A. and Łastowiecka, E. (2002). Praca zawodowa a choroby reumatyczne. **Bezpieczeństwo Pracy**, 3

- Kamińska, J., Kazenas, A., Najmiec, A., Roman-Liu, D., Tokarski, T. et al. (2008). **Ocena Obciążenia Psychofizycznego oraz Zapobieganie Dolegliwościom Układu Mięśniowo-szkieletowego u Pracowników Centrów Obsługi Klientów (Call Centers)**. Warszawa: Centralny Instytut Ochrony Pracy – Państwowy Instytut Badawczy
- Katz, W. A. (2002). Musculoskeletal Pain and its socioeconomic implications. **Clinical Rheumatology, Supplement**, 1, 2-4
- Kavanaugh, A. (2005). Health economics: implications for novel antirheumatic therapies. **Annals of the Rheumatic Diseases**, 64, 65-69
- Kearney, A.T. (2009). **The Shadow Economy in Europe**. Retrieved 16 August 2011 from <http://www.visaeurope.com/idoc.ashx?docid=c982eb5e-2e26-49ad-acc9-5c01145f2064&version=-1>
- Kemler, M. A. and Furnée, C. A. (2002). The impact of chronic pain on life in the household. **Journal of Pain Symptom Management**, 23 (5), 433-441
- Kerns, R. D., Haythornthwaite, J., Southwick, S. and Giller, E. L. (1990). The role of marital interaction in chronic pain and depressive symptom severity. **Journal of Psychosomatic Research**, 34(4), 401-408
- Kobelt, G. (2007). Thoughts on health economics in rheumatoid arthritis. **Annals of the Rheumatic Diseases**, 66, 35-39
- Kobelt, G. and Kastaeng, F. (2009). **Access to Innovative Treatments in Rheumatoid Arthritis in Europe**. Retrieved 28 March, 2011 from www.lif.se/cs/default.asp%3Fid%3D44400
- Kończewska, A. (2004). Leczenie czynnikami biologicznymi chorych na zeszywniające zapalenie stawów kręgosłupa. **Terapia**, 2
- Koradecka, D. and Konarska, M. (2002). Postępy fizjologii i ergonomii i ich znaczenie dla higieny pracy. **Medycyna Pracy**, 53 (1), 15-21
- Kowalska M. i Bugajska J. (2009): Problemy zdrowotne osób **pracujących** z komputerem. W: *Medycyna Pracy*, 60 (4), s. 321-325
- Kuncewicz E., Samborski P., Szpera A., Krawczyk-Wasielewska A., Sobieska M. i in. (2009): Polskie **podejście** fizjoterapeutyczne usprawniania w reumatoidalnym zapaleniu stawów a zalecenia Panelu Ottawskiego. W: *Chirurgia Narządów Ruchu i Ortopedia Polska*, 74 (5), s. 289-294
- Kuszeński, K. and Gericke, C. (2005). **Health Systems in Transition. Poland**. Vol. 7 (5). Copenhagen: WHO. Retrieved 23 June 2011 from http://www.euro.who.int/_data/assets/pdf_file/0011/95159/E88670.pdf
- Leardini, G., Salaffi, F., Montanelli, R., Gerzeli, S. and Canesi, B. (2002). A multi-center cost-of-illness study on rheumatoid arthritis in Italy. **Clinical and Experimental Rheumatology**, 20, 505-515
- Lewicki, M., **Dutkiewicz**, B., Widuchowska, M. and Kucharz, E. J. (2008)

References

- Lisbon European Council (2000). **Presidency Conclusions**. Retrieved 16 April 2009 from www.europarl.europa.eu/summits/lis1_en.htm
- Lundkvist, J., Kastang, F. and Kobelt, G. (2008). The burden of rheumatoid arthritis and access to treatment: health burden and costs. **European Journal of Health Economics**, 8 (Supple 2), 49-60
- Luqmani, R., Hennell, S., Estrach, C., Birrell, F., Bosworth, A. et al. (2006). On behalf of the British Society for Rheumatology and British Health Professionals in Rheumatology Standards. Guidelines and Audit Working Group British Society for Rheumatology and British Health Professionals in Rheumatology Guideline for the Management of Rheumatoid Arthritis (The first two years). **Rheumatology**, 45, 1167-1169
- Luszczynska, A., Schwarzer, R., Lippke, S. and Mazurkiewicz, M. (2011). Self-efficacy as a moderator of the planning-behaviour relationship in interventions designed to promote physical activity. **Psychology & Health**, 26 (2), 151-166
- Łukowicz, M., Gembala, D., Weber-Zimmermann, M., Ciechanowska, K. and Zalewski, P. (2008). Czynniki socjo-zawodowe i ich wpływ na bóle kręgosłupa. In: Bury, P. and Czajkowska-Ziobrowska, D. (Eds.). **Edukacja Bez Granic – Mimo Barrier: Przestrzeń Tworzenia**. T. 1. Poznań: Wydaw. Wyższej Szkoły Bezpieczeństwa
- MacGregor, E. A., Brandes, J., Eikermann, A. and Giammarco, R. (2004). Impact of migraine on patients and their families: the Migraine and Zolmitriptan Evaluation (MAZE) survey – Phase III. **Current Medical Research Opinion**, 20 (7), 1143-1150
- Malińska, M. and Bugajska, J. (2010). The influence of occupational and non-occupational factors on the prevalence of musculoskeletal complaints in users of portable computers. **International Journal of Occupational Safety and Ergonomics**, 16 (3), 337-343
- Maria Skłodowska-Curie Cancer Center and Institute of Oncology; Medical University of Warsaw; Center for Disease Control and Prevention. (2010). **Global Adult Tobacco Survey. Poland 2009-2010**. Warsaw: Ministry of Health
- McLaren, N. (2006). Interactive dualism as a partial solution to the mind-brain problem for psychiatry. **Medical Hypotheses**, 66 (6), 1165-1173
- Meijer, E., Sluiter, J. and Frings-Dresen, M. (2005). Evaluation of effective return-to-work treatment programs for sick-listed patients with non-specific musculoskeletal complaints: a systematic review. **International Archives of Occupational and Environmental Health**, 78 (7), 523-532
- Meijer, E., Sluiter, J., Heyma, A., Sadiraj, K. and Frings-Dresen, M. (2006). Cost-effectiveness of multidisciplinary treatment in sick-listed patients with upper extremity musculoskeletal disorders: a randomised, controlled trial with one-year follow-up. **International Archives of Occupational and Environmental Health**, 79 (8), 654-664

- Moskalewicz, B. (2002). **Nasze Zdrowie, Nasze Dolegliwości**. Warszawa: Zakład Epidemiologii Chorób Reumatycznych Instytutu Reumatologii; Narodowy Instytut zdrowia Publicznego. Retrieved 24 June 2011 from http://www.pzh.gov.pl/page/fileadmin/user_upload/raport/Raport.pdf
- Moskalewicz, B., Goryński, P. and Wojtyniak, B. (2008). Czy dolegliwości reumatyczne istotnie ograniczają sprawność po 60. roku życia? Wyniki ogólnopolskiego badania epidemiologicznego. **Polskie Archiwum Medycyny Wewnętrznej**, 118 (Suppl), 31-35
- Nachemson, A., Waddell, G. and Norlund A. (2000) Epidemiology of neck and low back pain. In Nachemson, A. and Jonsson E., (eds.) **Neck and Back Pain: The scientific evidence of causes, diagnosis and treatment**. Philadelphia: Lippincott Williams and Wilkins, 165-188
- Niewada, M. and Jakubczyk, M. (2009). **Opracowanie wyników ankiety przeprowadzonej w ośrodkach uczestniczących w „Ewidencji pacjentów w terapii biologicznej reumatoidalnego zapalenia stawów” w Polsce. Raport podstawowy**. Warsaw. Retrieved 24 June 2011 from http://www.nursing.com.pl/plk/raport_ewidencja_pacjentow.pdf
- Organisation for Economic Co-operation and Development (OECD). (2009). **Health at a Glance 2009. OECD Indicators**. Retrieved 29 June 2011 from <http://www.oecd.org>
- OECD. (2010). **Economic Survey of Poland 2010**. Retrieved 26 May 2011 from <http://www.oecd.org>
- OECD. (2011). **Society at a Glance – OECD Social Indicators**. <http://www.oecd.org/els/social/indicators/SAG>
- Orlewska, E., Ancuta, I., Anic, B., Codrenau, C., Damjanov, N., et al. (2011). **Medical Science Monitor**, 17(4), SR1-13
- Parent-Thirion, A., Fernández Macías, E., Hurley, J. and Vermeulen, G. (2007). Fourth European Survey on Working Conditions. Dublin: **European Foundation for the Improvement of Living and Working Standards**
- Piechura J., Skrzek A., Rozek K. i Wrobel E. (2010): Zastosowanie zabiegów krioterapii miejscowej w terapii **osób z zespołem** bolesnego barku. W: *Fizjoterapia* 18 (1), s. 19-25
- Piechota, G., Małkiewicz, J. and Karwat, I.D. (2005). Otyłość jako przyczyna lub skutek niepełnosprawności. **Przegląd Epidemiologiczny**, 59 (1), 155-161
- Prüss-Üstün, A. and Corvalán, C. (2006). **Preventing Disease Through Healthy Environments. Towards an Estimate of the Environmental Burden of Disease**. Geneva: World Health Organisation
- Pugner, K. M., Scott, D. I., Holmes, J. W. and Hieke, K. (2000). The costs of rheumatoid arthritis: an international long-term view. **Seminars in Arthritis and Rheumatism**, 29, 305-320
- Punnett, L. and Wegman, D. (2004). Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. **Journal of Electromyography and Kinesiology**, 14 (1), 13-23

References

- Rada Ministrów. (2007). **Narodowy Program Zdrowia na lata 2007-2015**. Retrieved 27 June 2011 from http://www.mz.gov.pl/wwwfiles/ma_struktura/docs/zal_urm_npz_90_15052007p.pdf
- Rada Ministrów (2009a). Rozporządzenie Rady Ministrów z dnia 30 czerwca 2009 w sprawie **chorób** zawodowych. *Dziennik Ustaw*, nr 105 poz. 869
- Rada Ministrów. (2009b). Rozporządzenie Ministra Zdrowia z dnia 8 grudnia 2009 W sprawie wykazu chorób oraz wykazu leków i wyrobów medycznych, które ze względu na te choroby są przepisywane bezpłatnie, za opłatą ryczałtową lub za częściową odpłatnością. *Dziennik Ustaw*, nr 212 poz 1647
- Rada Ministrów. (2009c). Ustawa z dnia 22 maja 2009 r. o zmianie ustawy – Kodeks pracy oraz o zmianie niektórych innych ustaw. *Dziennik Ustaw*, nr 99 poz 825
- Ritchlin, C. T., Kavanaugh, A., Gladman, D. D., Mease, P. J., Helliwell, P., Boehncke, W. H. et al. (2009). Treatment recommendations for psoriatic arthritis. *Annals of the Rheumatic Diseases*, 68 (9), 1387-1394
- Roman-Liu, D. (2008). Narażenie na powstawanie dolegliwości mięśniowo-szkieletowych w krajach Unii Europejskiej. *Bezpieczeństwo Pracy*, 11, 16-20
- Roman-Liu D. i Bartuzi P. (2007): Ocena obciążenia i zmęczenia układu mięśniowo-szkieletowego z zastosowaniem elektromiografii. W: *Bezpieczeństwo Pracy*, 4, 7-10
- Rutkowska E. (2003): Radzenie sobie z bólami **kręgosłupa w środowisku** wiejskim. W: *Annales Universitatis Mariae Curie-Skłodowska*, 58, supl.13, 209, s. 39-44
- Schultz, I. Z., Stowell, A. W., Feuerstein, M. and Gatchel, R. J. (2007). Models of return to work for musculoskeletal disorders. *Journal of Occupational Rehabilitation*, 17 (2), 327-352
- Scottish Intercollegiate Guidelines Network (2000). **Management of Early Rheumatoid Arthritis**, Scottish Intercollegiate Guidelines Network publication 48. Edinburgh: Scottish Intercollegiate Guidelines Network
- Sieper, J., Braun, J., Rudwaleit, M., Boonen, A. and Zink, A. (2002). Ankylosing spondylitis: an overview. *Annals of the Rheumatic Diseases*, 61 (Supplement III), 8-18
- Sierakowska, M., Karpińska, A., Sierakowski, S., Krajewska-Kułak, E. and Kamieńska, I. (2006). Jakość życia pacjentów z zeszywniającym zapaleniem stawów kręgosłupa. *Annales Academiae Medicae Stetinensis*, 52 (Suppl 2), 29-37
- Smolen, J. S., Landewé, R., Breedveld, F. C., Dougados, M., Emery, P., Gaujoux-Viala, C. et al. (2010). EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs. *Annals of the Rheumatic Diseases*, 69 (6), 964-975
- Smyth, M., Stone, A., Hurewitz, A. and Kaell, A. (1999). Effects of writing about stressful experiences on symptom reduction in patients with asthma or rheumatoid arthritis. *Journal of the American Medical Association*, 281, 1304-1309
- Sokka, T. and Pincus, T. (2001). Markers for work disability in rheumatoid arthritis. *Journal of Rheumatology*, 28, 1718-1722

- Stanisławska-Biernat, E. (2010). **Zalecenia ASAS/EULAR Dotyczące Diagnostyki i Leczenia Spondyloartropatii**. Polskie Towarzystwo Reumatologiczne. Retrieved 24 June 2011 from <http://www.reumatologia.ptr.net.pl>
- Sula, P. (2007). **Managing Musculoskeletal Disorders – Poland**. European Working Conditions Observatory. Retrieved 27 June 2011 from <http://www.eurofound.europa.eu/ewco/studies/tn0611018s/pl0611019q.htm>
- Sullivan, M. J. and D'Eon, J. L. (1990). Relation between catastrophising and depression on chronic pain patients. **Journal of Abnormal Psychology**, 99, 260-263
- Swartling, M. S., Hagberg, J., Alexanderson, K. and Wahlstrom, R. A. (2007). Sick-listing as a psychosocial work problem: a survey of 3997 Swedish physicians. **Journal of Occupational Rehabilitation**, 17(3), 398-408
- Szepietowski, J., Adamski, Z., Chodorowska, G., Gliński, W., Kaszuba, A., Placek, W. et al. (2010). Rekomendacje Polskiego Towarzystwa Dermatologicznego dotyczące stosowania leków biologicznych w łuszczycy zwyczajowej i stawowej (łuszczycowym zapaleniu stawów). **Przegląd dermatologiczny**, 97, 1-13
- Szubert, Z. and Sobala, W. (2004). Zdrowotne przyczyny niezdolności do pracy przed odejściem na wcześniejszą emeryturę. **Medycyna Pracy**, 55 (3), 249-255
- Śliwczyński, A., Kruszewski, R., Binkowski, J., Gryglewicz, J., Tłustochowicz, W. et al. (2010). Finansowanie leczenia lekami biologicznymi chorych na reumatoidalne i młodzieńcze idiopatyczne zapalenia stawów w ramach programów zdrowotnych NFZ w latach 2004-2008. **Reumatologia**, 48 (1), 14-24
- Tasiemski, T., Angiaszwili-Biedna, N. and Wilski, M. (2009). Assessment of objective and subjective quality of life in people with rheumatoid arthritis – Preliminary study. **Ortopedia, Traumatologia, Rehabilitacja**, 4 (6), Vol. 11, 346-359
- Technopolis. (2006). **Strategic Evaluation on Innovation and the Knowledge Based Economy in relation to the Structural and Cohesion Funds, for the programming period 2007-2013**. A report to the European Commission Directorate-General Regional Policy Evaluation and additionality. Retrieved 25 May 2011 from http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/evalstrat_innov/poland.pdf
- Tłustochowicz, W. (2009a). Postępy w diagnostyce i terapii chorób reumatycznych. **Przewodnik lekarza**, 1, 153-159
- Tłustochowicz, W. (2009b). Presentation at the conference **Reumatologia 2009 – Nowe Perspektywy**, Warszawa, June 19, 2009
- Tłustochowicz, W., Brzosko, M., Filipowicz-Sosnowska, A., Głuszko, P., Kucharz, E.J., Maśliński, W. et al. (2008). Stanowisko Zespołu Ekspertów Konsultanta Krajowego ds. Reumatologii w sprawie diagnostyki i terapii reumatoidalnego zapalenia stawów. **Reumatologia**, 46 (3), 111-114

References

- Towalski, R. (2009). Barriers to the employment of disabled persons. **European Working Conditions Observatory**. Retrieved 28 June 2011 from <http://www.eurofound.europa.eu/ewco/2009/05/PL09050291.htm>
- van Duijn, M. and Burdorf, A. (2008). Influence of modified work on recurrence of sick leave due to musculoskeletal complaints. **Journal of Rehabilitation Medicine**, 40, 576-581
- Van Eerd, D., Beaton, D., Cole, D., Lucas, J., Hogg-Johnson, S. et al. (2003). Classification systems for upper-limb musculoskeletal disorders in workers: a review of the literature. **Journal of Clinical Epidemiology**, 56, 925–936
- van Jaarsveld, C. H., Jacobs, J. W., Schrijvers, A. J., van Albada-Kuipers, G. A., Hofman, D. M. et al. (1998). Effects of rheumatoid arthritis on employment and social participation during the first years of disease in the Netherlands. **British Journal of Rheumatology**, 37(8), 848-853
- Veale, A., Woolf, A. and Carr, A. (2008), Chronic musculoskeletal pain and arthritis: Impact, attitudes and perceptions. **Irish Medical Journal**, 101 (7), 208-210
- von Hirschberg, K. R., Kähler, B. and Nienhaus, A. (2009). Social care and changes in occupational accidents and diseases – the situation in Eastern Europe in general and for skin diseases in particular. **Journal of Occupational Medicine and Toxicology**, 4 (28)
- Waddell, G. and Burton, A. K., (2006a). **Is Work Good for Your Health and Well-being?** London: Department for Work and Pensions
- Waddell, G. and Burton, A. K. (2006b). Principles of rehabilitation for common health problems, in O'Donnell, M. **Rehabilitation: Keeping People in Work**. Chief Medical Officer's Report 2006. Dorking, UnumProvident
- Wallenius, M., Skomsvoll, J. F., Koldingsnes, W., Rødevand, E., Mikkelsen, K. et al. (2008). Work disability and health-related quality of life in males and females with psoriatic arthritis. **Annals of the Rheumatic Diseases**, 68, 685-689
- Wapiennik, E. (2007). **Report on the employment of disabled people in European countries. Poland**. Academic Network of European Disability Experts. Retrieved 28 June 2011 from <http://www.disability-europe.net/content/aned/media/PL%20employment%20%20report.pdf>
- Werner, E. L., Lærum, E., Wormgoor, M. E., Lindh, E. and Indhal, A. (2007). Peer support in an occupational setting preventing LBP-related sick leave. **Occupational Medicine**, 57 (8), 590-596
- Wiland, P. (2006). Zesztywniające zapalenie stawów kręgosłupa. **Medycyna po Dyplomie**, 18,15-18
- Wiland, P., Filipowicz-Sosnowska, A., Głuszko, P., Kucharz, E. J., Maśliński, W., Samborski, W. et al. (2008). Rekomendacje w postępowaniu diagnostycznym i terapeutycznym u chorych na zeszywniające zapalenie stawów kręgosłupa. Opracowane przez Zespół Konsultanta Krajowego z dziedziny Reumatologii. **Reumatologia**, 46 (4), 191-197

- Wilczyńska, U., Szeszenia-Dąbrowska, N. and Szymczak, W. (2007). Choroby Zawodowe stwierdzone w Polsce w 2006 r. **Medycyna Pracy**, 58 (3), 193-203
- World Bank. (2011). **Europe 2020 Poland. Fueling Growth and Competitiveness in Poland Through Employment, Skills, and Innovation. Overview**. Washington: World Bank Human Development and Private and Financial Sector Development Departments
- World Health Organisation (WHO) Scientific Group (2001). **International Classification of Functioning, Disability and Health**. Geneva: WHO. Retrieved 15 April 2009 from <http://www3.who.int/icf/icftemplate/cfm>
- WHO Scientific Group (2003). **The Burden of Musculoskeletal Conditions at the Start of the New Millennium**. Geneva: WHO
- WHO Regional Office for Europe. (2009). **Environment and Health Performance Review. Poland**. Copenhagen: WHO. Retrieved 23 June 2011 from http://www.euro.who.int/_data/assets/pdf_file/0005/95333/E92584.pdf
- WHO. (2011). **Poland: Health Profile**. Retrieved 24 June 2011 from <http://www.who.int/gho/countries/pol.pdf>
- Young, A., Dixey, J., Cox, N., Davis, P., Devlin, J. et al. (2000). How does functional disability in early rheumatoid arthritis (RA) affect patients and their lives? Results of five years of follow-up in 732 patients from the early RA study (ERAS). **Rheumatology**, 39, 603-611
- Young, A., Dixey, J., Kulinskaya, E., Cox, N., Davies, P., et al. (2002). Which patients stop working because of rheumatoid arthritis? Results of five years' follow up in 732 patients from the early RA study (ERAS). **Annals of the Rheumatic Diseases**, 61, 335-340
- Zampolini, M., Bernadinello, M. and Tesio, L. (2007). RTW in back conditions. **Disability and Rehabilitation**, 29 (17), 1377-1385
- Zejda, J. E., Bugajska, J., Kowalska, M., Krzych, L., Mieszkowska, M. et al. (2009). Dolegliwości ze strony kończyn górnych, szyi i pleców u osób wykonujących pracę biurową z użyciem komputera. **Medycyna Pracy**, 60 (5), 359-367
- Zakład Ubezpieczeń Społecznych (ZUS). **Absencja Chorobowa w 2009 roku**. Warszawa: ZUS
- ZUS. (2011). **Wydatki na świadczenia z ubezpieczeń społecznych związane z niezdolnością do pracy**. Warszawa: ZUS. Retrieved 8 August 2011 from <http://www.zus.pl/files/Wydatki%20na%20C5%9Bwiadczenia%20z%20ubezpiecze%C5%84%20spo%C5%82ecznych%20zwi%C4%85zane%20z%20niezdolno%C5%9Bci%C4%85%20do%20pracy.pdf>
- Zochling, J., van der Heijde, D., Burgos-Vargas, R., Collantes, E. Davis, J. C. Jr, Dijkmans, B. et al. (2006). ASAS/EULAR recommendations for the management of ankylosing spondylitis. **Annals of the Rheumatic Diseases**, 65 (4), 442-452

References

- Zwolińska J., Kwolek A. i Skrzypiec J. (2007): **Skuteczność** wybranych metod fizjoterapii w leczeniu zachowawczym zespołu ciśnienia nadgarstka. W: Przegląd Medyczny Uniwersytetu Rzeszowskiego, 3, s. 239-244
- Zyluk A. i Puchalski P. (2008): Niezdolność do pracy przed i po operacji zespołu kanału nadgarstka. W: Chirurgia **Narządów** Ruchu i Ortopedia Polska, 73 (5), s. 303-308.

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.

mgr ekon. Jolanta Grygielska	Association of People with Rheumatism and Their Friends (Stowarzyszenie Reumatyków i Ich Sympatyków)
dr n. med. Sławomir Jeka Krzysztof Kowalik	Teaching Hospital in Bydgoszcz (Szpital Uniwersytecki Nr 2 im. dr Jana Biziela w Bydgoszczy)
prof. dr hab. n. med. Eugeniusz Kucharz	Teaching Hospital in Śląsk (Szpital Kliniczny nr. 7 Śląskiego Uniwersytetu Medycznego)
dr n. hum. Bożena Moskalewicz	National Institute of Public Health-National Institute of Hygiene (Narodowy Instytut Zdrowia Publicznego - Państwowy Zakład Higieny)
dr n. hum. Filip Raciborski	Instytut Reumatologii im. prof. dr hab. med. Eleonory Reicher
prof. dr hab. n. med. Witold Tlustochowicz	National Consultant for Rheumatology
dr n. med. Roman Topor-Mądry	Institute of Public Health, Jagiellonian University (Instytut Zdrowia Publicznego Uniwersytetu Jagiellońskiego)
prof. dr hab. n. med. Piotr Wiland	The Polish Society for Rheumatology (Polskie Towarzystwo Reumatologiczne); Teaching Hospital in Wrocław (Akademicki Szpital Kliniczny im. Jana Mikulicza-Radeckiego we Wrocławiu)
dr mat. Urszula Wilczyńska	Nofer Institute of Occupational Medicine (Instytut Medycyny Pracy im. prof. Jerzego Nofera w Łodzi)
two patients – members of RA patient group	

We are grateful to the Polish Social Insurance Institution (Zakład Ubezpieczeń Społecznych) and the Polish National Health Fund (Narodowy Fundusz Zdrowia) for their invaluable informational support.

Appendix 2. Sample 'Fit' Note

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

Patient's name

I assessed your case on:

and, because of the following condition(s):

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

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

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

Sample

This will be the case for

or from to

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

Doctor's signature

Date of statement

Doctor's address

Med 3 04/10

Source: Department for Work and Pensions, 2010

Appendix 3. Benchmarking grid

The Fit for Work Europe study has looked across 27 European countries. This approach allows us to explore how far early intervention is implemented across Europe. It also enables us to see how far we may identify both enablers and barriers to early intervention given the different approaches to policies that affect the labour market, the welfare system and the health care system. To explore this we have looked widely at a number of indicators covering the:

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

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

Appendix 3: Benchmarking grid

	GDP per inhabitant in PPS	% of the population of working age	% of the population aged 265	Unemployment rate (%)		Long-term unemployment rate, % of active population	Prevalence of disability as a percentage of 20-64 population	Average age of withdrawal from the labour market		Labour productivity per hour, relative to EU-27 (=100)	Hourly labour costs
				M	F			M	F		
Austria	29,300	84.9	17.4	5.0	4.6	1.0	14.4	62.6	59.4	113.2	€26.33
Belgium	27,400	83.1	17.1	7.8	8.1	3.5	14.0	61.2	61.9	125.5	€32.56
Bulgaria	10,400	86.6	17.4	7.0	6.6	3.0	--	--	--	39.9	€1.89
Croatia	15,100	84.7	17.2	8.0	10.3	5.1	--	--	--	78.7*	--
Czech Republic	19,200	85.9	14.9	5.9	7.7	2.0	13.8	62.0	59.4	72.9	€7.88
Denmark	28,400	81.7	15.9	6.5	5.4	0.5	20.7	61.4	59.7	103.3	€34.74
Estonia	15,000	85.1	17.1	16.9	10.6	3.8	23.0	--	--	65.5	€6.60
Finland	26,600	83.3	16.7	8.9	7.6	1.4	20.5	62.0	61.3	108.9	€27.87.87
France	25,400	81.5	16.5	9.2	9.8	3.3	13.2	59.4	59.3	120.9	€31.06
Germany	27,400	86.4	20.4	8.1	7.3	3.4	17.5	62.6	61.5	105.1	€27.80
Greece	22,100	85.7	18.7	6.9	13.2	3.9	8.3	61.6	60.5	98.9	--
Hungary	15,300	85.1	16.4	10.3	9.7	4.2	22.1	--	--	53.5	€7.13
Ireland	29,800	79.1	11.0	14.9	8.0	3.4	13.3	--	--	130.5	--
Italy	24,400	86.0	20.1	6.8	9.3	3.5	9.0	61.0	59.8	111.7	--
Latvia	12,200	86.3	17.3	20.3	13.9	4.6	--	--	--	53.0	€4.41
Lithuania	12,900	84.9	16.0	17.1	10.4	3.2	--	--	--	57.3	€5.09
Netherlands	30,800	82.3	15.0	3.7	3.8	0.9	16.8	64.2	63.6	111.2	--
Norway	42,000	81.0	14.7	3.6	2.6	0.5	16.3	64.1	64.7	146.9	--
Poland	14,300	84.7	13.5	7.8	8.7	2.5	11.3	61.4	57.5	46.7	€6.78
Portugal	18,900	84.7	17.6	9.0	10.3	4.3	18.7	62.9	62.3	75.6	€11.32
Romania	10,900	84.8	14.9	7.7	5.8	2.2	--	--	--	47.9	€3.41
Slovakia	17,200	84.6	12.1	11.4	12.8	6.5	14.0	59.7	57.8	80.7	€6.41
Slovenia	20,700	86.0	16.4	5.9	5.8	1.8	15.0	--	--	82.4	€12.09
Spain	24,300	85.2	16.6	17.7	18.4	4.3	11.1	61.8	62.4	109.8	€16.39
Sweden	28,000	83.3	17.8	8.6	8.0	1.1	18.1	64.2	63.6	109.9	€33.30
Switzerland	34,000	84.7	16.6	--	--	--	10.4	64.6	62.5	108.1*	--
Turkey	10,700	73.7	6.8	12.5	12.6	2.8	--	--	--	61.6*	--
UK	26,500	82.5	16.3	8.6	6.4	1.9	17.6	63.6	61.7	106.6	€26.39
EU-27	23,600	84.4	17.2	9.0	8.9	3.0	--	61.9*	60.5*	100.0	--

Source: Eurostat Statistical Database; OECD 2009; *OECD Statistics.

	GDP per inhabitant in PPS, 2008	Social benefits (% GDP)	Health expenditure (% GDP)	% spent of benefits spent on			Generosity of the welfare system
				Sickness/health care	Disability	Unemployment	
Austria	31,100	18.1	9.7	26.1	7.8	5.0	5.46
Belgium	28,800	16.0	9.8	28.4	7.1	12.5	4.38
Bulgaria	10,900	10.1	6.9	29.4	7.7	2.3	--
Croatia	15,900	--	--	--	--	--	--
Czech Republic	20,200	12.8	6.9	33.3	8.2	3.5	5.15
Denmark	30,800	14.8	9.3	23.3	15.2	4.8	5.40
Estonia	17,000	10.6	5.9	32.4	9.9	2.1	--
Finland	29,500	15.4	7.7	26.8	12.6	7.1	2.60
France	26,700	17.7	10.7	29.8	6.0	5.8	5.24
Germany	28,800	17.0	10.3	30.5	7.8	5.4	6.11
Greece	23,500	19.3	--	29.0	4.7	5.1	--
Hungary	16,200	15.8	7.1	25.0	9.4	3.7	4.75
Ireland	33,300	12.4	--	40.9	5.5	8.7	--
Italy	26,000	17.7	--	26.4	5.9	1.9	--
Latvia	14,100	8.1	6.2	29.5	7.3	4.1	--
Lithuania	15,300	11.0	6.3	29.4	10.4	2.5	--
Netherlands	33,500	10.3	8.9	32.8	8.8	3.8	3.40
Norway	47,300	6.1	8.1	32.7	17.6	1.9	--
Poland	14,100	14.0	6.6	24.4	8.8	1.9	4.58
Portugal	19,500	15.1	9.2	28.0	9.3	4.5	4.75
Romania	11,700	10.4	5.3	25.2	9.8	1.4	--
Slovakia	18,100	11.3	7.0	32.5	9.0	4.0	5.00
Slovenia	22,800	14.7	8.1	33.8	7.8	2.0	--
Spain	25,900	12.4	8.7	30.8	7.2	13.6	4.75
Sweden	30,800	14.8	8.8	26.0	15.1	3.0	6.73
Switzerland	35,800	10.5	10.6	26.4	12.5	2.6	5.09
Turkey	11,700	--	--	--	--	--	--
UK	28,700	13.1	--	33.3	11.0	2.5	3.87
EU-27	25,100	--	--	29.7	8.1	5.2	--

Sources: Eurostat Statistical Database; Osterkamp and Rohn, 2007.

Appendix 3: Benchmarking grid

	Sickness absence due to health reasons (%)	Average days absent	Presenteeism (%)	DALYs MSDs (% of Total)	DALYs RA (% of total)	Prevalence work-related backache (working population)	Number of RA patients in the general population (prevalence)	Total annual cost of RA, mln. €	Physicians per 100,000 inhabitants	
									Rheumatologists**	GPs
Austria	20.9	3.4	34.5	4.34	0.85	24.0	30,536 (0.47)	420.67	--	153.3
Belgium	28.8	7.0	48.0	4.11	0.80	19.4	39,209 (0.48)	618.32	2.4	170.9
Bulgaria	20.2	4.3	22.6	4.31	0.76	29.2	29,711 (0.48)	61.30	1.4	66.8
Croatia	19.4	9.4	38.1	3.50	0.70	41.5	--	--	--	17.1
Czech Republic	28.6	5.5	36.7	3.54	0.70	22.9	37,037 (0.46)	223.95	1.3	51.2
Denmark	32.9	6.6	55.2	3.95	0.78	18.8	23,676 (0.58)	399.39	2.6	74.4
Estonia	27.5	4.6	43.5	4.07	0.79	40.2	5,124 (0.49)	20.13	3.0	105.3
Finland	44.7	8.5	50.7	4.07	0.84	26.2	24,279 (0.60)	339.07	1.9	40.6
France	19.4	5.5	47.9	4.23	0.81	21.6	226,750 (0.48)	4,653.45	4.2	164.1
Germany	28.2	3.5	38.8	4.41	0.83	18.8	328,844 (0.50)	6,179.46	0.8	99.2
Greece	14.1	2.8	29.9	4.56	0.86	47.0	42,574 (0.48)	487.91	2.3	35.5
Hungary	23.8	5.0	37.7	4.23	0.77	31.6	37,907 (0.48)	198.93	5.6	65.2
Ireland	21.4	3.9	41.8	3.84	0.79	14.5	15,035 (0.49)	253.25	0.5	69.9
Italy	25.2	3.8	23.5	4.97	0.96	24.3	235,898 (0.49)	2,723.69	--	--
Latvia	23.9	4.1	40.6	3.92	0.73	44.1	8,771 (0.49)	27.71	0.5	54.7
Lithuania	21.8	4.3	34.5	4.03	0.80	38.0	12,213 (0.47)	41.17	1.2	52.6
Netherlands	33.7	8.6	41.1	4.48	0.88	13.8	56,934 (0.46)	1,027.49	1.2	46.4
Norway	27.3	7.1	47.6	4.25	0.86	22.7	19,486 (0.56)	402.99	2.2	47.1
Poland	19.9	5.5	24.7	5.11	0.98	45.8	131,546 (0.45)	489.37	2.3	15.2
Portugal	13.5	8.6	24.5	3.92	0.77	30.7	39,379 (0.47)	295.03	1.0	45.6
Romania	11.4	2.0	39.0	4.29	0.79	42.4	74,832 (0.45)	162.39	1.2	80.9
Slovakia	22.8	5.2	44.4	4.91	0.93	38.9	17,567 (0.43)	74.88	1.8	36.3
Slovenia	28.3	8.7	59.2	3.84	0.76	45.9	7,461 (0.47)	58.85	--	26.0
Spain	14.2	3.6	37.8	4.66	0.89	29.1	159,535 (0.45)	1,586.36	--	--
Sweden	28.0	6.7	54.7	4.61	0.90	27.8	41,576 (0.60)	543.11	2.0	60.2
Switzerland	19.2	4.0	--	4.97	0.97	18.1	27,469 (0.47)	536.93	5.3	47.1
Turkey	18.7	4.8	49.8	4.09	0.90	34.7	137,905 (0.31)	320.92	--	--
UK	22.6	3.7	51.2	4.11	0.81	10.8	263,672 (0.57)	3,163.27	--	--
EU-27	22.9	4.6	39.2	--	--	24.7	(0.49 Europe excl. Turkey)	24,072.62	--	--

Sources: Parent-Thirion, Ferrández Macías, Hurley and Vermeulen, 2007; European Working Condition Survey, 2010; WHO, 2006, 2007; Lundkvist, Kastäng and Kobelt, 2008; Lundkvist, Kastäng and Kobelt, 2008; Eurostat Statistical Database.

Variable	Definition – Provided by source	Source
<i>Labour indicators</i>		
GDP per inhabitant in PPS 2009	GDP (gross domestic product) is an indicator for a nation's economic situation. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size.	Eurostat (n.d.)
Working age population, % 2009	Share of total population of age 15 and above.	Eurostat (n.d.)
Unemployment rate by gender 2009	Unemployment rates represent unemployed persons as a percentage of the labour force. The labour force is the total number of people employed and unemployed. Unemployed persons comprise persons aged 15 to 74 who were: a. without work during the reference week, b. currently available for work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week, c. actively seeking work, i.e. had taken specific steps in the four weeks period ending with the reference week to seek paid employment or self-employment or who found a job to start later, i.e. within a period of, at most, three months.	Eurostat (n.d.)
Long-term unemployment, % of total active population 2009	Long-term unemployed (12 months and more) persons are those aged at least 15 years not living in collective households who are without work within the next two weeks, are available to start work within the next two weeks and who are seeking work (have actively sought employment at some time during the previous four weeks or are not seeking a job because they have already found a job to start later). The total active population (labour force) is the total number of the employed and unemployed population. The duration of unemployment is defined as the duration of a search for a job or as the length of the period since the last job was held (if this period is shorter than the duration of the search for a job).	OECD, 2009

Variable	Definition – Provided by Source	Source
<i>Labour indicators, continued</i>		
Average age of withdrawal from the labour market – retirement 2007	The indicator gives the average age at which active persons definitely withdraw from the labour market. It is based on a probability model considering the relative changes of activity rates from one year to another at a specific age. The activity rate represents the labour force (employed and unemployed population) as a percentage of the total population for a given age. The indicator is based on the EU Labour Force Survey. The survey covers the entire population living in private households. The definitions used follow the guidelines of the International Labour Office.	Eurostat (n.d.); OECD (n.d.)
Labour productivity per person employed – GDP in PPS per person employed relative to EU-27 (EU-27 = 100), 2009	Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP per person employed is intended to give an overall impression of the productivity of national economies expressed in relation to the European Union (EU-27) average. If the index of a country is higher than 100, this country's level of GDP per person employed is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. Please note that 'persons employed' does not distinguish between full-time and part-time employment.	Eurostat (n.d.); OECD (n.d.)
Hourly labour costs 2007	Average hourly labour costs, defined as total labour costs divided by the corresponding number of hours worked.	Eurostat (n.d.)

Variable	Definition – Provided by Source	Source
<i>Welfare indicators</i>		
GDP per inhabitant in PPS 2008	GDP (gross domestic product) is an indicator for a nation's economic situation. It reflects the total value of all goods and services produced less the value of goods and services used for intermediate consumption in their production. Expressing GDP in PPS (purchasing power standards) eliminates differences in price levels between countries, and calculations on a per head basis allows for the comparison of economies significantly different in absolute size.	Eurostat (n.d.)
Social benefits (% of GDP) 2008	Social benefits (other than social transfers in kind) paid by government (ESA95 code D.62) are transfers to households, in cash or in kind, intended to relieve them from the financial burden of a number of risks or needs (by convention: sickness, invalidity, disability, occupational accident or disease, old age, survivors, maternity, family, promotion of employment, unemployment, housing, education and general neediness), made through collectively schemes, or outside such schemes by government units.	Eurostat (n.d.)
Health care expenditure (% of GDP), 2008	Current expenditure on health measures the economic resources spent by a country on health care services and goods, including administration and insurance. Total expenditure on health care represents current expenditure on health enlarged by the expenditure on capital formation of health care providers.	Eurostat (n.d.)
Sickness/healthcare benefits – % of total benefits 2008	Social benefits consist of transfers, in cash or in kind, by social protection schemes to households and individuals to relieve them of the burden of a defined set of risks or needs. The functions (or risks) are: sickness/healthcare, disability, old age, survivors, family/children, unemployment, housing, social exclusion not elsewhere classified (n.e.c.).	Eurostat (n.d.)
Disability – Social benefits by function – % of total benefits 2008	Same as above.	Eurostat (n.d.)

Variable	Definition – Provided by Source	Source
<p><i>Welfare indicators continued</i></p> <p>Unemployment – Social benefits by function – % of total benefits 2008</p>	<p>Same as above.</p>	<p>Eurostat (n.d.)</p>
<p>OandR generosity index</p>	<p>Seven different measures of generosity were combined to construct a single measure of generosity that ranges from between 0 and 7, where 7 indicates the highest level of generosity. The seven variables include waiting period, self-certification, total maximum duration of payment, employer maximum duration of payment, employer amount of payment, sickness fund amount of payment and external proof. .</p>	<p>Osterkamp, and Rohn, 2007</p>

Variable	Definition – Provided by Source	Source
<i>Health outcomes</i>		
Average days absent due to health reasons, 2005	The median number of days absent because of health.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2007
% sickness absence due to health reasons 2005	% reporting absence caused by ill-health.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2007
Presenteeism, %, 2010	Over past 12 months did you work when you were sick?	European Working Conditions Survey, 2010
DALYs – MSDs, male and female	Disability adjusted life years (DALYs) are frequently used to assess the burden of disease. The WHO's definition of DALY 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	WHO, 2006, 2007)
DALYs – RA	DALYs are frequently used to assess the burden of disease. The WHO's definition of DALY – 'combines in one measure the time lived with disability and the time lost owing to premature mortality. One DALY can be thought of as one lost year of healthy life.'	Lundkvist, Kastäng and Kobelt, 2008

Appendix 3: Benchmarking grid

Variable	Definition – Provided by Source	Source
<i>Health outcomes continued</i>		
Prevalence – Backache 2005	% reporting work-related backache in the EWCS.	Parent-Thirion, Fernández Macías, Hurley and Vermeylen, 2007
Number of people with RA	Estimated number of people with RA. The percentage is calculated from the number of people with RA divided by the population numbers listed in the article.	Lundkvist, Kastäng and Kobelt, 2008
Practising rheumatologists, density per 1,000 population	Number of practising rheumatologists per 1,000 population. The definition that was used to derive the ratio for rheumatologists may differ by country depending on the source, which makes comparability difficult.	Eurostat (n.d.)
Practising general practitioners (GPs), density per 1,000 population 2005	Number of practicing GPs per 1,000 population.	Eurostat (n.d.)

References

- Eurostat Statistical Database. (n.d.). Data retrieved 20 July 2011 from <http://ec.europa.eu/eurostat>
- European Working Conditions Survey 2010. (n.d.). Data retrieved 20 July 2011 from <http://www.eurofound.europa.eu/surveys/ewcs/2010/index.htm>
- Lundkvist, J., Kastäng, F. and Kobelt, G. (2008). The burden of rheumatoid arthritis and access to treatment: health burden and costs. **European Journal of Health Economics**, 8 (Suppl 2), 49-60
- OECD (2009). **OECD Fact book 2009: Economic, Environmental and Social Statistics**. Retrieved 15 July 2009 from <http://www.sourceoecd.org/rpsv/factbook2009/index.htm>
- OECD Statistics. (n.d.). Data retrieved 20 July 2011 from <http://www.oecd.org/statsportal>
- Osterkamp R. and Rohn O. (2007). Being on sick leave: Possible explanations for differences of sick-leave days across countries. **CESifo Economic Studies**, 53, 91-114
- Parent-Thirion, A., Fernández Macías, E., Hurley, J. and Vermeylen, G. (2007). **Fourth European Survey on Working Conditions**. Dublin: European Foundation for the Improvement of Living Standards
- WHO. (2006/7). **Highlights on health**. Geneva: WHO.

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