Australian Government



Australian Institute of Health and Welfare

BULLETIN II6 + MAY 2013

A snapshot of rheumatoid arthritis

Summary

- Rheumatoid arthritis is an autoimmune disease one where the body's immune system attacks its own tissues and thus differs from osteoarthritis which is characterised by wear-and-tear of joints.
- Joints bear the brunt of autoimmunity in rheumatoid arthritis, the hallmark of the condition being painful swelling and stiffness in the joints. Rheumatoid arthritis, however, is a systemic condition, meaning that the whole body is affected. Organs and systems such as the heart, respiratory systems and digestive systems are also involved.
- According to the 2007–08 National Health Survey (NHS), an estimated 428,000 Australians reported having rheumatoid arthritis. With approximately 2% of the population affected, rheumatoid arthritis is the second most common type of arthritis, after osteoarthritis.
- Rheumatoid arthritis can develop at any age, but the condition is more common in those aged 55 and older. The condition is 1.6 times as common in women (2.4%) as in men (1.5%).
- The way rheumatoid arthritis is managed has changed over the past 10 years:
 - In 2003, a new class of medicine, referred to as biologic disease-modifying anti-rheumatic drugs (bDMARD), became available for treatment of rheumatoid arthritis in Australia, broadening the treatment options.
 - Hospital separations for the principal diagnosis of rheumatoid arthritis increased from 30 per 100,000 population in 2001–02 to 53 per 100,000 in 2010–11, with same-day admissions becoming more common than overnight admissions from 2005–06 onwards.
 - The number of times pharmacotherapy, such as corticosteroids and bDMARDs, was administered during admitted hospital care more than doubled from 2,608 in 2004–05 to 6,932 in 2010–11.
- Rheumatoid arthritis can be a significant cause of disability and have considerable impact on quality of life. According to the 2007–08 NHS, people with rheumatoid arthritis were:
 - 2.9 times as likely as those without the condition to report severe or very severe pain
 - 1.7 times as likely as those without the condition to report high or very high levels of psychological distress
 - 3.3 times as likely as those without the condition to report poor health status.

bulletin 116

- The ways in which rheumatoid arthritis affects society include reduced workforce participation, increased costs of managing the condition, and increased impacts on carers.
 - In 2008–09, the estimated total direct health expenditure on rheumatoid arthritis was \$318.7 million, a substantial share of it being accounted for by prescription medicines (\$273.6 million or 86% of the total).
 - Currently, there are no national statistics on the indirect cost of managing rheumatoid arthritis, such as productivity loss and costs for carers.

Contents

Summary 1
Introduction
Signs and symptoms
Disease progression
Who gets rheumatoid arthritis?
Prevalence
Rheumatoid arthritis in sub-populations
How is rheumatoid arthritis managed?
Medicines used to manage rheumatoid arthritis
Management of rheumatoid arthritis in primary health care
Management of rheumatoid arthritis in hospitals
How does rheumatoid arthritis affect quality of life?
Pain
Psychological distress
What is the impact of rheumatoid arthritis on society?
Disability and need for carers 10
l abour force participation 20
Direct health expenditure
Appendix A: Detailed statistical tables
Appendix B: About the data
Glossary
Acknowledgments
Abbreviations
References
List of tables
List of figures
List of boxes
Related publications

Introduction

Among more than 100 types of arthritis, rheumatoid arthritis is the most severe, and the second most common after osteoarthritis. Rheumatoid arthritis is an autoimmune disease—one where the body's immune system attacks its own tissues. Osteoarthritis, by contrast, is characterised by wear-and-tear of joint cartilage, the connective tissue that provides cushioning to the bone ends.

Rheumatoid arthritis can affect anyone at any age, although it is well established that the disease occurs more commonly in women, and is most prevalent in people in their sixties (Silman & Hochberg 2001). Rheumatoid arthritis is also a cause of much pain and disability (NAMSCAG 2004).

Many cases of childhood onset rheumatoid arthritis are referred to as juvenile arthritis. Detailed information about juvenile arthritis is provided in A snapshot of juvenile arthritis (AIHW 2013a).

This bulletin summarises what is known about rheumatoid arthritis and presents available Australian national statistics on the subject.

Signs and symptoms

In a healthy joint, the tissue lining the joint (called the synovial membrane or joint synovium) (Figure 1) is very thin and produces fluid that lubricates and nourishes joint tissues.

In rheumatoid arthritis, the immune system attacks the synovial membrane, causing inflammation, pain, swelling and stiffness.

This causes synovial membrane to become thick and inflamed, resulting in unwanted tissue growth. Over time, bone erosion and irreversible joint damage can occur, leading to permanent disability (RACGP 2009).

While the joints bear the brunt of autoimmunity in rheumatoid arthritis, the tissues throughout the body are directly or indirectly impacted by the condition. Organs such as the heart, respiratory systems and digestive systems are also affected (Michaud & Wolfe 2007).



Source: AIHW (2009).

Figure 1: Effects of rheumatoid arthritis

Disease progression

The first symptom of the condition is typically joint stiffness accompanied by pain or tenderness on movement. Several joints are affected at the onset, often in a symmetrical fashion—with the same joints on the left and right hand side of the body being involved.

Initial presentation of rheumatoid arthritis is distinct for each patient, making diagnosis and management a complex task. In some cases, rheumatoid arthritis progresses rapidly, leading to irreversible joint damage and deformities, while in other cases this progression occurs over a longer period. Patients with rheumatoid arthritis often experience periods of remission when the disease subsides, which may last for short periods of time or continue for several years.

Who gets rheumatoid arthritis?

The exact cause of rheumatoid arthritis is unknown. Rheumatoid arthritis is believed to be associated with a family history of the disease, although a person with the condition will not necessarily pass it on to his or her children (NAMSCAG 2004). Complex interactions between genetic predisposition and environmental exposure to infectious agents, such as bacteria or viruses, as well as cigarette smoking (Albano et al. 2001), have long been suspected. No single organism has been identified that causes rheumatoid arthritis in those who are genetically susceptible (NAMSCAG 2004).

Hormonal factors may also play a role in development of rheumatoid arthritis. Rheumatoid arthritis is more common among women than men, although the reason for the higher prevalence of this condition among women has not been established (CDC 2012).

Prevalence

Based on self-reports in the 2007–08 National Health Survey (NHS) conducted by the Australian Bureau of Statistics (ABS), rheumatoid arthritis affected an estimated 428,000 Australians in that time period (approximately 2% of the population). Based on these data, we can be 95% confident that the prevalence of rheumatoid arthritis in that period was between 1.7% and 2.2% of the population. The preliminary results from the 2011–12 NHS suggest the prevalence remained at around 2% in more recent years (ABS 2012).

In both men and women, the condition was more common in those aged 55 and older than in younger age groups (Figure 2; Appendix Table A1), a result consistent with research literature. Rheumatoid arthritis was 1.6 times more common in women (2.4%) as in men (1.5%).

While the NHS provides valuable insights into the nation's health, there is some concern about the NHS self-report methodology leading to an overestimation of rheumatoid arthritis. Rheumatoid arthritis shares a similar name with rheumatism and osteoarthritis, and NHS respondents might not correctly recall their diagnosis or confuse it with a similarly-named diagnosis presented as part of the survey. The 2007–08 estimate is almost double the prevalence of rheumatoid arthritis found in other countries, at around 0.5–1.0% (Helmick et al. 2008; Silman 2001).



Rheumatoid arthritis in sub-populations

Currently, the most up-to-date estimates of rheumatoid arthritis prevalence in various sub-population groups come from the 2007–08 NHS and the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). It is expected that the 2011–12 NHS data on prevalence of this condition in sub-populations will become available in 2013–14 (ABS 2012).

Remoteness

Australians living in rural and remote areas generally experience poorer health than their major city counterparts. This difference may be accounted for by many factors including access to goods and services, educational and employment opportunities, income, and cultural and societal 'norms' which influence the health of people.

Contrary to this general trend, according to the 2007–08 NHS, the variation in the prevalence of rheumatoid arthritis across *Major cities, Inner regional,* and *Other* (including *Outer regional, Remote,* and *Very remote*) locations was not statistically significant (Appendix Table A1).

Socioeconomic disadvantage

Generally, lower socioeconomic status (SES) is associated with higher prevalence of chronic diseases and their associated risk factors (Draper et al. 2004). (See Box 1 for information about how SES categories are formulated). According to the 2007–08 NHS, prevalence of rheumatoid arthritis in the most disadvantaged areas was 2.3% and that in the least disadvantaged areas was 1.5%. This difference, however, was not statistically significant (Appendix Table A1).

Box 1: Classification of socioeconomic disadvantage

The level of socioeconomic disadvantage that a person experiences is calculated using the Index of Relative Socioeconomic Disadvantage (IRSD) developed by the Australian Bureau of Statistics (ABS 2006). The IRSD is based on several variables including income, education, occupation, government housing, divorce or separation, access to a car, Indigenous status and fluency in English.

The IRSD is an area-based measure that represents the average level of disadvantage across a geographic area in which a person resides. The area of usual residence is used to assign a person to a specific socioeconomic category or SES. In this report, the population living in the 20% of areas with the greatest overall level of disadvantage is described as the 'lowest SES group'; the 20% at the other end of the scale—the top fifth—is described as the 'highest SES group'.

Aboriginal and Torres Strait Islander People

Based on self-reports in the 2004–05 NATSIHS, rheumatoid arthritis affected an estimated 3,600 (2.5%) of Indigenous Australians. Indigenous women were 1.6 times as likely to report having rheumatoid arthritis than Indigenous men (3.1 % and 1.9% respectively).

Based on a comparison of age-standardised rates, which takes into account that the age structure of Indigenous Australians is younger than for non-Indigenous Australians, there was no statistical difference in the prevalence of rheumatoid arthritis between the two groups (Table A2).

How is rheumatoid arthritis managed?

The severity and progression of rheumatoid arthritis vary across affected individuals (CDC 2012). While some recover from the disease after a relatively short period, others may require ongoing medical intervention to manage the disease effectively. This diversity in disease presentation and disease course make management of rheumatoid arthritis a complex and dynamic process (RACGP 2009).

While rheumatoid arthritis currently has no established cure, developments in the pharmacological treatment of rheumatoid arthritis during the last decade considerably broadened the treatment options (Aletaha et al. 2010). It has also been recognised that early commencement of pharmaceutical interventions improves clinical outcomes and reduces the development of joint damage and associated disability (Bukhari et al. 2003; Van der Heide et al. 1996; Van Dongen et al. 2007).

The key elements of the current approach to management of rheumatoid arthritis are:

- + early diagnosis and commencement on pharmacotherapy
- halting the disease process
- preventing joint deformity
- alleviating or minimising pain
- + regular monitoring for drug efficacy and toxicity
- + active patient participation in management of the condition
- maximising quality of life (RACGP 2009; Rheumatology Expert Group 2010).

A wide range of health services are involved in achieving these management aims. This section of the bulletin outlines how rheumatoid arthritis is managed by medicines, in primary health care and in hospitals.

Medicines used to manage rheumatoid arthritis

The mainstay of symptom control in rheumatoid arthritis management is the use of medicine, with a variety of medicines that may be recommended (Rheumatology Expert Group 2010). General practitioners (GPs), medical specialists and allied health professionals all recommend/prescribe medicines for the management of rheumatoid arthritis.

GPs may recommend medicines such as paracetamol, codeine, and non-steroidal anti-inflammatory drugs (NSAIDs), depending on an assessment of the benefit to the patient. Medicines used to manage rheumatoid arthritis are briefly described in Box 2, and more detailed information about these is provided in *Medication use for arthritis and osteoporosis* (AIHW 2010a).

Many patients with rheumatoid arthritis may use complementary medicines to support control of symptoms and assist general wellbeing. According to the 2007–08 NHS, an estimated 48.7% of people with rheumatoid arthritis used complementary medicines for management of their condition (AIHW 2010b). Only limited evidence is currently available, however, for the effectiveness of complementary medicines in rheumatoid arthritis, with the exception of omega-3 fatty acids—commonly referred to as fish oil (RACGP 2009).

Paracetamol, codeine, and NSAIDs are sometimes called the 'first-line' medicines in management of rheumatoid arthritis as these are the initial medicines provided for symptom relief.

Stronger medicines such as corticosteroids and disease-modifying anti-rheumatic drugs (DMARDs) may be prescribed when insufficient symptom control is obtained by paracetamol, codeine or NSAIDs. Corticosteroids and DMARDs require close medical monitoring to ensure effectiveness and to detect signs of side effects. They are typically prescribed and monitored by specialist rheumatologists.

Box 2: Medicines used to manage rheumatoid arthritis

Paracetamol is a simple analgesic (painkiller) commonly used to manage pain associated with rheumatoid arthritis.

Codeine is a weak opioid (also a painkiller) that is used to treat persistent pain, and may be used in addition to paracetamol when adequate pain relief is not achieved.

Non-steroidal anti-inflammatory drugs (NSAIDs) are used to reduce both pain and inflammation in arthritis.

Corticosteroids are manufactured versions of natural hormones which reduce inflammation and the activity of the immune system and may be administered orally or by injection.

Disease-modifying anti-rheumatic drugs (DMARDs) are a group of anti-inflammatory and immune-suppressing agents. These medicines may delay the erosion of bone and facilitate healing, and thereby alter the course of the condition.

DMARDs include antimalarial drugs, anti-inflammatory metals, immunosuppressants, sulpha drugs and biologic agents (Lavelle et al. 2007). Two major types are recognised: biologic DMARDs (bDMARDs or biologics) and conventional or non-biologic DMARDs. bDMARDs are a new type of DMARD which has targeted effects on the immune system. The term 'conventional DMARD' is reserved for small-molecule drugs synthesised chemically that have broad effects upon the immune system.

Complementary medicines include vitamin, mineral, herbal, aromatherapy and other alternative medicine products. Common complementary medicines include omega-3 fatty acids and glucosamine.

National statistics on the supply of medicines for rheumatoid arthritis

Most of the medicines used to manage rheumatoid arthritis are also used to manage a large number of other conditions. Because of this, it is not possible to work out how much of these are used to manage rheumatoid arthritis specifically. Exceptions to this are the new types of DMARDs called biologic DMARDs (bDMARDs). bDMARDs are designed to have more specific inhibitory effects on the immune system than older conventional DMARDs (Breda et al. 2011). According to early evidence, they have much improved short-term and, long-term outcomes for rheumatoid arthritis (RACGP 2009). More detailed information about DMARDs can be found in *The use of disease-modifying anti-rheumatic drugs for the management of rheumatoid arthritis* (AIHW 2011).

While bDMARDs are also used for other autoimmune conditions such as juvenile arthritis, psoriatic arthritis and Crohn's disease, it is possible to delineate the volume of this group of medicines specifically supplied for the management of rheumatoid arthritis by using Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) data, as the supply of bDMARDs for rheumatoid arthritis is captured under specific PBS and RPBS codes.

Since the introduction of the first of this type of medicine to manage rheumatoid arthritis in 2002-03, the volume of, and associated PBS/RPBS subsidies for, bDMARDs used to manage rheumatoid arthritis has increased steadily. In 2011–12, approximately 148,000 units were dispensed and almost \$244 million in benefits were paid (Figure 3).



The high cost of bDMARDs and the growing number of people who are prescribed these medicines account for this increase in subsidies. According to the recent AIHW analysis of PBS/RPBS data (AIHW 2011), the number of Australians receiving bDMARDs increased from 711 people in 2003 to 6,190 in 2007. Between 2003 and 2007, a year's worth of bDMARD supply for a patient was approximately \$14,000 to \$20,000, depending on the medicine.

Due to lack of statistics on the total expenditure for medicines used to manage rheumatoid arthritis, it is unknown what proportion of total medicine expenditure for rheumatoid arthritis the bDMARDs account for.

Management of rheumatoid arthritis in primary health care

In primary health care, rheumatoid arthritis is ideally managed by a multidisciplinary team of health professionals including general practitioners, allied health professionals and medical specialists, as the condition requires coordinated and patient-centred care (RACGP 2009).

Despite the critical importance of data, the Australian primary health care system has not experienced the same national focus on data capture, collation and reporting as other parts of the health system. As a result, there is no nationally-consistent primary health care data collection. The following section briefly describes how rheumatoid arthritis is managed in primary-care settings using limited available data.

General Practitioners

GPs are often the first point of contact for people with rheumatoid arthritis. GPs have an ongoing role in providing appropriate referral to medical specialists, allied health and other health professionals, as well as optimising communication between them.

As rheumatoid arthritis is a relatively uncommon condition, the rate of management of this condition by GPs is low. According to Britt et al. (2012), the rate of management of this condition by GPs was lower than 0.5 per 100 GP-patient encounters in 2011–12. In contrast, osteoarthritis, a more common type of arthritis, was managed at the rate of 2.7 per 100 GP-patient encounters in the same period (AIHW 2013b forthcoming).

Multidisciplinary approach in primary health care

Recent evidence shows that input from a multidisciplinary team benefits long-term management of rheumatoid arthritis (Marion & Balfe 2011). Early diagnosis and proactive treatment of the condition is likely to reduce the risk of many of the complications of the condition (Rheumatology Expert Group 2010).

Allied health professionals involved in caring for people with rheumatoid arthritis in primary health care may include physiotherapists, occupational therapists, podiatrists, pharmacists, psychologists and social workers. Examples of the roles that each of these professions play are briefly described in Box 3.

According to the 2007–08 NHS, 8.6% of people with rheumatoid arthritis reported seeking help from an allied health professional in the 12 months prior to the survey (AIHW 2010b). However, as there is no national database on allied health service provision in Australia, it is not possible to describe the type or extent of allied health service use by the people with rheumatoid arthritis.

While there are some data on allied health activity reimbursed under the Medicare Benefits Schedule (MBS), these do not contain information about the reason for the health visit (for example, diagnosis). Further, these do not include privately-purchased allied health services or allied health services delivered in community health centres or in hospital out-patient departments.

Box 3: Allied health professionals involved in caring for people with rheumatoid arthritis

Physiotherapists may provide advice to assist patient understanding of the disease and their role in self-management. They may also develop exercises customised to individual needs to maintain strength and physical functioning.

Occupational therapists may provide splints (a medical device to immobilise limbs or the spine) for supporting joints and other aids to help people with everyday activities such as getting dressed or writing.

Podiatrists may be able to help people whose feet and ankles have been affected by rheumatoid arthritis. Podiatrists may also introduce orthotics (custom-made inserts that fit inside the shoe to reduce foot pain and better align the foot) to help people with rheumatoid arthritis walk without pain or with reduced pain.

Pharmacists may dispense medications for symptoms of rheumatoid arthritis. They may be able to provide information about how to take medications, possible side effects, and how these might be managed.

Psychologists may be involved in assessment, diagnosis and treatment of psychological issues including the negative emotional impact of having the condition. They may also assist with techniques to manage pain.

Social workers can help find community resources and government assistance to help affected individuals and family members cope with rheumatoid arthritis, such as patient support groups, financial assistance or respite care (Arthritis New South Wales 2013).

Medicare rebate for multidisciplinary care

Australians with rheumatoid arthritis that has lasted or is likely to be present for longer than six months are eligible for a GP Management Plan (GPMP) – an individual patient care plan prepared by GPs.

The GPMP may be complemented by a Team Care Arrangement (TCA), which provides for multidisciplinary care (involving the GP and at least two other health care providers). The GPMP and TCA are used to coordinate the care of patients with chronic or terminal conditions, to optimise the care they receive.

Whether a patient is eligible for chronic disease management is a clinical judgement for the GP, taking into account the patient's medical condition and care needs, as well as the general guidance set out in the Medicare Benefit Schedule (DoHA 2011).

The uptake of these managed care plans by people with rheumatoid arthritis is not currently known, as Medicare data do not identify the specific diagnosis of the rebate recipients.

Management of rheumatoid arthritis in hospitals

People with rheumatoid arthritis may receive hospital care when their symptoms are unable to be managed by medications and primary health care interventions.

Hospital service use

The Australian Institute of Health and Welfare (AIHW) National Hospital Morbidity Database (NHMD) contains information about admitted-patient services provided in Australia. In the NHMD, data are collected at the level of 'hospital separation', the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another facility, or changing their type of care. In this bulletin, the term 'hospitalisation' is used to describe a separation.

Terms relevant to the NHMD are summarised in Box 4.

Box 4: Summary of key terms and classifications relating to admitted-patient care

A same-day separation occurs when a patient is admitted and separated from the hospital on the same date. An overnight separation occurs when a patient is admitted to and separated from the hospital on different dates.

The principal diagnosis is the diagnosis established, after study, to be chiefly responsible for occasioning the patient's episode of admitted-patient care. An **additional diagnosis** is a condition or complaint that either coexists with the principal diagnosis or arises during the episode of care. Additional diagnoses are reported if the conditions affect patient management.

A hospital procedure can be surgical or non-surgical, can be used to treat or diagnose a condition, or be of a patient-support nature, such as anaesthesia.

Overall, the hospitalisation rate for both men and women with rheumatoid arthritis as the principal diagnosis increased over the 10 years to 2010–11 (Figure 4). The hospitalisation rate for women, however, slightly decreased from 2009–10 to 2010–11.

In 2010–11, according to the AIHW NHMD, there were a total of 9,864 hospitalisations where rheumatoid arthritis was the principal diagnosis among patients aged 16 years and over. In the 10 years to 2010–11, the hospitalisation rate for women remained more than twice that of men (Figure 4). This trend is at least partly accounted for by the sex ratio of disease prevalence, as rheumatoid arthritis is 1.6 times as common in women as in men (Table A1).



Hospitalisation rates are affected by various factors including:

- disease prevalence
- availability of effective primary health care services
- admission practices (that is, hospital decisions about whether to admit patients or treat them as non-admitted patients)
- + changes in clinical management of the condition
- availability of similar services delivered by specialists in the community.

It is not possible to ascertain from the NHMD, which of these account for the trends in hospitalisation for rheumatoid arthritis.

It is also important to note that the analysis of the NHMD in this report is unable to inform the extent to which the increase in hospitalisation between 2001–02 and 2010–11 is accounted for by the same person receiving hospital care multiple times.

Hospitalisation rates themselves also vary (across hospitals or over time) in terms of the proportion that are same-day hospitalisations versus those that require overnight hospital stays. In more recent years, same-day hospitalisation for rheumatoid arthritis has become more common than overnight hospitalisation. Overnight hospital stays for the management of rheumatoid arthritis were more common than same-day hospitalisations up to 2004–05, but this trend was reversed from 2005–06 onwards (Figure 5; Appendix Table A4).



1. Ages 16 and over only.

- Rates were age-standardised to the Australian population as at 30 June 2001. Rheumatoid arthritis was classified according to ICD-10-AM, 7th edition (NCCH 2010) for 2010-11, and earlier editions were used for the years 2001-02 to 2009-10. In all editions of ICD-10-AM used, the ICD-10-AM codes for rheumatoid arthritis were M05 and M06.
- 3. Hospitalisations for which the care type was reported as *Newborn* (without qualified days), and records for *Hospital boarders* and *Posthumous organ procurement*, have been excluded.
- 4. Changes in the number of hospitalisations for rheumatoid arthritis may be due to changes in the severity and prevalence of the disease in the community and/or the effectiveness of disease management. Changes in admission criteria and administrative policies also affect hospital usage data.

Source: AIHW National Hospital Morbidity Database.

Figure 5: Rate of hospitalisation for rheumatoid arthritis by same day versus overnight hospitalisations, 2001–02 to 2010–11

Commonly-provided hospital procedures

According to the NHMD, the number of hospital procedures provided for people with rheumatoid arthritis rose from 15,261 in 2004–05 to 18,645 in 2009–10, and decreased slightly to 16,870 in 2010–11 (Appendix Table A5). Allied health interventions, administration of pharmacotherapy, and joint replacements accounted for 62% of procedures provided for people admitted to hospitals with a primary diagnosis of rheumatoid arthritis in 2010–11:

- allied health interventions include physiotherapy, occupational therapy, social work, nutrition information etc.
- administration of pharmacotherapy includes administration of medicines such as, but not limited to, corticosteroids and bDMARDs (not identified in the data)
- joint replacements, such as full or partial replacements of hip and knee joints, help restore the ability to use the joint in severe and advanced cases of rheumatoid arthritis (Mayo Clinic 2011).

In the 7 years from 2004–05 to 2010–11, the number of times pharmacotherapy was administered more than doubled from 2,608 to 6,932 (Figure 6; Appendix Table A5). The administration of pharmacotherapy was provided mostly in same-day hospital admissions: in 2004–05. 89% of all pharmacotherapy was provided in same-day admissions and this increased to 99% in 2010–11. The increase in pharmacotherapy is likely to be, at least partly, explained by patients receiving injection or infusion of corticosteroid or bDMARD therapy.



A range of hospital-based services are also provided to people in hospital out-patient clinics. However, national data on these activities does not currently enable us to identify its use by people with rheumatoid arthritis.

How does rheumatoid arthritis affect quality of life?

Rheumatoid arthritis can be a significant cause of disability and have considerable impact on quality of life. Functional limitations and disability associated with rheumatoid arthritis can also have a negative impact on emotional wellbeing by affecting self-esteem and self-image.

Rheumatoid arthritis often limits a person's mobility and can cause them to have difficulties in carrying out daily tasks in the home or at work, which may also adversely affect quality of life. This section provides national statistics on the quality of life of people with rheumatoid arthritis, using data collected as part of the 2007–08 NHS, namely the measures of pain, psychological distress and self-assessed health.

Pain

Because the disease activity and the progression of the condition differ between individuals, the levels of pain also differ substantially between patients. The levels of pain may also differ within the same patient over time (Grennan & Jayson 1989).

Pain, nevertheless, is the major area of concern for people with rheumatoid arthritis (Minnock et al. 2003; van Riel et al. 2003), and it is identified as the preferred area for improvement by almost 70% of affected individuals, including those with low pain scores (Heiberg & Kvien 2002). Chronicity of pain impoverishes quality of life through depression, anxiety, anger, lack of sleep, difficulties with employment, interpersonal tensions, difficulties with daily tasks and so on.

The 2007–08 NHS asked respondents aged 15 and older questions about the severity of bodily or physical pain experienced in the most recent 4-week period. The results showed that some level of pain was experienced by 66% of all people without rheumatoid arthritis while 92% of those with the condition experienced some level of pain (Table 1). Approximately 25% of people with rheumatoid arthritis experienced severe or very severe pain, making them almost three times as likely as people without the condition to experience that level of pain.

	With rheumatoid arthritis		Without rheumat	toid arthritis	
Level of bodily pain ^(b)	Number	Per cent	Number	Per cent	Rate ratio ^(c)
Has bodily pain	392,183	91.5	10,703,414	66.2	1.4*
Very mild/mild	145,998	34.1	6,277,812	38.8	0.9*
Moderate	136,534	31.9	2,973,830	18.4	1.7*
Severe/very severe	109,651	25.6	1,451,772	9.0	2.9*
No bodily pain	36,269	8.5	5,468,747	33.8	0.3*
Total	428,452	100.0	16,172,161	100.0	

Table 1: Bodily pain experienced by people^(a) with and without rheumatoid arthritis, 2007–08

* Chi-square test statistically significant.

(a) Ages 15 and over only.

(b) Bodily pain experienced in the 4 weeks prior to the data collection.

(c) Ratio of 'with rheumatoid arthritis' rate to 'without rheumatoid arthritis' rate.

Source: AIHW analysis of ABS National Health Survey, 2007–08.

Psychological distress

Good mental health is fundamental to the wellbeing of individuals, their families and the population as a whole. A person with good mental health is generally able to carry out everyday activities as they wish or are expected to, within their family, work-place, and community. A person with reduced mental health, on the other hand, may experience some difficulty functioning in these domains (ABS 2009a).

One indication of mental health and wellbeing is provided by measuring levels of psychological distress. The 2007–08 NHS included the Kessler Psychological Distress Scale (K10), a 10-item questionnaire encompassing sadness, frustration, anxiety and a number of other negative mood states in the most recent 4-week period. The K10 is a widely-used measure of self-reported non-specific psychological distress associated with symptoms of depression and anxiety (ABS 2003). Respondents aged 18 years and over were asked to complete the K10 in the 2007–08 NHS. The higher the levels of distress indicated by the K10 score, the higher the risk of the individual having a mental disorder (ABS 2003).

According to the 2007–08 NHS, people with rheumatoid arthritis were 1.7 times as likely to report high or very high levels of psychological distress as those without the condition (Table 2).

	With rheumatoi	d arthritis ^(b)	Without rheuma	toid arthritis	
Level of distress ^(c)	Number	Per cent	Number	Per cent	Rate ratio ^(d)
Low	230,079	53.7	10,367,701	67.7	0.8*
Moderate	111,147	25.9	3,139,550	20.5	1.3*
High	61,568	14.4	1,278,770	8.4	1.7*
Very high	25,547	6.0	525,842	3.4	1.7*
Total	428,341	100.0	15,311,864	100.0	

Table 2: Psychological distress in people^(a) with and without rheumatoid arthritis, 2007–08

* Chi-square test statistically significant.

Notes

(a) Ages 18 and over only.

(b) Those who responded 'not-applicable' were excluded from the analysis.

(c) Psychological distress is measured using the Kessler Psychological Distress Scale, which involves ten questions about negative emotional states experienced in the previous 4 weeks. The scores are grouped into low (indicating little or no psychological distress), moderate, high and very high (indicating very high levels of psychological distress).

(d) Ratio of 'with rheumatoid arthritis' rate to 'without rheumatoid arthritis' rate.

Source: AIHW analysis of ABS National Health Survey, 2007–08.

Self-assessed health

Self-reported health status is often a good indication of the actual health of a person. People's perceptions of their own health have been shown to be good predictors of their future health care use and their long-term survival (Idler & Benyamini 1997). While it may not always be equivalent to health status as measured by a medical professional, self-perceived health measures do reflect a person's perception of his/her own health at a given point in time (ABS 2012).

The 2007–08 NHS asked respondents aged 15 and older a single question about how they would rate their health overall. According to the age-standardised ratings, self-perceived health status of people with rheumatoid arthritis was poorer than for those who do not have the condition (Table 3). People with rheumatoid arthritis were more than three times as likely as those without the condition to report poor health status.

	With rheumatoid arthritis		Without rheum	atoid arthritis	
Self-rated health status ^(b)	Number	Per cent ^(c)	Number	Per cent ^(c)	Rate ratio ^(d)
Excellent	28,669	8.2	3,344,676	20.7	0.4*
Very good	90,818	22.0	5,804,770	35.9	0.6*
Good	153,173	41.2	4,669,628	28.9	1.4*
Fair	85,858	16.0	1,737,568	10.7	1.5*
Poor	69,933	12.5	615,520	3.8	3.3*
Total	428,452	100.0	16,172,161	100.0	

Table 3: Self-perceived health in people^(a) with and without rheumatoid arthritis, 2007–08

* Chi-square test statistically significant.

Notes

(a) Ages 15 and over only.

(b) Self-rated overall health in the 4 weeks prior to the data collection.

(c) Proportions are directly age-standardised to the Australian population as at June 2001 as the two comparison groups were likely to have different age compositions.

(d) Ratio of 'with rheumatoid arthritis' rate to 'without rheumatoid arthritis' rate.

Source: AIHW analysis of ABS National Health Survey, 2007–08.

What is the impact of rheumatoid arthritis on society?

Rheumatoid arthritis has a considerable impact on both the sufferer and the community. Pain and disability associated with rheumatoid arthritis may affect individuals with the condition and those who care for them via reduced workforce participation, cost of managing the condition, and other impacts on carers.

Mortality

Rheumatoid arthritis is not a common cause of death. According to the AIHW National Mortality Database, rheumatoid arthritis was listed as the underlying cause of 186 deaths (0.1%), and as an associated cause in 733 deaths (0.5%) out of 143,473 deaths in Australia in 2010 (AIHW analysis of National Mortality Data).

Disability and need for carers

Although rheumatoid arthritis is not often a cause of death, disability associated with the condition may result in a wide range of activity limitations (AIHW: Mathers et al. 1999).

Activity restrictions with arthritis may occur in the areas of self-care (showering, toileting, and dressing) and mobility (moving from beds or chairs, and walking around the house). Some may even experience difficulty doing housework, shopping, preparing meals, or managing medication and transportation.

The 2009 Survey of Disability, Ageing and Carers (SDAC), conducted by the ABS, collected national information about people with disabilities and their carers, and some people with rheumatoid arthritis are represented in the SDAC sample. However, as the SDAC data do not allow for the separate identification of people with rheumatoid arthritis, reliable national statistics on the full impact of disability associated with rheumatoid arthritis on sufferers and their carers are currently unavailable.

Labour force participation

Physical impairments and activity limitations associated with rheumatoid arthritis may adversely affect how people with the condition participate in the labour force. Progression of rheumatoid arthritis may make full participation in the labour force difficult, require change in jobs or duties, reduction in work hours or ceasing work altogether.

A study of labour force participation among Australians reported that arthritis and related disorders were the second most common reason for people between the ages of 45 and 64 not being in the labour force (8.6% of the 9,198 people surveyed) (Schofield et al. 2008). The most common reason for early retirement was back problems, accounting for 10.4% of people surveyed. How much of early retirement is specifically due to rheumatoid arthritis is, unfortunately, unknown, as the SDAC survey used in the study did not distinguish between the types of arthritis.

Direct health expenditure

Direct health expenditure attributed to rheumatoid arthritis was \$318.7 million in the 2008–09 financial year (0.4% of the total direct expenditure allocated to diseases) (Table 4). The largest proportion of expenditure was attributable to prescription medicines (\$273.6 million or 85.8% of the direct health expenditure for rheumatoid arthritis), followed by out-of-hospital medical expenses (\$42.2 million or 13.2%).

Expenditure type	\$ Millions	Per cent
Admitted-patient costs ^(a)	2.9	0.9
Out-of-hospital medical expenses ^(b)	42.2	13.2
Prescription medicines ^(c)	273.6	85.8
Total	318.7	100.0

Table 4: Estimated direct expenditure allocated to rheumatoid arthritis by type of expenditure, 2008–09

(a) Includes public and private acute hospitals, and psychiatric hospitals. Includes medical services provided to private admitted patients in hospital.

(b) Includes medical services provided by GPs and medical specialists.

(c) Includes all pharmaceuticals for which a prescription is needed, including benefit-paid prescriptions, private prescriptions and 'under co-payment' prescriptions.

Source: AIHW Disease Expenditure Database.

It should be noted that these expenditure estimates exclude a range of costs incurred by people with rheumatoid arthritis, such as costs for:

- privately-purchased (including privately-insured) allied health services such as physiotherapy
- allied health services delivered in community health centres and hospital out-patient clinics
- medicines (such as paracetamol and codeine) purchased from community pharmacies and other retailers (for example, supermarkets and online vendors) without prescription
- + complementary medicines (for example, vitamins, minerals, herbal medicine).

They also exclude costs for carers and costs due to reduced work hours or departure from the labour force due to illness.

Appendix A: Detailed statistical tables

Table A1: Prevalence of rheumatoid arthritis by demographic characteristics, 2007–08

Demographic characteristic	Me	n	Wom	en	A	All		
	Per cent ^(a)	95% Cl ^(b)	Per cent ^(a)	95% Cl ^(b)	Per cent ^(a)	95% Cl ^(b)		
Age group (in years)								
15–24	0.1	0.0-0.2	0.6	0–1.1	0.3	0.0-0.6		
25–34	0.3	0.0-0.6	0.9	0.3–1.6	0.6	0.3–1.0		
35–44	1.2	0.6–1.9	2.0	1.1–2.8	1.6	1.1–2.1		
45–54	2.3	1.4–3.3	2.6	1.5–3.7	2.5	1.8–3.2		
55–64	3.8	2.5-5.1	7.1	4.9–9.3	5.5	4.3–6.7		
65–74	4.5	2.5-6.5	8.0	5.8–10.2	6.3	5.0-7.7		
75+	5.0	2.1-8.0	5.6	3.8–7.4	5.3	3.6–7.0		
Remoteness category ^(c)								
Major cities	1.2	0.9–1.6	2.4	2.0–2.9	1.9	1.6–2.1		
Inner regional	2.1	1.4–2.9	2.3	1.6–2.9	2.2	1.7–2.7		
Other areas	2.0	1.2–2.9	2.3	1.3–3.3	2.1	1.5–2.8		
Socioeconomic disadvantage ^(d) (S	ES)							
SES 1 (most disadvantaged)	2.0	1.2–2.8	2.5	1.8–3.3	2.3	1.7–2.8		
SES 2	1.8	1.2–2.5	3.4	2.5-4.2	2.6	2.1–3.1		
SES 3	1.5	0.9–2.1	2.0	1.4–2.7	1.8	1.3–2.3		
SES 4	1.3	0.7–1.9	2.4	1.5–3.3	1.8	1.3–2.3		
SES 5 (least disadvantaged)	1.1	0.5–1.7	1.9	1.1–2.6	1.5	1.0–1.9		
All persons	1.5	1.2–1.8	2.4	2.1–2.8	2.0	1.7–2.2		

(a) Prevalence rates were directly age-standardised to the Australian population as at 30 June 2001, except for age-specific prevalence.

(b) Shows the lower and upper limits of confidence interval. We can be 95% confident that the true value is within the interval.

(c) Remoteness category based on the Australian Standard Geographical Classification (ASGC). Other areas included *Outer regional, Remote* and *Very remote* areas.

(d) SES category based on the Index of Relative Socioeconomic Disadvantage (IRSD).

Source: AIHW analysis of ABS National Health Survey, 2007–08.

		Indigenous	Non-Indigenous	Rate ratio ^(a)
Men	Number	1,264	141,867	
	Per cent ^(b)	1.9	2.3	
	Age-standardised prevalence ^(c) (%)	2.7 ^(d)	2.2	Not provided ^(e)
Women	Number	2,348	221,046	
	Per cent ^(b)	3.1	3.4	
	Age-standardised prevalence ^(c) (%)	4.5	3.2	1.4
All	Number	3,612	362,913	
	Per cent ^(b)	2.5	2.9	
	Age-standardised prevalence ^(c) (%)	3.7	2.8	1.3

Table A2: Prevalence of rheumatoid arthritis by Indigenous status, 2004–05

(a) Rate ratios are the age-standardised rates for Indigenous Australians divided by the age-standardised rates for non-Indigenous Australians. The rates ratios were not statistically significant.

(b) The percentages are based on the total number of people in each subpopulation.

(c) Prevalence rates are directly age-standardised to the Australian population as at 30 June 2001.

(d) Prevalence rate for Indigenous men has a relative standard error of 25% to 50% and should be interpreted with caution.

(e) Rate ratio based on a rate with a relative standard error of 25% to 50% is not provided.

Notes

1. Ages 25 years and over only.

2. Persons living in non-remote areas of Australia only.

Source: AIHW analysis of ABS NATSIHS, 2004–05.

Table A3: Volume of, and associated subsidy for, bDMARDs for rheumatoid arthritis, 2002–03 to 2011–12

PBS data	2002–03	2003-04	2004–05	2005-06	2006-07	2007–08	2008–09	2009–10	2010–11	2011–12
Dispensed	<3	6,857	19,210	30,788	47,404	60,378	78,736	91,966	115,887	147,629
Benefits (\$ Million)	<0	13	37	59	84	107	143	167	198	244

Notes

1. In the 10 years to 2010–11, bDMARDs indicated for management of rheumatoid arthritis included abatacept, adalimumab, anakinra, certolizamub, etanercept, golimumab, infliximab, rituximab and tocilizumab.

2. bDMARDs funded outside of the PBS/RPBS are not included in Table A3.

Source: Department of Health and Ageing 2012.

Sub- categories	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11
Hospitalisatio	n type									
Same day	6.8	12.0	13.4	17.6	19.0	23.9	29.0	35.4	41.9	39.6
Overnight	23.3	22.2	20.8	18.0	18.2	16.6	15.8	15.0	14.5	13.4
Sex										
Men	17.2	18.5	19.4	20.3	21.2	21.8	23.7	27.2	29.5	28.6
Women	42.0	49.0	48.4	50.3	52.8	58.6	65.2	72.9	82.4	76.3
All	30.0	34.2	34.2	35.6	37.3	40.5	44.8	50.5	56.4	52.9

Table A4: Rate of hospitalisation for rheumatoid arthritis, 2001–02 to 2010–11 (age-standardised rate per 100,000 population)^(a)

(a) Rates were age-standardised to the Australian population as at 30 June 2001.

Notes

1. Ages 16 and over only.

2. In the AIHW National Hospitals Morbidity Database, data are collected at the level of 'hospital separation', the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another facility, or changing their type of care. The term 'hospitalisation' is used here to describe hospital separation.

3. Rheumatoid arthritis was classified according to ICD–10–AM, 7th edition (NCCH 2010a) for 2010–11, and earlier editions were used for the years 2001–02 to 2009–10. In all editions of ICD–10–AM used, the ICD–10–AM codes for rheumatoid arthritis were M05 and M06.

4. Hospitalisations for which the care type was reported as *Newborn (without qualified days)*, and records for *Hospital boarders* and *Posthumous organ* procurement have been excluded.

5. Changes in the number of hospitalisations for rheumatoid arthritis may be due to changes in the severity and prevalence of the disease in the community and/or the effectiveness of disease management. Changes in admission criteria and administrative policies also affect hospital usage data.

Source: AIHW National Hospital Morbidity Database.

Hospital procedures	2004-05	2005-06	2006-07	2007-08	2008-09	2009–10	2010–11
Allied health interventions	3,181	3,280	2,975	3,007	3,132	3,000	3,011
Administration of pharmacotherapy	2,608	2,852	3,738	4,656	5,883	7,139	6,932
Knee joint replacement (total or partial)	382	361	352	382	370	326	306
Hip joint replacement (total or partial)	156	172	144	165	143	146	164
Total of the above	6,327	6,665	7,209	8,210	9,528	10,611	10,413
Per cent of above in all procedures	41.5	42.8	44.7	48.6	53.7	56.9	61.7
Total of all procedures	15,261	15,562	16,111	16,898	17,740	18,645	16,870

Table A5: Number of hospital procedures for rheumatoid arthritis, 2004–05 to 2010–11

Notes

1. Ages 16 and over only.

2. Rheumatoid arthritis was classified according to ICD-10-AM, 7th edition (NCCH 2010a) for 2010-11, and the earlier editions were used for the years 2004-05 to 2009-10. In all editions of ICD-10-AM used, the ICD-10-AM codes for rheumatoid arthritis were M05 and M06.

3. Hospitalisations for which the care type was reported as *Newborn (without qualified days)*, and records for *Hospital boarders* and *Posthumous organ* procurement have been excluded.

4. The Australian Classification of Health Interventions (ACHI) codes 7th edition (NCCH 2010b) were used to record hospital procedures for patients admitted to hospital for principal diagnosis of rheumatoid arthritis for 2010–11. The earlier editions were used for the years 2004–05 to 2009–10.

5. The ACHI codes for allied health interventions were those which came under the block number 1916; for pharmacotherapy were those that came under the block number 1920; for hip joint replacement were 47522–00, 49315–00, 49318–00 and 49319–00, for knee joint replacement were those that came under the block numbers 1518–19. Due to a substantial coding difference in how pharmacotherapy was coded in 2003–04 and in 2004–05 onwards, only the data from 2004-05 are presented to ensure comparability across the years.

6. Changes in the number of procedures for rheumatoid arthritis may be due to changes in the severity and prevalence of the disease in the community and/or the effectiveness of disease management. Changes in admission criteria and administrative policies also affect hospital usage data.

Appendix B: About the data

A variety of data sources were used in the production of this report. These are described briefly below. While some of the information included in the report is based on self-reports, information obtained from service providers has also been used.

National Health Survey and National Aboriginal and Torres Strait Islander Health Survey

The 2007–08 National Health Survey (NHS) was conducted over 11 months from August 2007 to July 2008. The 2007–08 NHS, and the preceding surveys in the same series, were designed to obtain information about a range of health and health-related topics, such as health status, health risk behaviours, and the use of the health services. Much of the information collected by the surveys can be used to monitor trends over time.

The 2007–08 NHS was conducted in 15,792 private dwellings that were not in *Very remote* areas of Australia. Information was obtained about one adult and one child (aged 0 to 17) in each selected household. This resulted in 20,788 persons being interviewed. A list of types of residences excluded from the NHS are in the National Health Survey: users' guide (ABS 2009b).

While the NHS provides a vast array of nationally-representative data there are some limitations that need to be considered, namely, the self-reported sourcing of some data, and the cross-sectional nature of the survey.

The analysis in this report relies upon the quality of the data available. Much of the data collected by the NHS are self-reported by respondents, and therefore rely heavily on the respondents knowing and providing accurate information. In some cases the survey relies on the respondents' ability to recall their behaviours, such as physical activity or alcohol consumed in the week before the interview. The NHS is designed to prompt respondents so that the most accurate information is collected, but there may be reasons why the information may be compromised.

The 2004-05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) covered information similar to the NHS, including self-assessed health status, health risk factors, long-term conditions, health service use, social and emotional wellbeing, and basic demographic information. While the NATSIHS collects information on Aboriginal and Torres Strait Islander people self-reporting arthritis as a long-term condition, information about the types of arthritis the respondents had was collected only in non-remote areas of Australia.

More information on the data quality of these two population surveys can be found in the following ABS publications: the National Health Survey 2007–08 (Cat. no. 4364.0) <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4364.0Explanatory%20 Notes12007-2008%20(Reissue)?OpenDocument> and the National Aboriginal and Torres Strait Islander Health Survey 2004 –05 (Cat. no. 4715.0) < http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4715.0Explanatory%20 Notes12004-05?OpenDocument>.

AIHW National Mortality Database

The data used for this report come from the AIHW's National Mortality Database. This is a historical register of all deaths in Australia since 1964. The database comprises information about the causes of death and other characteristics about the person, such as sex, age at death, area of usual residence and Indigenous status. The cause-of-death data are sourced from the Registrars of Births, Deaths and Marriages in each state and territory, the National Coroners Information System and the ABS.

The ABS, using an automated process, codes the information about causes of death to an international standard—currently, the International Statistical Classification of Disease and Related Health Problems 10th revision (ICD-10). The coding process produces an underlying cause and, where present, one or more associated causes. A single underlying cause of death is selected from all the cause information documented on the certificate, in accordance with the rules of the ICD-10.

Data used in this report for 2010 causes of death are preliminary and subject to further revisions.

The data quality statement underpinning the AIHW National Mortality Database can be found in the following ABS publication: ABS Quality declaration summary for Causes of death 2010 (Cat. no. 3303.0) <http://www.abs.gov.au/Ausstats/abs@.nsf/0/D4A300EE1 E04AA43CA2576E800156A24?OpenDocument>.

AIHW National Hospital Morbidity Database

The National Hospital Morbidity Database is an electronic collection of data from nearly every hospital in Australia. It covers information such as the reasons for a patient's admission and the treatment they received. State and territory health authorities forward the data to the AIHW for collation and housing.

Statistics on admitted patients are compiled when an admitted patient (a patient who undergoes a hospital's formal admission process) completes an episode of admitted patient care and separates' from the hospital. This is because most of the data on the use of hospitals by admitted patients are based on information provided at the end of the patient's episode of care, rather than at the beginning.

Separation is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example from acute to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care. For each separation, patients are assigned a principal diagnosis, which is the diagnosis established, after study, to be chiefly responsible for occasioning the patient's episode of admitted patient care. Diagnoses and external causes were classified, coded and reported to the National Hospital Morbidity Database by all states and territories using the relevant editions of the International Statistical Classification of Diseases and Related Health Problems.

For each of the separations, procedures provided are also reported if applicable. In the National Hospital Morbidity Database, the hospital procedures for admitted patients were coded and reported using the relevant edition of the Australian classification of health interventions (ACHI) for that year.

The data quality statement for the AIHW National Hospital Morbidity Database can be found in the following http://www.aihw.gov.au/WorkArea/DownloadAsset.aspx?id=10737421911.

AIHW Disease Expenditure Database

The AIHW Disease Expenditure Database contains information about the monies spent by governments, other institutions and individuals to purchase or provide goods and services in relation to a particular disease. The information is derived from a wide range of data sources including the ABS, Commonwealth, state and territory health authorities, the Department of Veterans' Affairs, the Private Health Insurance Administration Council, Comcare, and the major workers compensation and compulsory motor vehicle third-party insurers in each state and territory.

The latest disease-specific expenditure information in this database is for the period 2008–09.

The data quality statement for the AIHW Disease Expenditure Database 2008–09 can be found in the following http://meteor.aihw.gov.au/content/index.phtml/ itemId/512599>.

Glossary

confidence interval: Confidence interval is a statistical term describing a range (interval) of values within which we can be confident that the true value lies.

directly age-standardised rate: Age-standardised rates enable comparisons to be made between populations which have different age structures. The method used to obtain age-standardised hospital separation rates in this bulletin is composed of three steps:

- 1. Calculate age-specific rates for 5-year age groups by dividing the number of hospital separations occurring in each specific age group by the corresponding population in the same age group.
- 2. Calculate the expected number of cases in age groups by multiplying the age-specific rates by corresponding standard population (Australian population as at 30 June 2001 was used as the standard population).
- 3. Sum the expected number of cases in each age group and divide by the total of the standard population, and express the rate per 100,000 population.

prevalence: Prevalence refers to the number or proportion (of cases, instances etc.) present in a population at a given time. Prevalence data provide an indication of the extent of presence of a condition and may have implications for the provision of services in a community.

Acknowledgments

Tomoko Sugiura, Naila Rahman and Louise York from the National Centre for Monitoring Arthritis and Musculoskeletal Conditions at the Australian Institute of Health and Welfare prepared this report. The Centre would like to acknowledge the input of Lisa McGlynn and Geoff Neideck in its preparation. Thanks are also due to members of the National Arthritis and Musculoskeletal Monitoring Advisory Group for their advice on the contents of the report.

The Australian Government Department of Health and Ageing funded this project.

Abbreviations

ABS	Australian Bureau of Statistics
ACHI	Australian Classification of Health Interventions
AIHW	Australian Institute of Health and Welfare
DMARD	disease-modifying anti-rheumatic drugs
bDMARD	biologic disease-modifying anti-rheumatic drugs
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
IRSD	Index of Relative Socioeconomic Disadvantage
GPs	general practitioners
GPMP	General Practitioner Management Plan
K10	Kessler Psychological Distress Scale
MBS	Medicare Benefits Schedule
NHMD	National Hospital Morbidity Database
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NHS	National Health Survey
NSAIDs	non-steroidal anti-inflammatory drugs
PBS	Pharmaceutical Benefits Scheme
RPBS	Repatriation Pharmaceutical Benefits Scheme
SDAC	Survey of Disability, Ageing and Carers
SES	socioeconomic status
TCAs	Team Care Arrangements

References

ABS (Australian Bureau of Statistics) 2003. Information paper: use of the Kessler Psychological Distress Scale in ABS health surveys, Australia, 2001. ABS cat. no. 4817.0.55.001. Canberra: ABS. Viewed 14 December 2012, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/ 4D5BD324FE8B415FCA2579D500161D57?opendocument>.

ABS 2008. Information paper: an introduction to Socio-economic Indexes for Areas (SEIFA), 2006. ABS cat. no. 2039.0. Canberra: ABS.

ABS 2009a. 2009. National health survey: summary of results, 2007–08. ABS cat. no. 4364.0. Canberra: ABS.

ABS 2009b. 2009.National Health Survey: users' guide - electronic publication, 2007-08. ABS cat. no. 4363.0.55.001. Canberra ABS.

ABS 2012. Australian Health Survey: first results, 2011-12. ABS cat. no. 4364.0.55.001. Canberra: ABS. Viewed 7 December 2012, <http://www.ausstats.abs.gov.au/ausstats/ subscriber.nsf/0/1680ECA402368CCFCA257AC90015AA4E/\$File/4364.0.55.001.pdf>.

AIHW (Australian Institute of Health and Welfare): Mathers C, Vos T & Stevenson C 1999. The burden of disease and injury in Australia (1996). Cat. no. PHE 17. Canberra. AIHW.

AIHW 2009. A picture of rheumatoid arthritis in Australia. Arthritis series no. 9. Cat. no. PHE 110. Canberra: AIHW.

AIHW 2010a. Medication use for arthritis and osteoporosis. Arthritis series no. 11. Cat. no. PHE 121. Canberra: AIHW.

AIHW 2010b. Use of health services for arthritis and osteoporosis. Arthritis series no. 14. Cat. no. PHE 130. Canberra: AIHW.

AIHW 2011. The use of disease-modifying anti-rheumatic drugs for the management of rheumatoid arthritis. Arthritis series no. 16. Cat. no. PHE 138. Canberra: AIHW.

AIHW 2013a. A snapshot of juvenile arthritis, January 2013. Bulletin no. 113. Cat. no. AUS 168. Canberra: AIHW.

AIHW 2013b, forthcoming. A snapshot of osteoarthritis. Canberra: AIHW.

Albano, S, Santana-Sahagun E, Weisman M 2001. Cigarette smoking and rheumatoid arthritis. Seminars in Arthritis and Rheumatism 31(3): 146–59.

Aletaha D, Neogi T, Silman A, Funovits J, Felson D, Bingham C III et al. 2010. 2010 rheumatoid arthritis classification criteria: an American College of Rheumatology/ European League Against Rheumatism collaborative initiative. Annals of the Rheumatic Diseases 69:1,580–8.

Arthritis New South Wales 2013. Working with your health team. North Ryde: Arthritis New South Wales. Viewed 12 February 2013, <http://www.arthritisnsw.org. au/arthritis/adults-and-arthritis/working-with-your-health-team/>. Breda L, Del Torto M, De Sanctis S & Chiarelli F 2011. Biologics in children's autoimmune disorders: efficacy and safety. European Journal of Pediatrics 170(2):157–67.

Britt H, Miller G, Henderson J, Charles J, Valenti L, Harrison C et al. 2012. General practice activity in Australia 2011–12. General practice series 31. Sydney: Sydney University Press.

Bukhari MA, Wiles N, Lunt M, Harrison, B, Scott D, Symmonds D et al. 2003. Influence of disease-modifying therapy on radiographic outcome in inflammatory polyarthritis at five years: results from a large observational inception study. Arthritis & Rheumatism 48: 46–53.

CDC (Centers for Disease Control and Prevention) 2012. Arthritis: rheumatoid arthritis. Atlanta: CDC. Viewed on 7 December 2013 <http://www.cdc.gov/arthritis/basics/rheumatoid.htm>.

DoHA (Department of Health and Ageing) 2011. Chronic Disease Management (CDM) Medicare items. Canberra: DoHA. Viewed 18 April 2012, http://www.health.gov.au/ internet/main/publishing.nsf/content/D38484960A44DEF8CA2576720000E4EE/\$Fi le/Fact%20sheet-%20CDM%20items,%20final%20July%202012.pdf>.

DoHA 2012. Pharmaceutical Benefits Schedule item reports. Canberra: DoHA. Viewed 2 February 2012, <https://www.medicareaustralia.gov.au/statistics/pbs_item.shtml>.

Draper G, Turrell G & Oldenburg B 2004. Health inequalities in Australia: mortality. Health Inequalities Monitoring Series No. 1. Cat. no. PHE 55. Canberra: Queensland University of Technology and AIHW.

Grennan, D & Jayson, M (1989). Rheumatoid arthritis. In: Wall, P & Melzack, R (eds), Textbook of pain, 4th edn, 317–326. New York: Churchill Livingstone.

Heiberg T & Kvien TK 2002. Preferences for improved health examined in 1,024 patients with rheumatoid arthritis: pain has highest priority. Arthritis & Rheumatism 47(4): 391–97.

Helmick C, Felson D, Lawrence R, Gabriel S, Hirsch R, Kwoh K et al. 2008. Estimates of the prevalence of arthritis and other rheumatic conditions in the United States: part I. Arthritis & Rheumatism 58:15–25.

Idler E & Benyamini Y 1997. Self-rated health and mortality: a review of twenty-seven community studies. Journal of Health and Social Behavior 38(1):21–37.

Lavelle L, Lavelle W & Demers E 2007. Disease-modifying anti-rheumatic drugs. In: McCleane G & Smith H (eds). Clinical management of bone and joint pain. New York: The Haworth Medical Press, 221–242.

Marion C & Balfe L 2011. Potential advantages of interprofessional care in rheumatoid arthritis. Journal of Managed Care Pharmacy 17(9 Suppl B): S25–9.

Mayo Clinic 2011. Rheumatoid arthritis: treatments and drugs. Arizona: Mayo Clinic. Viewed on 16 November 2012, http://www.mayoclinic.com/health/rheumatoid-arthritis/DS00020/DSECTION=treatments-and-drugs.

Michaud K & Wolfe F 2007. Comorbidities in rheumatoid arthritis. Best Practice & Research Clinical Rheumatology. 21(5):885–906.

Minnock P, FitzGerald O & Bresnihan B 2003. Women with established rheumatoid arthritis perceive pain as the predominant impairment of health status. Rheumatology (Oxford). 42(8):995–1000.

NAMSCAG (National Arthritis and Musculoskeletal Conditions Advisory Group) 2004. Evidence to support the National Action Plan for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis: opportunities to improve health-related quality of life and reduce the burden of disease and disability. Canberra: DoHA.

NCCH (National Centre for Classification in Health) 2010a. The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD–10–AM). 7th edn. Tabular list of diseases and Alphabetic index of diseases. Sydney: NCCH, Faculty of Health Sciences, The University of Sydney.

NCCH 2010b. The Australian Classification of Health Interventions (ACHI). 7th edn. Tabular list of interventions and Alphabetic index of interventions. Sydney: NCCH, Faculty of Health Sciences, The University of Sydney.

RACGP (Royal Australian College of General Practitioners) 2009. Clinical guideline for the diagnosis and management of early rheumatoid arthritis. Melbourne: RACGP.

Rheumatology Expert Group 2010. Therapeutic guidelines: rheumatology version 2, 2010. Melbourne: Therapeutic Guidelines Limited.

Schofield D, Shrestha R, Passey M, Earnest A & Fletcher S 2008. Chronic disease and labour force participation among older Australians. Medical Journal of Australia 189(8): 447–50.

Silman A & Hochberg M 2001. Epidemiology of the rheumatic diseases. 2nd edn. New York: Oxford University Press.

Van der Heide A, Jacobs J, Bijlsma J, Heurkens A, van Booma-Frankfort C, van der Veen M et al. 1996. The effectiveness of early treatment with 'second-line' anti-rheumatic drugs: a randomized, controlled trial. Annals of Internal Medicine 124(8):699–707.

Van Dongen H, van Aken J, Lard L, Visser K, Ronday H, Hulsmans H, et al. 2007. Efficacy of methotrexate treatment in patients with probable rheumatoid arthritis: a double-blind, randomized, placebo-controlled trial. Arthritis & Rheumatism 56(5):1424–32.

Van Riel P, Fransen J & Welshing P 2003. Evaluation and outcome of the patient with established rheumatoid arthritis. In: Rheumatology. 3rd edn. Hochberg, M, Silman A, Smolen J et al. (eds). Mosby Elsevier: Philadelphia.

List of tables

- Table 1: Bodily pain experienced by people(a) with and without rheumatoidarthritis, 2007–08
- Table 2:Psychological distress in people(a) with and without rheumatoid arthritis,
2007–08
- Table 3:Self-perceived health in people(a) with and without rheumatoid arthritis,
2007–08
- Table 4:Estimated direct expenditure allocated to rheumatoid arthritis by type of
expenditure, 2008–09
- Table A1: Prevalence of rheumatoid arthritis by demographic characteristics, 2007–08
- Table A2: Prevalence of rheumatoid arthritis by Indigenous status, 2004–05
- Table A3: Volume of, and associated subsidy for, bDMARDs for rheumatoid arthritis, 2002–03 to 2011–12
- Table A4: Rate of hospitalisation for rheumatoid arthritis, 2001–02 to 2010–11 (age-standardised rate per 100,000 population)
- Table A5: Number of hospital procedures for rheumatoid arthritis, 2004–05 to 2010–11

List of figures

Figure 1:	Effects of rheumatoid arthritis
Figure 2:	Prevalence of rheumatoid arthritis by age group, 2007–08
Figure 3:	Volume of, and associated subsidy for, bDMARDs for rheumatoid arthritis, 2002–03 to 2011–12
Figure 4:	Rate of hospitalisation for rheumatoid arthritis by sex, 2001–02 to 2010–11
Figure 5:	Rate of hospitalisation for rheumatoid arthritis by same day versus overnight hospitalisations, 2001–02 to 2010–11
Figure 6:	Number of hospital procedures for rheumatoid arthritis (aged 16 and over), 2004–05 to 2010–11

List of boxes

Box 1:	Classification of socioeconomic disadvantage
Box 2:	Medicines used to manage rheumatoid arthritis
Box 3:	Allied health professionals involved in caring for people with rheumatoid arthritis

Box 4: Summary of key terms and classifications relating to admitted patient care

Related publications

The following AIHW publication relating to rheumatoid arthritis and arthritis in general might also be of interest:

- + A picture of rheumatoid arthritis in Australia.
- Medication use for arthritis and osteoporosis.
- Use of health services for arthritis and osteoporosis.
- + Primary carers of people with arthritis and osteoporosis.
- The use of disease-modifying anti-rheumatic drugs for the management of rheumatoid arthritis.
- + A snapshot of juvenile arthritis, January 2013.
- + A snapshot of osteoarthritis.

The Australian Institute of Health and Welfare is a major national agency which provides reliable, regular and relevant information and statistics on Australia's health and welfare. The Institute's mission is authoritative information and statistics to promote better health and wellbeing.

© Australian Institute of Health and Welfare 2013 [@] EY

This product, excluding the AIHW logo, Commonwealth Coat of Arms and any material owned by a third party or protected by a trademark, has been released under a Creative Commons BY 3.0 (CC BY 3.0) licence. Excluded material owned by third parties may include, for example, design and layout, images obtained under licence from third parties and signatures. We have made all reasonable efforts to identify and label material owned by third parties.

You may distribute, remix and build upon this work. However, you must attribute the AIHW as the copyright holder of the work in compliance with our attribution policy available at <www.aihw.gov.au/copyright/>. The full terms and conditions of this licence are available at <http://creativecommons.org/licenses/by/3.0/au/>.

Enquiries relating to copyright should be addressed to the Head of the Communications, Media and Marketing Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

This publication is part of the Australian Institute of Health and Welfare's bulletin series. A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISBN 978-1-74249-426-5 ISSN 1446-9820

Suggested citation

Australian Institute of Health and Welfare 2013. A snapshot of rheumatoid arthritis. Bulletin no. 116. Cat. no. AUS 171. Canberra: AIHW.

Australian Institute of Health and Welfare

Board Chair Dr Andrew Refshauge Director

David Kalisch

Any enquiries about or comments on this publication should be directed to: Communications, Media and Marketing Unit Australian Institute of Health and Welfare GPO Box 570 Canberra ACT 2601 Tel: (02) 6244 1032 Email: info@aihw.gov.au

Published by the Australian Institute of Health and Welfare

Please note that there is the potential for minor revisions of data in this report. Please check the online version at <www.aihw.gov.au> for any amendments.