Appendix A

A National Action Plan for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis, 2004–2006

Osteoarthritis, rheumatoid arthritis and osteoporosis exact a significant burden on the Australian community. The impact of these conditions includes pain and suffering, reduced quality of life, and even reduced longevity, lost productivity, and significant costs associated with ongoing care and management.

People with the conditions, their families, friends and carers are all affected in some way. Around 1.8 million Australians report having osteoarthritis or rheumatoid arthritis, and after the age of 60, about half of all women and a third of all men may have a fracture due to osteoporosis.

Cost estimates for arthritis and osteoporosis range from $1.6 billion per year for direct costs alone to $18.7 billion per year for direct and indirect costs (Access Economics 2001; 2005).

In light of the substantial impact of arthritis and musculoskeletal conditions, they were designated as a National Health Priority Area in July 2002, focusing on osteoarthritis, rheumatoid arthritis and osteoporosis.

This National Action Plan, prepared by the National Arthritis and Musculoskeletal Conditions Advisory Group (NAMSCAG) and informed by advice from its working groups and stakeholders, including people with these conditions, aims to provide a blueprint for national efforts to improve the health-related quality of life of people living with osteoarthritis, rheumatoid arthritis and osteoporosis, reduce the cost and prevalence of those conditions, and reduce the impact on individuals, their carers and communities within Australia (NAMSCAG 2004).

Although several musculoskeletal conditions can affect quality of life, NAMSCAG was set up and this National Action Plan was developed to focus specifically on these three conditions initially, in order to accomplish some achievable improvement, and because of their significant disease burden. The burden of other musculoskeletal conditions and their effect on quality of life is recognised.

The National Action Plan is intended to guide the National Health Priority Action Council and the Australian Government Department of Health and Ageing in determining action for a range of activities of national significance designed to deliver better health outcomes.

It will complement both the National Chronic Disease Strategy (which is broader) and the National Service Improvement Framework for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis (which is an element of the National Action Plan), and other national and state/territory structures.

OUR GOAL

To decrease the burden of disease and disability associated with osteoarthritis, rheumatoid arthritis and osteoporosis within Australia and improve health-related quality of life.

The National Arthritis and Musculoskeletal Conditions Advisory Group has identified the following areas where urgent action is required:

1. reducing the burden of disease
2. advancing and disseminating knowledge and understanding of osteoarthritis rheumatoid arthritis and osteoporosis
3. reducing disadvantage by considering groups with special needs
4. driving national improvements in systems and services, and
5. measuring and managing performance and outcomes.

The main focus of initial efforts will be:

- promoting healthy lifestyles and self-management to optimise health outcomes for osteoarthritis, rheumatoid arthritis and osteoporosis (see 1.1, 1.6, 2.2, 2.5)

- promoting best practice for the optimal management of osteoarthritis, rheumatoid arthritis, and osteoporosis (see 1.1)

- promoting early and optimal management of rheumatoid arthritis to minimise joint damage (see 1.1)

- promoting appropriate post-fracture assessment to minimise further osteoporotic fractures (see 1.1)

- promoting timely joint replacement for osteoarthritis and rheumatoid arthritis (see 1.1), and

- developing, prioritising and progressing a research agenda to support this national health priority. This includes establishing baseline and implementing ongoing data collection systems (see 1.5).

Key to achieving these objectives will be developing and making recommendations for the wider implementation of models for education, service delivery and individual empowerment. This will depend upon building relevant partnerships and strong relationships between people with these conditions, their representative groups and medical and other health resources, and will also involve workforce development.

OBJECTIVE

1. To reduce the burden of disease, we aim to:

- promote effective prevention, early intervention, diagnosis and culturally appropriate management

- facilitate the implementation of existing and evolving evidence into practice

- maintain independence and health-related quality of life, including management of pain, disability and psychosocial components

- improve the education of, and communication by, health professionals, and

- identify and promote priority areas for research.

STRATEGIES

Strategies to achieve these objectives will include:

1.1 Promoting effective disease prevention and management by implementing innovative evidence-based approaches to better managing osteoarthritis, rheumatoid arthritis and osteoporosis, by facilitating the implementation of existing and evolving evidence into practice, and by improving decision support for clinicians and people with these conditions

1.2 Identifying workforce and policy issues which are a barrier to implementing evidence into practice

1.3 Developing links to local, state/territory and national programs and strategies (including school programs) that focus on potentially modifiable risk factors for the prevention of chronic conditions

1.4 Improving training for health professionals in musculoskeletal conditions, with links to undergraduate and postgraduate training in medical and other health professional education

1.5 Developing and prioritising a research agenda to support this national health priority, and

1.6 Supporting education for carers and people with these conditions in self-management, including pain management.

OBJECTIVE

2. Through advancing and disseminating knowledge and understanding of osteoarthritis, rheumatoid arthritis and osteoporosis, we aim to:

- improve awareness and the level of understanding in the Australian community of osteoarthritis, rheumatoid arthritis and osteoporosis, and

- improve the quality and availability of education and information for people with these conditions and their carers.

STRATEGIES

With a focus on national awareness, strategies to achieve these objectives will include:

2.1 Developing and disseminating quality evidence-based information to the general community, people with these conditions and their carers on medical and related areas, including nutrition and physical activity

2.2 Creating and implementing a strategy for people with these conditions and their carers about self-management and effective treatment and management options, with credible sources of information

2.3 Developing and enhancing carer support and training by establishing links with key stakeholder groups, including health professionals and the community

2.4 Providing credible, independent advice on medicines to the community and establishing links with groups for people with these conditions and carers, to support their greater involvement in individual medicine management, and

2.5 Promoting proven self-management strategies through existing and new programs.

OBJECTIVE

3. By considering the special needs of isolated and disadvantaged groups, we aim to:

• reduce barriers to accessing information and multi-disciplinary services, and

• identify gaps in knowledge about specific issues and promote research to address these gaps.

STRATEGIES

Strategies to achieve these objectives will include:

3.1 Building multi-disciplinary capacity in a range of health care settings

3.2 Linking in to existing work and examining different care models to help build more effective support for health practitioners and non-health community-based services in outer metropolitan, rural, regional and remote areas

3.3 Examining innovative service delivery models, and

3.4 Researching and implementing strategies to reduce health inequality.

OBJECTIVE

4. Through driving national improvements in systems and services, we aim to:

• improve access to appropriate evidence-based services and practices

• increase the participation of people with these conditions and their carers in service development and evaluation, and

• promote priority areas for research.

STRATEGIES

Strategies to achieve these objectives will include:

4.1 Promoting systemic approaches to the management of musculoskeletal conditions

4.2 Improving service delivery and funding

4.3 Consulting and communicating with all stakeholders, and

4.4 Implementing the National Action Plan at national, and state and territory levels, and promoting the development of state and territory action plans.

OBJECTIVE

5. Through performance measurement and management, we aim to:

- establish and monitor the disease burden in the Australian community

- monitor and evaluate the impact of the National Action Plan strategies on health-related quality of life, burden of disease and disability, and

- provide evidence to inform policy and further planning.

STRATEGIES

Strategies to achieve these objectives will include:

5.1 Gathering information on the disease burden related to osteoarthritis, rheumatoid arthritis and osteoporosis

5.2 Planning and developing the ongoing collection of comprehensive data

5.3 Developing and monitoring performance indicators that are clearly related to the goals, objectives and strategies of the National Action Plan, and

5.4 Evaluating and projecting the impact of the National Action Plan, including on workforce and other health resources.

References

Access Economics 2001. The burden of brittle bones: costing osteoporosis in Australia. Canberra: Access Economics.

Access Economics 2005. Arthritis the bottom line – the economic impact of arthritis in Australia. Canberra: Access Economics.

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: Department of Health and Ageing. <http://www.nhpac.gov.au>.

Appendix B

Statistical methods and classifications

This appendix describes the methods used to calculate the various estimates presented in this report. Since the focus of the report is on generating baseline information for a variety of population health measures, to be followed up over the years for regular surveillance and monitoring of arthritis and musculoskeletal conditions, an effort is made here to describe the context within which this information has been generated. No attempt is made to describe the epidemiological concepts beyond their basic descriptions.

The baseline information included in this report attempts to answer the following questions:

- How much disease is occurring in the population?
- How does it vary across the population?
- What are the underlying trends?
- What is the extent of pain and functional limitations?
- How much and what type of health service use is there?
- What about the quality of life?
- How do we measure the contribution of arthritis and musculoskeletal conditions to mortality?
- How do we summarise the impact?

How much disease is occurring in the population?

The extent of arthritis and musculoskeletal problems in the population is best measured by the epidemiological parameters of prevalence and incidence. Both national and regional data are available to estimate prevalence for several arthritis and musculoskeletal conditions, including osteoarthritis, rheumatoid arthritis and osteoporosis. The incidence data are, however, difficult to come by.

Prevalence

Prevalence, or *point prevalence* to be more specific, 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 the problem and may have implications for the provision of services in a community. The formula for calculating the prevalence rate is:

$$\text{Prevalence rate} \quad = \quad \frac{\text{Number of existing cases*}}{\text{Population at risk *}}$$

* during specified time period

Most of the information available on the prevalence of arthritis and musculoskeletal conditions is predicated upon the existence of these conditions long term; that is, that they have been present or are likely to be present for six months or more. Acute, one off cases, lasting less than 6 months, are excluded from the counts.

Since, many forms of arthritis and several other musculoskeletal conditions are intermittent, recurrent and episodic in nature, the long-term specification gives a more reliable estimate of their chronic prevalence.

The above qualification does not allow estimation of *period prevalence*—the proportion of people who experience the problem in a defined period.

Incidence

Incidence refers to the number of new cases (of a disease, condition or event) occurring during a given period, say a year. The incidence rate uses new cases in the numerator; individuals with a history of the condition are not included. Often expressed as X cases per given population base (e.g. 10,000 or 100,000), the formula for calculating incidence is:

$$\text{Incidence} = \frac{\text{Number of new cases*}}{\text{Population at risk *}}$$

* during specified time period

Even though individuals who have already developed the condition should be excluded from the denominator, incidence rates are often expressed based on the average population rather than the population at risk. In the case of chronic conditions, where most people appear to be at risk, the distinction between populations at risk and the whole population appears to be less critical (Friis & Sellers 1999).

The incidence/prevalence information may not necessarily be based upon the presence of the disease or condition in the whole population count or a sample. Sometimes this information can be generated from other related sources. For example, information on the incidence of hip fracture can be derived from hospital separations data because everyone with a hip fracture is invariably hospitalised. Mortality data can also be used to obtain estimates of incidence or prevalence; however, this source of information may not be of much use in the surveillance and monitoring of arthritis and musculoskeletal conditions.

Estimated resident population

The denominator used for estimating both prevalence and incidence is usually the estimated resident population (ERP). The estimate is based on the five-yearly ABS Census of Population and Housing to which several adjustments are made. ERP is updated each year using indicators of population change such as births, deaths, net migration and overseas visitors.

How much does it vary across the population?

Both the prevalence and incidence of the disease or condition may vary by age, sex, ethnicity, and location. Age-specific rates may be used to map this variation. However, to remove the influence of varying age structures in comparing sub-populations, the rates need to be age-standardised.

Australian Standard Population

The 2001 Australian population was used as the standard population in all age standardisation procedures, unless otherwise stated. The composition of this population is described in Table B.1. Both AIHW and ABS have agreed to adopt this as the national standard.

The population at 30 June 1991 was the standard used until 2002. For this reason, age-standardised death rates in this publication are not directly comparable with those given in several publications before 2002. For proper comparisons, all estimates were standardised to the 2001 Australian Population.

Age-specific rates

Age-specific rates are calculated by dividing the number of events (such as deaths, disease cases or hospital separations) occurring in each specified age group by the mid-year ERP for the corresponding age group. This is usually expressed as a rate per 100,000 population. The rate may be calculated for particular age and sex groups. For example:

$$\text{Hospitalisation rate for males aged 75–79} = \frac{\text{Column 1 for this age x 100,000}}{\text{Column 2 for this age}}$$

$$= \frac{11,099 \times 100,000}{243,536}$$

$$= 4,557 \text{ per 100,000 population}$$

Table B1: Age-standardisation of rates (example)

Age group	No. of separations (column 1)	Aust male pop 31 Dec 2003 (column 2)	Age-specific rate per 100,000 (column 3)	Aust Standard Population 2001[a] (column 4)	Expected no. (column 5)
0–4	1,429	650,022	220	1,282,357	2,819
5–9	1,649	684,586	241	1,351,664	3,256
10–14	2,386	709,516	336	1,353,177	4,551
15–19	5,991	702,165	853	1,352,745	11,542
20–24	8,099	705,889	1,147	1,302,412	14,943
25–29	8,729	684,840	1,275	1,407,081	17,935
30–34	11,336	754,965	1,502	1,466,615	22,022
35–39	12,681	726,138	1,746	1,492,204	26,059
40–44	15,116	765,926	1,974	1,479,257	29,194
45–49	15,572	703,926	2,212	1,358,594	30,054
50–54	16,922	655,650	2,581	1,300,777	33,572
55–59	18,443	595,211	3,099	1,008,799	31,258
60–64	15,731	448,112	3,511	822,024	28,857
65–69	13,819	361,674	3,821	682,513	26,078
70–74	12,936	301,123	4,296	638,380	27,424
75–79	11,090	243,536	4,554	519,356	23,650
80–84	7,076	150,382	4,705	330,050	15,530
>=85	3,658	92,188	3,968	265,235	10,524
Total	**182,663**	**9,935,849**	**1,838**	**19,413,240**	**359,269**

(a)   Australian Bureau of Statistics 2004b

Age-standardised rate (AS rate)

The rates of prevalence, incidence, hospital separation and death are age standardised to remove the influence of varying age structures when comparing populations spatio-temporally. The procedure is also important in undertaking trend analysis. Age standardisation is done by applying age-specific rates to a standard population. The 2001 Australian population is currently used as the standard in all comparisons, unless otherwise stated.

Direct age standardisation was used in this report for prevalence, incidence, hospital separations and mortality estimates. The calculation of direct age-standardised rates (AS rates) comprises three steps, which can be followed by reference to the example table (Table B1).

Step 1: Calculate the age-specific rate (as shown on page 112) for each age group (column 3).

Step 2: Calculate the expected number of cases in each age group by multiplying the age-specific rate (column 3) by the corresponding standard population for each age group (column 4) and dividing by 100,000, giving the expected number of cases (column 5)

Step 3: Sum the expected number of cases in each age group (total column 5) and divide this sum by the total of the standard population used in the calculation and multiply by 100,000.

Indirect age standardisation was not used for any of the estimates given in this report.

What are the underlying trends?

A major interest in establishing baselines is that over time this information could be viewed in a more meaningful, historical perspective. Regular time series are required to study the underlying trends. This information would be useful in public policy decisions, including the evaluation of health programs and the modifications of existing programs.

Several conceptual and methodological problems beset the interpretation of arthritis and musculoskeletal time series. The best national information on these diseases and conditions is limited to illness and disability data. The focus mostly is on the occurrence of the disease. However, even that information is limited in content and consistency between the surveys. The 2001 National Health Survey data, for example, has no information about disease onset. The information regarding their acute presentation or as a long term condition, based on self-reports, is also difficult to tease out. The declaration of osteoarthritis as a long-term condition, regardless of onset, poses another problem for the interpretation of changes in its prevalence.

In view of these and other difficulties, limited time series information has been included in the report.

What is the extent of pain and functional limitations?

Pain, acute or chronic, is the most common outcome of most forms of arthritis and musculoskeletal conditions. The measurement of pain is much more subjective an issue and is dealt with in this report as chronic/recurrent pain. In SDAC, pain was defined as, 'chronic or recurrent pain or discomfort, limiting activities'. No information is available on acute pain.

The severity of pain may lead to greater functional limitations among people with arthritis and musculoskeletal conditions. Information on functional limitations is derived from SDAC, which enumerates the number of people having disability specifically linked to their condition. This is referred to as the 'main disabling condition'—a long-term condition identified by a person as the one causing the most problems (ABS 2004a). People with a main disabling condition are identified having 'specific restriction'. A 'specific restriction' is a restriction in core activities (self-care, mobility and communication), schooling or employment. Four levels of core-activity restriction are determined, based on whether a person needs personal assistance with, has difficulty with, or uses aids or equipment for any of the core activities. A person's overall level of core-activity restriction is determined by the highest level of restriction the person experienced in any of the core-activity areas. A core-activity restriction may be:

- profound—unable to perform, or always needs help with, a core-activity

- severe—sometimes needing assistance to perform a core-activity

- moderate—not needing assistance, but having difficulty performing a core-activity

- mild—having no difficulty performing a core-activity but using aids or equipment because of disability.

It should be noted that activity restriction is equivalent to the ICF concept of 'activity limitation'. The SDAC categorises all forms of arthritis as 'arthritis and related disorders'; no information on specific types of arthritis (i.e. osteoarthritis, rheumatoid arthritis) is therefore available. The self-reported numbers for osteoporosis are also low for any meaningful reporting. Given small numbers, the disability and functional limitations associated with arthritis and musculoskeletal conditions have been presented as proportion of persons with a disability.

How do we measure mortality?

Arthritis and musculoskeletal conditions are largely non-fatal in their impact. Four different methods are used to assess this impact:

- as the underlying cause of death

- as an additional cause of death

- death within a defined period after an adverse event

- using aetiological fractions.

Given the small numbers, the mortality associated with arthritis and musculoskeletal conditions has been sometimes presented as the number of deaths, or as *crude death rates*. The crude death rate is the number of deaths in a year divided by ERP. However, since the risk of dying varies greatly with age, even small differences in the age structure of populations may affect crude death rates. This makes comparisons between different populations and analysis of time trends in the same population difficult and even misleading.

The statistics relating to deaths, therefore, are mostly presented as *age-specific death rates* and *age-standardised death rates*. The age-specific death rate is mortality at a particular age; however, this requires that separate comparisons be made for each age group. Variations in age structure, between populations or over time, can be adjusted by age-standardisation, as described earlier. In this report, unless otherwise specified, death rates have been directly age-standardised to the Australian population as at 30 June 2001 (ABS 2004b).

As an underlying cause of death

The cause of death information provides insights into the events around the end of life that either directly lead to or contribute to death. A single disease, medical condition or event considered to be responsible for each death, termed the underlying cause of death, is commonly used to generate this information. The set of diseases, injuries or complications that contribute to death, other than the underlying cause of death, are termed associated cause(s) of death. Together, the two types are called the multiple causes of death.

As an additional cause of death

The ABS, coders and compilers of national mortality statistics, reported only the underlying cause of death until recently. However, since 1997, both underlying and associated causes listed on the death certificate have been extracted. Consequently, a fuller picture of reasons and circumstances of a death is now available. For external causes of death, it not only identifies the nature of the injury or poisoning but also any other causes of death as well.

Most of this information has been organised by those underlying causes of death for which arthritis and musculoskeletal conditions are listed as an additional cause of death. No attempt is made to seek associations with other additional causes of death.

Death within a defined period after an adverse event

Mortality following an adverse event within a defined period can be sometimes used as an indicator of the severity of that problem. For example, to assess the impact of hip fractures in terms of mortality, all deaths occurring within 12 months of fracture were used to describe the hip fracture mortality in this report. Deaths occurring within 30 days after admission for hip fracture are another source of information. Both these methods have been used in this report for studying the impact of hip fractures attributable to osteoporosis.

Using aetiological fractions

Deaths attributed indirectly to a particular disease or condition can be assessed if the prevalence of the condition and its relative risk for mortality are known. For some of the conditions, information on attributable fractions is available from various epidemiological studies. For example, the attribution of osteoporosis to hip fracture which, in turn, has a certain associated risk for mortality, has been reported by Harris et al. (1998), and was used in this report to gain some insight into osteoporosis mortality.

How much and what type of health service use is there?

Determining how many people with arthritis and musculoskeletal conditions will present to their GP or Emergency Services unit or be hospitalised, is complex. This information can be viewed to indicate both the need and use of medical care and disease prevalence.

General practice visits

All the information on general practice (GP) visits in relation to arthritis and musculoskeletal conditions has been derived from BEACH (Bettering the Evaluation and Care of Health) Survey, an ongoing national data collection looking at the clinical activities of GPs (AIHW: Britt et al. 2004). BEACH began in April 1998 and involves a random sample of approximately 1,000 general practitioners per year, each collecting data on 100 consecutive patient encounters. The information available includes problems managed, medications, referrals, tests and investigations, and the patients, reasons for professional encounters.

GPs provide over 100 million consultations in Australia each year. They are usually the first point of call, also called a GP–patient encounter, for medical services in Australia. Rates per 100 encounters are used as the measure for a particular disease or condition; this includes a patient's reasons for the encounter, problems managed, or medications prescribed or advised. Rates per 100 problems are used when a management event can occur more than once per problem managed (e.g. prescribed drugs, orders for radiology).

A large proportion of people with arthritis and musculoskeletal conditions may not consult their GPs about their symptoms for an extended period following the onset of their disease. Also, those who consult a GP may not take advantage of other available health services.

Hospital separations

The National Hospital Morbidity Database, maintained at the AIHW, contains demographic, diagnostic, procedural and duration of stay information on episodes of care for patients admitted to hospital (AIHW 2005). The data items are supplied to the AIHW by the state and territory health authorities, and by the Department of Veterans' Affairs.

In this report, disease data relate to the principal diagnosis for hospitalisation. This is the condition established to be chiefly responsible for occasioning the admission to the hospital. The principal diagnosis is not necessarily the underlying cause of disease; it may only be a manifestation of the disease (AIHW 2005). Information on additional diagnoses, whether contributing to the reason of principal diagnosis or not, is also listed and is useful for seeking insight into the contribution of various conditions to illness and morbidity. Data on procedures are also reported for each condition.

A procedure can be surgical or non-surgical and can treat or diagnose a condition or be of a patient-support nature such as anaesthesia. The procedures are usually presented with the procedure blocks that describe procedures at a specific level, beginning with the least invasive procedure through to the most invasive.

The data can be used to provide an indication of morbidity levels in the population, as long as it is noted that admission rates are affected by differing admission practices, multiple admissions for chronic diseases and differing access to services.

Information is also provided on the mean duration of stay at the hospital. Information on in-hospital outcomes such as inpatient mortality as well as transfer to other institutions is also reported.

Quality of life

Information on the quality of life is derived from the quality of life measure in the 2001 NHS –'*The Delighted–Terrible Scale'* (Andrews and Withy 1987). It is a seven-point scale that provides a general indicator of satisfaction of life. Adult respondents were asked to choose from seven options in response to the question: 'How do you feel about your life as a whole, taking into account what has happened in the last year, and what you expect to happen in the future?'. The response options are:

- 1—Delighted
- 2—Pleased
- 3—Mostly satisfied
- 4—Mixed
- 5—Mostly dissatisfied
- 6—Unhappy
- 7—Terrible

Measure of psychological distress

Information on psychological distress is based on *'The Kessler Psychological Distress Scale-10 (K10)'* in the 2001 NHS. The K10 is a 10-item questionnaire, yielding a measure of psychological distress based on questions about negative emotional states experienced in the four weeks prior to interview. It contains low- through to high-threshold items. For each item, there is a five level response scale based on the amount of time that a respondent experienced the particular problem. The response options are none of the time, a little of the time, some of the time, most of the time, and all of the time. Each of the items is scored from 1 (for none of the time) to 5 (for all of the time). Scores for the 10 items are summed, yielding minimum low levels of psychological distress with high scores indicating high levels of psychological distress. The scores are grouped as follows:

- Low (scores of 10–15, indicating little or no psychological distress)
- Moderate (scores of 16–21)
- High (scores of 22–29), and
- Very high (scores of 30–50), indicating very high levels of psychological distress.

How do we summarise the impact?

Because of their nature, arthritis and musculoskeletal conditions affect a variety of physical and psychological health domains. The impact is mainly reflected in disability. Based on data from the NHS and SDAC, seven different domains are used to assess the impact:

- overall health status
- quality of life
- functional limitation
- use of aids and home modification
- need for assistance
- employment restriction
- social participation.

Summary measures

Summary measures, such as disability-adjusted life years (DALY), years of life lost (YLL) and years of healthy life lost due to disability (YLD), have been quoted throughout this report to describe the burden of chronic diseases. All these estimates are from the AIHW's Australian Burden of Disease and Injury Study (AIHW: Mathers et al. 1999). The Australian study adapted the methods of the Global Burden of Disease study (Murray & Lopez 1996) to the local context, drawing extensively on Australian sources of health data.

Data classification

The statistical methods mentioned previously use different classification methods for coding diseases (Table B2) and conditions. These are described below.

Mortality classifications

Australia uses the International Statistical Classification of Diseases and Related Health Problems, tenth revision (ICD-10) classification system for coding of causes of death. In this report, data on deaths before 1997 have been coded to ICD-9 (International Classification of Diseases, Ninth Revision) and thereafter to ICD-10. The introduction of ICD-10 and the move from manual coding to automated cause of death coding has resulted in a break in the deaths time series. To overcome this difficulty, the ABS coded the 1997 deaths data using both ICD-9 (manual coding) and ICD-10 (automatic coding), which allowed comparability factors between ICD-9 and ICD-10 to be derived.

Table B2: Classification/codes used in various health data sources

AIHW National Mortality Database	
Condition	**ICD-10 codes**
Diseases of the musculoskeletal system and connective tissue	M00–M99
Rheumatoid arthritis	M05, M06
Osteoarthritis	M15–M19
Osteoporosis	M80–M82
AIHW National Hospital Morbidity Database	
Condition	**ICD-10-AM codes**
Diseases of the musculoskeletal system and connective tissue	M00–M99
Rheumatoid arthritis	M05, M06
Osteoarthritis	M15–M19
Osteoporosis	M80–M82

(Continued)

Table B2: Classification/codes used in various health data sources (continued)

BEACH Survey	
Condition	**ICPC-2-PLUS codes**
Diseases of the musculoskeletal system and connective tissue	L
Rheumatoid arthritis	L88
Osteoarthritis	L83011, L84004, L84009, L84010, L84011, L84012, L89001, L90001, L91001, L91003, L91008, L91015, L92007
Osteoporosis	L95
2001 National Health Survey	
Condition	**CURF codes (derived from ICD-10 codes)**
Diseases of the musculoskeletal system and connective tissue	71–80
Rheumatoid arthritis	72
Osteoarthritis	73
Osteoporosis	80
2003 Survey of Disability, Ageing and Carers	
Condition	**CURF codes (derived from ICD-10 codes)**
Diseases of the musculoskeletal system and connective tissue	1301, 1303, 1304, 1306, 1307, 1399
Arthritis and related disorders	1301
Osteoporosis	1304

Morbidity classifications

For hospital diagnosis and procedure the ICD classifications (ICD-9 and ICD-10) have been modified for Australia. Hospital data before 1998–99 were coded using ICD-9-CM (International Classification of Diseases, ninth revision, Clinical Modification) and thereafter using ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, tenth revision, Australian Modification).

Primary care classifications

The general practice data follow the International Classification of Primary Care Second, edition (ICPC-2) (WICC 1997). Used in more than 45 countries as the standard for data classification in primary care, the ICPC has recently been accepted by WHO in the WHO Family of Classifications and has been declared the national standard in Australia for reporting of health data from general practice and patient self-reported health information (AIHW: Britt et al. 2004).

The ICPC classification has a bi-axial structure, with 17 chapters based on body systems along one axis and seven components covering signs, symptoms, process of care and diagnoses along the other. The processes of care, including referrals, non-pharmacological treatments and orders (pathology and imaging), were classified by the process components of the ICPC-2 (AIHW: Britt et al. 2004).

NHS long-term conditions classifications

In the 2001, NHS information on diseases and conditions are based on long-term conditions. These are defined as medical conditions (illness, injury or disability) which were current at the time of the survey and which have lasted at least six months, or which the respondent expects to last for six months or more, including:

- long-term conditions experienced from which only infrequent attacks may occur

- long-term conditions which may be under control (for example, through the continuing use of medication)

- conditions which, although present, may not be generally considered 'illness' because they are not necessarily debilitating, such as reduced sight, and

- long-term or permanent impairments or disability (ICD-10 classification of diseases). This is a derived item. Multiple categories (1–19) are aggregated to obtain the prevalence of a certain long-term condition.

Disability characterisations

The loss of healthy life due to non-fatal conditions can be categorised using a variety of classifications. The International Classification of Functioning (ICF), a care member of the WHO family of health-related classifications, conceptualises disability as multi-dimensional, relating to the body functions and structures of people, the activities they do, the life areas in which they participate and the factors in the environment that affect these experiences (WHO 2001). The ABS Survey of Disability, Ageing and Carers (ABS 2004a) operationalises these concepts into 17 different types of limitations, restrictions or impairments. These characteristics can be further related to specific diseases and conditions.

The extent of disability associated with various diseases and conditions can also be categorised using disability weights, or health state preferences (Murray & Lopez 1996). However, no Australia-specific disability weights have been generated. The Australian Burden of Disease Study used numerical categorisation of disability based on the years of healthy life lost due to time lived in states other than the reference state of good health, or YLD (AIHW: Mathers et al. 1999). Both disability weights and the YLD categorisation give a broader interpretation of morbidity or ill health, concepts that are not fully picked up by the ABS survey instrument.

References

ABS (Australian Bureau of Statistics) 2004a. Basic confidentialised unit record file: Survey of Disability, Ageing and Carers. ABS Cat. No. 4430.0. Canberra: ABS.

ABS 2004b. Australian demographic statistics. ABS Cat. No. 3101.0. Canberra: ABS.

AIHW (Australian Institute of Health and Welfare) 2005. Australian hospital statistics 2003–04. AIHW Cat. No. HSE 37. Canberra: AIHW.

AIHW: Britt H, Miller GC, Knox S et al. 2004. General practice activity in Australia 2003–04. AIHW Cat. No. GEP 16. Canberra: AIHW.

AIHW: Mathers C & Penm R 1999. Health system costs of injury, poisoning and musculoskeletal disorders in Australia 1993–94. AIHW Cat. No. HWE No. 6. Canberra: AIHW.

Andrews FM & Withy SB 1987. The Delighted Terrible Scale. In: McDowell I & Newell C (eds). Measuring health: a guide to rating scales and questionnaires. New York: Oxford University Press.

Friis RH & Sellers TA 1999. Epidemiology for public health practice, 2nd ed. MA: Aspen Publishers, Inc.

Harris AH, Cumming R, Watts J et al. 1998. The burden of illness and the cost of osteoporosis in Australia. Centre for Health Program Evaluation Technical Report no. 8. Melbourne: Monash University.

Murray C & Lopez A 1996. Global health statistics. Boston: Harvard School of Public Health.

WHO (World Health Organization) 2001. International classification of functioning, disability and health. Geneva: WHO.

Appendix C

Health system costing methodology

Health expenditure is money spent by both governments and individuals to purchase or provide goods and services for health. The Australian Government is the major payer through Medicare, along with state, territory and local governments. The Australian Government also pays for many public health programs and for health insurance through tax incentives. Individuals also pay out of pocket for expenses not covered by Medicare, as well as inputting through the Medicare levy and insurance premiums. In addition to these direct costs, both individuals and the society have indirect costs accruing through work loss, informal care and mortality.

The AIHW Health Expenditure Database is a satellite national account. Satellite accounts enable the linkage of non-monetary data sources and analysis to the monetary accounting system. This database was compiled by allocating the total recurrent health expenditure to various sectors for over 200 diseases and injury categories based on those used in the Australian Burden of Disease Study (AIHW: Mathers et al. 1999). The disease expenditure estimates for 2000–01 have also been derived using a methodology consistent with that used for 1993–94, allowing comparisons between estimates for the two years.

The Health Expenditure Database covers the following health care sectors:

*   hospitals (admitted and non-admitted patients)

*   aged care homes

*   out-of-hospital medical services (including general practitioners (GPs), specialists, imaging and pathology)

*   pharmaceuticals (prescription drugs and over-the-counter medications)

*   other professional services (such as physiotherapy, chiropractors and osteopaths), and

*   health-related research.

Expenditure for admitted hospital patients, aged care homes, out-of-hospital medical services and pharmaceutical prescription drugs were based on analysis of the 2000–01 recurrent health expenditure data. However, expenditure allocation estimates for non-admitted hospital patients, over-the-counter medications, other professional services and health-related research were not available. Instead estimates were calculated by adjusting the 1993–94 estimates (AIHW: Mathers et al. 1998) for changes in both overall expenditure for each sector, and in the age and sex structure of the population. These estimates are approximations and therefore should be used with caution.

Further details of the methodology used to compile the AIHW Health Expenditure Database are available in *Health System Expenditure on Disease and Injury in Australia 2000–01* (AIHW 2005).

Areas of health expenditure

Hospital services

Expenditure for the hospital sector is comprised of expenditure for both admitted and non-admitted patients. Admitted patient expenditure for public hospitals is estimated using the admitted patient fractions published in *Australian Hospital Statistics 2001–02* (AIHW 2003a). The expenditure for private hospitals is derived from the ABS Private Health Establishments Survey.

The hospital expenditure for admitted patients is estimated by allocating the total admitted patient expenditure to each hospital separation episode, with adjustments for level of resources required for treating a specific episode (using the Diagnostic Related Groups, or DRGs) and length of stay. DRG weights were also used to adjust for costs in the hospital where the treatment was provided; this ensures that the average cost for the hospital was the same as the average for the state. For sub-acute and non-acute patients, cost data were extracted from the sub-acute and non-acute patient (SNAP) study (Eager et al. 1997) and inflated to 2000–01 estimates using the price deflator for government consumption expenditure on hospital and nursing home care (AIHW 2002). Medical services expenditure for private patients is based on the fee charged by private medical practitioners for in-hospital services as collected by the Health Insurance Commission (HIC).

The expenditure estimates for non-admitted patients was obtained from *Australian Hospital Statistics 2001–02* (AIHW 2003a). Expenditure by disease for 2000–01 was calculated by adjusting the 1993–94 data for demographic changes.

Aged care homes

The aged care system includes both nursing homes and hostels. Expenditure for residents with high levels of dependency is used to estimate services delivered by nursing homes. These estimates are reported in *Health Expenditure Australia 2001–02* (AIHW 2003b). Disease allocation is based on data from the ABS 2003 Survey of Disability, Ageing and Carers (ABS 2004).

Out-of-hospital medical services

Expenditure for out-of-hospital medical services includes private medical services that are provided by general practitioners (GPs) and specialists. The Bettering the Evaluation of Care of Health (BEACH) Survey of GPs was used to allocate out-of-hospital medical services expenditure by disease. Expenditure for unreferred attendances, imaging and pathology were allocated according to general practice encounters and expenditure for other medical services on the basis of the referral pattern. When multiple conditions were presented in the general practice encounter, allocation was done on a pro-rata basis. Medical services provided in the hospital were included in admitted patient hospital expenditure.

Pharmaceuticals

Expenditure on pharmaceuticals was estimated from prescribed and over-the–counter (OTC) medication payments. Data on prescription drugs expenditure was provided by the Pharmaceutical Benefits Scheme (PBS) and the Department of Veterans' Affairs Repatriation Pharmaceutical Benefits Scheme (RPBS). Expenditure data for drugs purchased on private prescriptions, not through PBS or RPBS, and under co-payment drugs were obtained from the Pharmacy Guild survey. The BEACH Survey was used to allocate prescription drug expenditure by diseases, based on the pattern of prescription of a particular drug to the problem managed in general practice encounters. This pattern was assumed to be the same for the specialist-written prescriptions. Pharmaceuticals provided through hospitals were included in hospital expenditure.

Expenditure for OTC medication was calculated by subtracting expenditure on private prescriptions and under co-payment drugs from all non-benefit paid pharmaceutical expenditure estimates reported in *Health Expenditure Australia 2001–02* (AIHW 2003b). OTC medication expenditure allocated by disease for 2000–01 was calculated by adjusting the 1993–94 estimates for demographic changes.

Other professional services

Data for expenditure on other professional services were obtained from *Health Expenditure Australia 2001–02 report* (AIHW 2003b). Disease-specific estimates were made by adjusting the 1993–94 estimates for demographic changes over the period between 1993–94 and 2000–01.

Research

Expenditure on research was also obtained from the *Health Expenditure Australia 2001–02* (AIHW 2003b). Data from the ABS Research and Experimental Development Survey allowed the estimate to be allocated by disease.

References

ABS (Australian Bureau of Statistics) 2004a. Basic confidentialised unit record file: Survey of Disability, Ageing and Carers. ABS Cat. No. 4430.0. Canberra: ABS.

AIHW (Australian Institute of Health and Welfare) 2002. Australian health expenditure 2000–01. AIHW Cat. No. HWE 20. Canberra: AIHW.

AIHW 2003a. Australian hospital statistics 2001–02. AIHW Cat. No. HSE 25. Canberra: AIHW.

AIHW 2003b. Health expenditure Australia 2001–02. AIHW Cat. No. HWE 24. Canberra: AIHW.

AIHW 2005. Health system expenditure on disease and injury in Australia 2000–01. Second ed. AIHW Cat. No. HWE 28. Canberra: AIHW.

AIHW: Mathers C, Penm R, Carter R et al. 1998. Health system costs of diseases and injury in Australia 1993–94. AIHW Cat. No. HWE 5. Canberra: AIHW.

AIHW: Mathers C, Vos T & Stevenson C 1999. The burden of disease and injury in Australia. AIHW Cat. No. PHE 17. Canberra: AIHW.

Eager K , Gordon R, Hodkinson A et al. 1997. The Australian national sub-acute and non-acute patient (AN-SNAP) casemix classification: report of the national sub-acute and non-acute casemix classification study. Wollongong: Centre for Health Service Development, University of Wollongong.

Appendix D

Definitions of terms and measures

additional diagnosis Conditions or complaints either co-existing with the principal diagnosis or arising during the episode of care. Additional diagnoses give information on factors that result in increased length of stay, more intensive treatment or the use of greater resources.

admitted patient A patient who undergoes a hospital's formal admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home.

age-specific rate A rate for a specific age group. Both the numerator and denominator relate to the same age group.

age-standardisation A method of removing the influence of age when comparing populations with different age structures. This procedure is required because the incidence and prevalence of many diseases varies strongly (usually increasing) with age. The age structures of different populations are converted to the same 'standard' structure, and the incidence/prevalence rates are calculated.

appropriate Suitable for a particular person or place or condition; appropriate for achieving a particular end. Implies best practice.

arthritis A group of disorders in which there is inflammation of the joints, which can become stiff, painful, swollen or deformed. The two main types of arthritis are *osteoarthritis* and *rheumatoid arthritis*.

associated cause(s) of death Any condition(s), diseases and injuries—other than the underlying cause— contributing to death. See also cause of death.

auto-immune diseases Diseases, such as *rheumatoid arthritis* and type 1 diabetes in which the immune system reacts against its own body tissues.

average length of stay (ALOS) The average of the length of stay in hospital for admitted patient episodes.

body mass index (BMI) A standardised measure of weight adjusted for person's height. BMI is calculated by dividing the person's weight (in kilograms) by their height (in metres) squared, that is, $kg \div m^2$. For both men and women, underweight is a BMI below 18.5, acceptable weight is from 18.5 to less than 25, overweight is 25 and above (includes obese), and obese is 30 and over.

capacity building An approach or a set of approaches that seek to enhance the potential that systems, programs and activities will be sustainable long term and will give individuals and services a greater ability to address health issues.

carer Someone who looks after a relative or friend who has a disability, a chronic illness or is a frail, aged person. Carers come from all walks of life, cultural backgrounds and age groups.

cause of death From information reported on the medical certificate of cause of death, each death is classified by the underlying cause of death, according to rules and conventions of various editions of the International Classification of Diseases. The underlying cause is defined as the disease that initiated the train of events leading directly to death. Deaths from injury or poisoning are classified according to the circumstances of the violence that produced the fatal injury, called the external cause(s) of death, rather than to the nature of the injury.

chronic Persistent and long-lasting.

chronic diseases Term applied to a diverse group of diseases, such as heart disease, cancer and arthritis (to name a few), that tend to be long lasting and persistent in their symptoms or development. Although these features also apply to some communicable diseases (infections), the term is usually confined to non-communicable diseases.

clinical guidance document Document designed to provide direction or advice as to a decision or course of action. Based on best evidence in accordance with NHMRC guidelines.

comorbidity The occurrence of two or more health problems in a person at the same time.

cross-sectoral Refers to fields across different sectors of government and the community such as health, education etc.

direct costs Financial costs to the Australian health system for providing prevention and treatment services, such as hospitals, aged care homes, primary care and specialist services, pharmaceuticals and other medications, allied health services, research, health administration etc.

disability A concept of several dimensions relating to an impairment in body structure or function, a limitation in activities (such as mobility and communication), a restriction in participation (involvement in life situations such as work, social interaction and education), and the affected person's physical and social environments.

disability-adjusted life year (DALY) Years of healthy life lost through either premature death or through living with disability due to illness or injury.

early intervention Timely identification and tailored advice and support for those identified with a condition. 'Early' does not necessarily mean early in life but rather early in the time course or progress of a condition; a nexus between prevention and treatment.

effective Care, intervention or action that achieves the desired outcome. Incorporates *cost effective*–producing the intended effect with consideration of the costs involved.

enhance family and carer support To improve or make more effective or advanced, to augment the support provided to families and/or carers of individuals with a particular condition.

establishing/developing links Creating and developing an element of connection, association or relationship between two or more parties, usually by means of communication.

external cause Environmental event, circumstance and/or condition as the cause of injury, poisoning and/or other adverse effect. The term is used in disease classification.

gross domestic product (GDP) A statistic commonly used to indicate national wealth. It is the total market value of goods and services produced within a given period after deducting the cost of goods and services used up in the process of production but before deducting allowances for the consumption of fixed capital.

health professional A person who helps in identifying, preventing or treating illness or disability such as general practitioners, allied health professionals, specialists etc.

health-related quality of life Complete physical, mental and social wellbeing, including psycho-social components and pain management.

hostel Establishment for people who cannot live independently but who do not need nursing care in a hospital or nursing home. Hostels provide board, lodging or accommodation and cater mostly for the aged, distressed or those with a disability. Residents are generally responsible for their own provisions but may be given domestic assistance such as help with meals, laundry and personal care.

impairment Any loss or abnormality of psychological, physiological or anatomical structure or function.

incidence The number of new cases (of an illness or event etc.) occurring during a given period. Compare with prevalence.

indicator A key statistic chosen to describe (indicate) a situation concisely, help assess progress and performance, and act as a guide to decision making. It may have an indirect meaning as well as a direct one; for example, overall death rate is a direct measure of mortality but is often used as a major indicator of population health.

Indigenous A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander and is accepted as such by the community with which he or she is associated.

indirect costs The costs to the community due to the condition other than direct costs, such as the loss of earnings due to absenteeism and early retirement, the loss of potential tax revenue, and the value of volunteer carers.

inflammation Local response to injury or infection, marked by local redness, heat, swelling and pain. Can also occur when there is no clear external cause and the body reacts against itself, as in auto-immune diseases.

information Refers to independent, high-quality data that are appropriate to the target audience.

International Classification of Diseases The World Health Organization's internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use.

intervention The act of intervening in this context could refer to prescribed and non-prescribed medicines, and also to physical and life style-related interventions.

jurisdictional Restricted to the geographic area under a particular jurisdiction, for example, a State Government.

length of stay Duration of hospital stay, calculated by subtracting the date the patient is admitted from the day of separation. All leave days, including the day the patient went on leave, are excluded. A same-day patient is allocated a length of stay of one day.

management The act, manner, or practice of managing; handling, supervision, or control.

medicines An agent used to treat disease or injury; includes both pharmaceuticals and non-pharmaceuticals. Can include items purchased from a pharmacy (prescribed or not prescribed), health food shop or supermarket, including vitamins and herbal products.

morbidity Refers to ill health in an individual and to levels of ill health in a population or group.

mortality Death.

multi-disciplinary care A team approach to the provision of health care by all relevant health and non-health community-based, medical and allied health disciplines.

musculoskeletal Relating to the muscles, joints and bones.

National Health Priority Areas (NHPAs) A collaborative initiative of Commonweath, State and Territory Governments that seeks to focus public attention and health policy on areas that contribute significantly to the burden of disease in Australia and for which there is potential for health gain. Arthritis and musculoskeletal condtions constitutes one of the NHPAs and the three priority conditions are osteoarthritis, rheumatoid arthritis and osteoporosis.

non-admitted patient A patient who receives care from a recognised non-admitted patient service/clinic of a hospital.

nursing homes Establishments which provide long-term care involving regular basic nursing care for people who are frail, disabled, convalescing or with a chronic illness, or for senile inpatients.

obesity Marked degree of overweight, defined as *body mass index* of 30 and over.

optimal Most desirable possibility under a restriction expressed or implied.

osteoarthritis A chronic and common form of *arthritis*, affecting mostly the spine, hips, knees and hands. It first appears from the age of about 30 and is more common and severe with increasing age.

osteoporosis Thinning and weakening of the bone substance, with a resulting risk of fracture.

overweight Defined as a *body mass index* of 25 and over. See also obesity.

patient days The number of full or partial days of stay for patients who are admitted for an episode of care and who undergo separation during the reporting period. A patient who is admitted and separated on the same day is allocated one patient day.

performance indicators Indicators that help monitor or evaluate the performance of a program.

potential years of life lost (PYLL) Number of potential years of life lost in a population as a result of premature death.

prescription drugs Pharmaceutical drugs available only on the prescription of a registered medical practitioner and available only from pharmacies.

prevalence The number or proportion (of cases, instances etc.) present in a population at a given time. Compare with incidence.

prevention   Stopping an event or episode from occurring or progressing by performing or avoiding certain activities.

principal diagnosis   The diagnosis describing the problem that was chiefly responsible for the patient's episode of care in hospital.

principal procedure   The most significant procedure that was performed for treatment of the principal diagnosis.

recurrent expenditure   Expenditure on goods and services that are used up during the year, for example, non-salaries. It contrasts with capital expenditure, such as expenditure on hospital buildings and large-scale diagnostic equipment, the useful life of which extends over several years.

research   Refers to research at all levels into osteoarthritis, rheumatoid arthritis and osteoporosis.

rheumatoid arthritis   A chronic, multi-system disease whose most prominent feature is joint inflammation, most often affecting the hand joints in symmetrical fashion. Can occur in all age groups but most commonly appears between ages 35 to 45. The causes of rheumatoid arthritis are not certain but involve auto-immune processes.

risk factor   Any factor that presents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease, others are not necessarily so.

same-day patients   Hospital patients who are admitted and separated on the same day.

self-management   Involves [the individual with the condition] engaging in activities that protect and promote health; monitoring and managing of symptoms and signs of illness; managing the impacts of illness on functioning, emotions and interpersonal relationships and adhering to treatment regimes.

separation   The formal process by which a hospital records the completion of treatment and/or care for an admitted patient.

separation mode   The status at separation of a person from hospital (discharge, transfer or death) and the place to which that person is released (where applicable).

special needs group/at risk group   Refers to groups of people who have needs relating to their health that are not always considered initially, or who have particular requirements, or who may be disadvantaged. Examples include people living in outer-metropolitan, rural and remote areas, culturally and linguistically diverse populations, Indigenous communities, socioeconomically or intellectually disadvantaged people, and people in custody.

stakeholder   Anyone involved or interested in the subject and wanting to provide feedback on policy and/or activities within it. Stakeholders may differ depending on the context.

statistical significance   An indication from a statistical test that an observed difference or association may be significant or 'real' because it is unlikely to be due alone to chance. A statistical result is usually said to be 'significant' if it would occur by chance only once in 20 times or less often.

sustainability   Able to be sustained long term, ideally with independent sources of support.

symptom   Any indication of a disorder.

underlying cause of death   The condition, disease or injury initiating the sequence of events leading to death; that is, the primary, chief, main or principal cause. Compare with associated cause(s) of death.

underweight   Defined as a *body mass index* of less than 18.5.

Appendix E

Statistical tables

The statistical tables provided in this appendix present data that were used to draw the figures included in the report. Additional detailed information included in the tables provides greater clarity and insight into the issues being addressed. The tables have been organised by chapter, according to the location of the Figure in the body of the report. A reference to the respective Figure is also given.

Chapter 2

Table E2.1: Self-reported arthritis or musculoskeletal conditions, 2001

Sex	0–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	Total
				Age group (years)					
				Number '000					
Males	43.9	231.2	395.2	573.7	573.8	479.7	359.5	248.6	2,905.5
Females	45.0	259.1	396.0	501.6	614.1	505.8	430.9	400.1	3,152.6
Persons	88.9	490.3	792.2	1,075.3	1,187.9	985.5	790.4	648.7	6,058.1
				Number per 1,000 population					
Males	22	178	286	399	443	532	580	620	318
Females	23	205	278	338	466	564	649	695	327
Persons	23	191	282	368	454	548	615	664	323

Notes
1. See Figure 2.1.
2. Rates for the total are age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E2.2: Prevalence of arthritis and musculoskeletal conditions, 2001 NHS and 2003 SDAC

Condition	2001 NHS		2003 SDAC	
	Number '000	Per cent[a]	Number '000	Per cent[a]
Back pain	3,937.1	20.8	1,766.1	9.0
Arthritis	2,576.1	13.6	1,816.3	9.2
Other arthropathies	367.3	1.9	176.0	0.8
Osteoporosis	299.8	1.6	337.4	1.7
Rheumatism	248.0	1.3	155.3	0.8
All diseases[b]	6,058.1	32.3	4,246.2	21.5

(a) Per cent of total population of the year.

(b) All diseases of the musculoskeletal system and connective tissues.

Note: See Figure 2.2.

Sources: AIHW analysis of ABS 2001 National Health Survey (NHS) CURF and ABS 2003 Survey of Disability, Ageing and Carers (SDAC) CURF.

Table E2.3: Chronic or recurrent pain in disability associated with arthritis and related disorders, 2003

Age group (years)	Males		Females		Persons	
	Number '000	Per cent[a]	Number '000	Per cent[a]	Number '000	Per cent[a]
0–34	3.4	43.6	3.5	46.1	6.9	44.8
35–44	5.9	47.6	12.2	67.4	18.1	59.3
45–54	14.8	54.6	27.5	53.1	42.3	53.6
55–64	28.7	68.0	55.6	56.4	84.3	59.9
65–74	25.2	51.4	54.7	61.0	79.9	57.6
75+	25.7	59.4	54.5	47.9	80.2	51.1
Total	**103.7**	**57.0**	**208.0**	**54.8**	**311.7**	**55.5**

(a) Per cent of people with disability associated with arthritis and related disorders in the respective age group.

Note: See Figure 2.3.

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Table E2.4: Core-activity restrictions in disability associated with arthritis and related disorders, 2003

Age group (years)	Self-care		Mobility		Communication	
	Number '000	Per cent[a]	Number '000	Per cent[a]	Number '000	Per cent[a]
Males						
0–34	3.2	41.0	4.9	62.8	0.9	11.5
35–44	2.5	20.2	7.8	62.9	0.0	0.0
45–54	7.4	27.3	17.6	64.9	0.6	2.2
55–64	12.0	28.4	30.2	71.6	8.3	19.7
65–74	9.4	19.2	33.6	68.6	7.4	15.1
75+	19.2	44.3	35.2	81.3	19.0	43.9
Total	**53.7**	**29.5**	**129.3**	**71.1**	**36.2**	**19.9**
Females						
0–34	2.6	34.2	4.3	56.6	0.3	3.9
35–44	3.8	21.0	12.3	68.0	0.0	0.0
45–54	17.3	33.4	40.0	77.2	2.3	4.4
55–64	37.6	38.1	78.4	79.5	6.9	7.0
65–74	33.5	37.4	71.7	80.0	11.3	12.6
75+	59.1	52.0	105.7	93.0	41.9	36.9
Total	**153.9**	**40.6**	**312.4**	**82.3**	**62.7**	**16.5**
Persons	**207.5**	**37.0**	**441.7**	**78.7**	**98.9**	**17.6**

(a) Per cent of people with disability associated with arthritis and related disorders in the respective age group.

Note: See Figure 2.4.

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Table E2.5: Psychological distress associated with arthritis and musculoskeletal conditions, ages 25 and over, 2005

Age group (years)	Level pf psychological distress				
	Low	Moderate	High	Very high	Total
Males			Number '000		
25–44	90.6	46.2	27.4	11.7	175.9
45–64	277.1	88.8	59.9	31.7	457.5
65–74	163.7	31.7	14.7	4.9	215.0
75+	119.5	37.1	11.2	6.4	174.3
Total	**650.9**	**203.8**	**113.2**	**54.8**	**1,022.7**
Females					
25–44	90.2	64.1	31.2	21.0	206.4
45–64	343.2	165.9	89.6	44.0	642.7
65–74	215.3	70.9	28.2	18.6	333.0
75+	204.8	75.4	37.0	13.2	330.4
Total	**853.5**	**376.2**	**186.0**	**96.8**	**1,512.5**
Persons	**1,504.3**	**580.0**	**299.2**	**151.5**	**2,535.1**
Males			Per cent		
25–44	51.5	26.3	15.6	6.7	100.0
45–64	60.6	19.4	13.1	6.9	100.0
65–74	76.1	14.7	6.8	2.3	100.0
75+	68.6	21.3	6.4	3.7	100.0
Total	**63.6**	**19.9**	**11.1**	**5.4**	**100.0**
Females					
25–44	43.7	31.1	15.1	10.2	100.0
45–64	53.4	25.8	13.9	6.8	100.0
65–74	64.7	21.3	8.5	5.6	100.0
75+	62.0	22.8	11.2	4.0	100.0
Total	**56.4**	**24.9**	**12.3**	**6.4**	**100.0**

Note: See Figure 2.5.
Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E2.6: Hospital separations for arthritis or musculoskeletal conditions, 2003–04

Name of condition	ICD-10-AM code	Number of separations	Per cent
Other primary gonarthrosis	M17.1	32,890	9.0
Low back pain	M54.5	18,997	5.2
Derangement of meniscus due to old tear or injury (medical collateral ligament)	M23.23	18,286	5.0
Other primary coxarthrosis	M16.1	14,046	3.8
Rotator cuff syndrome	M75.1	12,421	3.4
Lumbar and other intervertebral disc disorders with radiculopathy	M51.1	9,969	2.7
Derangement of meniscus due to old tear or injury (posterior cruciate ligament)	M23.22	8,095	2.2
Chronic instability of knee (anterior cruciate ligament)	M23.51	7,137	1.9
Gonarthrosis, unspecified	M17.9	7,088	1.9
Spinal stenosis	M48.06	6,459	0.0
Other conditions		231,536	63.0
Total		**366,924**	**100.0**

Note: See Figure 2.6.

Source: AIHW National Hospital Morbidity Database.

Table E2.7: Time series for arthroscopy and arthroplasty procedures, 1997–98 to 2003–04

Year	Arthroscopy		Arthroplasty	
	Number of separations	Number per 100,000 population	Number of separations	Number per 100,000 population
1997–98	44,242	242	28,998	163
1998–99	21,922	118	28,670	157
1999–00	45,451	241	28,373	152
2000–01	47,898	249	30,414	159
2001–02	49,354	252	35,286	180
2002–03	49,066	246	37,607	187
2003–04	50,222	247	39,913	194

Notes

1. See Figure 2.7.

2. Age-standardised to the 2001 Australian Population.

Source: AIHW National Hospital Morbidity Database.

Table E2.8: Per cent prevalence of diseases of musculoskeletal system and connective tissues by Indigenous status, 2001

Population	Age group (years)						
	0–4	5–14	15–24	25–34	35–44	45–54	55+
Indigenous	0	0	2	8	14	28	40
Non-Indigenous	0	0	1	4	9	19	41

Note: See Figure 2.8.

Source: ABS 2001 National Health Survey.

Table E2.9: Prevalence of arthritis or musculoskeletal conditions by socioeconomic status, ages 35 and over, 2001

SEIFA quintile	Osteoarthritis	Rheumatoid arthritis	Osteoporosis	All musculoskeletal conditions	All persons
			Number '000		
1st quintile	310.9	92.4	68.9	920.9	1,708.2
2nd quintile	253.9	88.9	59.4	937.6	1,856.3
3rd quintile	272.0	74.9	62.9	906.4	1,812.6
4th quintile	273.9	74.7	51.2	1,009.4	2,139.3
5th quintile	231.4	64.4	54.9	895.1	2,076.3
			Per cent		
1st quintile	23.2	23.4	23.2	19.7	17.8
2nd quintile	18.9	22.5	20.0	20.1	19.4
3rd quintile	20.3	18.9	21.2	19.4	18.9
4th quintile	20.4	18.9	17.2	21.6	22.3
5th quintile	17.2	16.3	18.5	19.2	21.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Notes

1. See Figure 2.9.

2. Socioeconomic status is coded according to Socioeconomic Index for Areas (SEIFA) as described by the ABS.

3. 1st quintile represents the most disadvantaged socioeconomic quintile and the 5th quintile is the least disadvantaged status.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Chapter 3

Table E3.1: Body mass index of females, reporting arthritis and musculoskeletal conditions, ages 35 and over, 2001

Musculoskeletal condition	Body mass index category		
	Normal	Overweight	Obese
Osteoarthritis	340	264	349
Rheumatoid arthritis	271	298	392
Osteoporosis	364	254	284
All musculoskeletal	344	283	315
Total population	363	287	288

Notes

1. See Figure 3.1.

2. Rates are given as per 1,000 population.

3. Rates are age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E3.2: Self-reported prevalence of osteoarthritis, 2001

Sex	Age group (years)								
	0–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	Total
	Number '000								
Males	1.9	3.2	15.2	36.6	96.0	135.1	115.2	94.4	497.6
Females	0.0	4.8	22.2	60.5	153.4	216.1	220.0	215.6	892.6
Persons	1.9	8.0	37.4	97.1	249.4	351.1	335.3	310.0	1,390.2
	Number per 1,000 population								
Males	1	2	11	25	74	150	186	236	57
Females	0	4	16	41	116	241	331	374	92
Persons	0	3	13	33	95	195	261	317	75

Notes

1. See Figure 3.2.

2. Rates for the total are age-standardised to the 2001 Australian Population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E3.3: Feelings of hopelessness and depression reported by people with osteoarthritis, ages 25 and over, 2001

Frequency[a]	Hopelessness		Depression	
	Number '000	Per cent	Number '000	Per cent
All of the time/most of the time	390.1	2.8	636.0	4.5
Some of the time	854.5	6.0	1,538.0	10.8
A little of the time	1,899.0	13.4	3,244.0	22.9
None of the time	11,040.0	77.8	8,766.0	61.8
Total	**14,183.6**	**100.0**	**14,184.0**	**100.0**

(a) In the last four weeks.

Note: See Figure 3.3.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E3.4: Management of osteoarthritis by general practitioners, 2003–04

Type of management	Number of problems managed	Per cent[a]
Medications	2,476	90.1
Referrals	236	8.6
Orthopaedic surgeon	101	3.7
Physiotherapist	82	3.0
Rheumatologist	14	0.5
Pathology	168	6.1
Full blood count	32	1.2
Erythrocyte sedimentation rate (ESR test)	23	0.8
C reactive protein test	9	0.3
Imaging	374	13.6
X–ray	350	12.7
Ultrasound	12	0.4
Total management types	**3,254**	

(a) Per cent of osteoarthritis problems managed.

Note: See Figure 3.4.

Source: AIHW analysis of BEACH data.

Table E3.5: Time series for knee and hip arthroplasty procedures, 1997–98 to 2003–04

Year	Knee arthroplasty		Hip arthroplasty	
	Number of separations	Number per 100,000 population	Number of separations	Number per 100,000 population
1997–98	14,472	81	11,488	64
1998–99	14,208	78	11,744	64
1999–00	13,644	73	12,166	65
2000–01	14,318	77	13,146	69
2001–02	17,170	87	14,992	76
2002–03	18,405	92	16,129	80
2003–04	19,933	97	16,913	82

Notes

1. See Figure 3.5.

2. Age-standardised to the 2001 Australian Population.

Source: AIHW National Hospital Morbidity Database.

Chapter 4

Table E4.1: Self–reported rheumatoid arthritis, 2001

Sex	0–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	Total
				Age group (years)					
				Number '000					
Males	0.0	3.8	16.8	21.7	29.5	44.2	36.9	27.4	180.2
Females	0.1	6.0	16.2	24.7	52.8	62.5	46.3	49.3	258.0
Persons	0.1	9.8	32.9	46.4	82.2	106.7	83.2	76.7	438.2
				Number per 1,000 population					
Males	0	3	12	15	23	49	59	68	20
Females	0	5	11	17	40	70	70	86	27
Persons	0	4	12	16	31	59	65	79	24

Notes

1. See Figure 4.1.

2. Rates for the total are age-standardised to the 2001 Australian Population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E4.2: Management of rheumatoid arthritis by general practitioners, 2003–04

Type of management	Number of problems managed	Per cent[a]
Medications	485	96.6
Referrals	66	13.1
Orthopaedic surgeon	6	1.2
Physiotherapist	12	2.4
Rheumatologist	35	7.0
Pathology	361	71.9
Full blood count	94	18.7
Erythrocyte sedimentation rate (ESR test)	68	13.5
Liver function test	54	10.8
Imaging	23	4.6
X–ray	14	2.8
Ultrasound	2	0.4
Total management types	**989**	

(a) Per cent of rheumatoid arthritis problems managed.

Note: See Figure 4.2.

Source: AIHW analysis of BEACH data.

Chapter 5

Table E5.1: Self–reported prevalence of osteoporosis, ages 35 and over, 2001

| Sex | Age group (years) | | | | | |
	35–44	45–54	55–64	65–74	75+	Total
	Number '000					
Males	2.3	9.0	13.8	12.3	12.8	50.2
Females	13.7	35.8	42.6	67.7	87.2	247.0
Persons	16.1	44.9	56.5	80.0	100.0	297.2
	Number per 1,000 population					
Males	2	7	15	20	32	11
Females	9	27	47	102	151	50
Persons	6	17	31	62	102	32

Notes

1. See Figure 5.1.

2. Rates for the total are age-standardised to the 2001 Australian Population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E5.2: Hospital separations for common fracture sites, 2003–04

Fracture site	ICD-10-AM code	Number of separations	Per cent
Femur	S72	23,496	36.6
Forearm	S52	9,409	21.4
Lower leg, including ankle	S82	7,566	14.7
Shoulder and upper arm	S42	6,159	11.8
Wrist and hand level	S62	1,928	9.6
Skull and facial bones	S02	1,895	3.0
Other sites		13,720	3.0
Total		**64,173**	**100.0**

Note: See Figure 5.2.

Source: AIHW National Hospital Morbidity Database.

Table E5.3: Falls as a factor in hospitalisation for fractures, ages 55 and over, 2003–04

| | Number of separations | | | | | |
| | Males | | Females | | Persons | |
Age group (years)	Number of separations[a]	Per cent[b]	Number of separations[a]	Per cent[b]	Number of separations[a]	Per cent[b]
55–59	1,445	10.5	2,260	5.8	3,705	7.0
60–64	1,274	9.3	2,262	5.8	3,536	6.7
65–69	1,186	8.7	2,648	6.8	3,834	7.2
70–74	1,601	11.7	3,938	10.0	5,539	10.5
75–79	2,233	16.3	6,347	16.2	8,580	16.2
80–84	2,592	18.9	8,329	21.3	10,921	20.6
85+	3,369	24.6	13,411	34.2	16,780	31.7
Total	**13,700**		**39,195**		**52,895**	

(a) Number of hospital separations for fractures with an external cause of falls.

(b) Per cent of hospital separations for fractures due to falls.

Note: See Figure 5.3.

Source: AIHW National Hospital Morbidity Database.

Table E5.4: Osteoporosis as the underlying cause of death, ages 55 and over, 2003

Sex	Age group (years)							
	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total[a]
	Number of deaths							
Males	1	0	0	2	1	5	14	23
Females	1	0	2	3	18	28	105	157
Persons	2	0	2	5	19	33	119	180
	Deaths per 100,000 population							
Males	0	0	0	1	0	3	16	1
Females	0	0	1	1	6	13	53	5
Persons	0	0	0	1	4	9	42	4

(a) Ages 55 and over.

Notes

1. See Figure 5.4.

2. Rates for the total are age-standardised to the 2001 Australian Population.

Source: AIHW National Mortality Database.

Table E5.5: Hip fracture as an additional cause of death, ages 55 and over, 2003

Sex	Age group (years)							
	55–59	60–64	65–69	70–74	75–79	80–84	85+	Total[a]
	Number of deaths							
Males	2	7	27	40	69	140	324	609
Females	5	6	14	38	88	233	688	1,072
Persons	7	13	41	78	157	373	1,012	1,681
	Deaths per 100,000 population							
Males	0	2	8	13	29	96	360	37
Females	1	1	4	12	29	105	350	36
Persons	1	1	6	12	29	102	353	37

(a) Ages 55 and over.

Notes

1. See Figure 5.5.

2. Rates for the total are age-standardised to the 2001 Australian Population.

Source: AIHW National Mortality Database.

Table E5.6: Time series for hip fracture associated mortality in Australia, ages 55 and over, 1997–2003

Sex	Year						
	1997	1998	1999	2000	2001	2002	2003
	Number of deaths						
Males	529	599	606	572	577	696	609
Females	1,064	1,059	1,085	995	1,043	1,243	1,072
Persons	1,593	1,658	1,691	1,567	1,620	1,939	1,681
	Deaths per 100,000 population						
Males	42	45	44	40	38	44	37
Females	46	44	43	38	38	44	36
Persons	45	45	43	39	38	44	37

Notes

1. See Figure 5.6.

2. Rates are age-standardised to the 2001 Australian Population.

Source: AIHW National Mortality Database.

Chapter 6

Table E6.1: Types of employment restriction due to disability associated with arthritis and related disorders, ages 15–64, 2003

Employment restriction	Males Number '000	Males Per cent	Females Number '000	Females Per cent	Persons Number '000	Persons Per cent
Restricted in type of job	29.7	45.7	44.7	38.9	74.4	41.3
Restricted in number of hours	15.6	24.0	30.0	25.6	46.0	25.6
Difficulty changing jobs or getting a preferred job	27.9	42.9	34.0	29.6	62.0	34.4
Need for time off from work (at least one day per week)	7.1	10.9	13.6	11.8	20.7	11.5
Need for employer provided equipment and/or special arrangements	5.2	4.6	6.3	8.0	11.5	6.4
Need for ongoing supervision or assistance	2.9	1.5	1.4	4.9	4.3	2.4

Notes

1. See Figure 6.1.

2. Persons may report more than one restriction.

3. Per cents are based on the total number of people aged 15–64 years reporting employment restrictions with disability associated with arthritis and related disorders (M=64,958; F=114,499; P=179,456).

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Table E6.2: Employment restrictions due to disability associated with arthritis and related disorders, ages 15–64, 2003

Age group	Males	Females	Persons
	Number '000		
15–24	0.5	3.1	3.6
25–34	2.5	1.5	4.0
35–44	8.9	11.5	20.4
45–54	16.8	34.6	51.4
55–64	36.3	64.0	100.3
Total	**65.0**	**114.7**	**179.7**
	Per cent		
15–24	100.0	86.1	87.8
25–34	47.2	41.7	44.9
35–44	84.8	63.5	71.3
45–54	74.7	63.8	67.0
55–64	78.7	63.0	67.9
Total	**76.5**	**63.3**	**67.6**

Notes

1. See Figure 6.2.

2. Per cents are based on the total number of people aged 15-64 years with disability associated with arthritis and related disorders (M=84,914; F=181,089; P=265,606).

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Table E6.3: Employer–made arrangements for disability associated with arthritis and related disorders, ages 15–64, 2003

Employer–made arrangement	Males Number '000	Males Per cent	Females Number '000	Females Per cent	Persons Number '000	Persons Per cent
Allocated different duties	0.7	1.1	1.7	1.5	2.4	1.3
Provided training/retraining	1.6	2.5	2.9	2.5	4.5	2.5
Modified buildings/fittings or provided special/free transport or parking	1.1	1.7	1.0	0.9	2.1	1.2
Provided special equipment	1.3	2.0	5.9	5.1	7.2	4.0
A special support person to assist/train on the job or provided help from someone else	0.4	0.6	1.0	0.9	1.4	0.8
Other	0.0	0.0	0.6	0.5	0.6	0.3

Notes

1. See Figure 6.3.

2. Per cents are based on the total number of people aged 15–64 years reporting employment restrictions with disability associated with arthritis and related disorders (M=64,958; F=114,499; P=179,456).

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Table E6.4: Self–reported quality of life by specific type of arthritis or musculoskeletal condition, 2001

Quality of life	Osteoarthritis	Rheumatoid arthritis	Osteoporosis	All musculoskeletal	All persons
			Number '000		
Delighted	117.9	26.3	20.9	551.0	1697.1
Pleased	341.8	96.9	60.6	1542.2	4339.6
Mostly satisfied	498.5	139.7	103.7	1980.3	4705.8
Mixed	311.9	117.6	90.4	1313.9	2613.5
Mostly dissatisfied	43.9	28.0	9.6	209.0	362.0
Unhappy	39.9	13.8	9.8	156.9	285.3
Terrible	33.6	14.3	4.2	104.5	182.6
			Per cent		
Delighted	0.9	0.2	0.2	4.0	12.4
Pleased	2.5	0.7	0.4	11.3	31.7
Mostly satisfied	3.6	1.0	0.8	14.5	34.4
Mixed	2.3	0.9	0.7	9.6	19.1
Mostly dissatisfied	0.3	0.2	0.1	1.5	2.6
Unhappy	0.3	0.1	0.1	1.1	2.1
Terrible	0.2	0.1	0.0	0.8	1.3

Notes

1. See Figure 6.4.

2. Rates are age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E6.5: Self–reported health status, people with arthritis and musculoskeletal conditions, ages 18 and over, 2001

Health status	Age group (years)						
	18–34	35–44	45–54	55–64	65–74	75+	Total[a]
	Number '000						
Excellent/very good	1,973.2	25.1	40.4	41.3	70.5	65.8	2,216.3
Good	1,857.8	15.0	17.5	59.5	27.8	37.4	2,015.0
Fair	1,122.1	5.5	11.6	14.3	12.2	51.9	1,217.6
Poor	492.6	2.1	4.2	5.3	2.4	1.1	507.7
	Per cent						
Excellent/very good	43.0	0.9	1.5	2.3	5.5	6.7	15.9
Good	40.5	0.5	0.7	3.3	2.2	3.8	14.4
Fair	24.5	0.2	0.4	0.8	1.0	5.3	8.7
Poor	10.7	0.1	0.2	0.3	0.2	0.1	3.6

(a) Ages 18 and over.

Notes

1. See Figure 6.5.

2. Rates for the total population are age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E6.6: Self–reported health by specific condition, ages 18 and over, 2001

Health status	Osteoarthritis	Rheumatoid arthritis	Osteoporosis	All musculoskeletal	All persons
	Number '000				
Excellent/very good	408.2	100.3	65.9	2,216.3	7,138.1
Good	475.4	133.2	86.0	2,015.0	4,388.4
Fair	333.4	127.9	89.0	1,217.6	1,955.8
Poor	169.7	76.6	58.2	507.7	701.7
	Per cent				
Excellent/very good	2.9	0.7	0.5	15.9	50.2
Good	3.4	1.0	0.6	14.4	31.0
Fair	2.4	0.9	0.6	8.7	13.9
Poor	1.2	0.5	0.4	3.6	5.0

Notes

1. See Figure 6.6.

2. Rates are age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2001 National Health Survey CURF.

Table E6.7: Long–term conditions reported by people with disability associated with arthritis and related disorders, 2003

Long-term condition	Number '000	Per cent[a]	Long-term condition	Number '000	Per cent[a]
Glaucoma	8.5	12.4	Cancer	11.7	5.8
Total hearing loss	50.3	12.1	Dementia	3.3	3.6
Total visions loss	10.6	11.4	Stroke	12.2	3.5
Heart disease	29.3	11.3	Parkinson's disease	0.8	2.4
Diabetes	66.3	10.4	Hypertension	34.5	1.9
Depression	31.6	6.7	Asthma	0.9	0.1
Back problem	102.6	5.8			

(a) Per cent of all people who reported a long-term condition.

Note: See Figure 6.7.

Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers CURF.

Chapter 7

Table E7.1: Health expenditure by disease chapter, 2000–01

Disease chapter	Total expenditure ($ million)
Cardiovascular	5,479
Nervous system	4,942
Musculoskeletal	4,634
Injuries	4,013
Respiratory	3,742
Mental disorders	3,741
Oral health	3,372
Neoplasms	2,918
Digestive system	2,811
Genito-urinary	2,076
Endocrine, nutritional & metabolic	1,587
Skin diseases	1,370
Maternal conditions	1,315
Infections & parasitic	1,224
Diabetes mellitus	812
Neonatal causes	358
Congenital anomalies	221
Signs, symptoms, ill-defined conditions[a]	5,530
Total	**50,146**

(a) 'Signs, symptoms and ill-defined conditions' includes diagnostic and other services for signs, symptoms and ill-defined conditions where the cause of the problem is unknown. 'Other contact with the health system' includes fertility control, reproduction and development; elective plastic surgery; general prevention, screening and health examination; and treatment and after-care for unspecified disease.

Note: See Figure 7.1.

Source: AIHW Health Expenditure Database.

Table E7.2: Health expenditure on arthritis and musculoskeletal conditions by health sector, 2000–01

Musculoskeletal condition	Hospitals			Aged care homes[b]	Out-of-hospital medical services	Allied health services[c][d]
	Admitted patients[a]	Non-admitted services	Total			
Rheumatoid arthritis	27.4	40.6	68.0	59.0	35.8	33.2
Osteoarthritis	493.5	73.2	566.8	265.7	124.6	64.2
Chronic back pain	127.4	103.3	230.7	38.5	79.4	134.2
Slipped disc	87.3	26.4	113.7	0.0	15.9	137.2
Osteoporosis	31.8	7.1	38.9	64.8	29.4	6.6
Other musculoskeletal	518.6	291.0	809.6	54.1	593.5	334.2
Total	**1286.1**	**541.6**	**1827.7**	**482.2**	**878.7**	**709.7**
Total allocated health system costs	**17,343.4**	**4,686.5**	**22,029.9**	**3,899.0**	**8,454.4**	**2,439.9**

(Continued)

Table E7.2 (*continued*): Health expenditure on arthritis and musculoskeletal conditions by health sector, 2000–01

Musculoskeletal condition	Pharmaceuticals Prescription[e]	Pharmaceuticals Over-the-counter[c][f]	Pharmaceuticals Total	Research	Total expenditure allocated by disease	Per cent of total musculo-skeletal	Per cent of total allocated health system
Rheumatoid arthritis	23.9	23.3	47.2	2.9	246.2	5.3	0.5
Osteoarthritis	102.7	45.0	147.8	14.1	1183.0	25.5	2.4
Chronic back pain	42.2	35.1	77.3	6.8	566.9	12.2	1.1
Slipped disc	6.6	21.6	28.2	3.6	298.5	6.4	0.6
Osteoporosis	75.5	2.6	78.1	2.6	220.6	4.8	0.4
Other musculoskeletal	217.0	84.3	301.3	25.2	2118.0	45.7	4.2
Total	**467.9**	**212.0**	**679.9**	**55.1**	**4633.3**		**9.2**
Total allocated health system costs	**5,896.1**	**2,188.6**	**8,084.7**	**1,182.0**			**50,145.6[g]**

(a) Includes a preliminary estimate of private medical services provided in hospital.

(b) Includes expenditure on residents that require and receive a level of care that falls within one of the four highest levels in residential aged care services.

(c) Based on preliminary AIHW estimates.

(d) Includes services delivered outside of hospitals by paramedical professionals such as physiotherapists, chiropractors, occupational therapists, audiologists, speech therapists, hydropaths, podiatrists, therapeutic and clinical massage therapists, clinical psychologists, dietitians, osteopaths.

(e) Includes all pharmaceuticals for which a prescription is needed (including private prescriptions and under-copayment prescriptions).

(f) Includes over-the-counter medicaments such as vitamins and minerals, patent medicines, first aid and wound-care products, analgesics, feminine hygiene products, cold sore preparations, and a number of complementary health products that are sold in both pharmacies and other retail outlets.

(g) Includes community and public health and dental ($4,056 million).

Notes

1. See Figures 7.2, 7.5, 7.6, 7.7 and 7.9.

2. Given as $ million.

Source: AIHW Health Expenditure Database.

Table E7.3: Per cent changes in inflation-adjusted expenditure between 1993–94 and 2000–01

Condition/system	Hospital	Aged care homes	Pharmaceuticals	Out-of-hospital medical services	Other professional services	Research	Total
Musculoskeletal conditions	26.2	–6.6	105.3	41.4	42.2	76.7	34.4
Total health system	30.6	22.7	66.7	24.9	49.7	84.5	39.4

Note: See Figure 7.3.

Source: AIHW Health Expenditure Database.

Table E7.4: Health expenditure for arthritis and musculoskeletal conditions, Australia, 2000–01

Sex	\										
	0–4	**5–14**	**15–24**	**25–34**	**35–44**	**45–54**	**55–64**	**65–74**	**75–84**	**85+**	**Total**
Males	15.5	58.1	112.3	220.4	274.9	318.0	322.3	317.2	241.5	71.9	1,952.1
Females	17.9	37.9	99.0	178.8	272.7	362.0	379.7	443.2	536.5	353.5	2,681.1
Persons	33.4	95.9	211.3	399.2	547.7	680.0	702.1	760.4	778.0	425.4	4,633.3

Notes

1. See Figure 7.4.

2. Given as $ million.

Source: AIHW Health Expenditure Database.

Table E7.5: Health expenditure for osteoarthritis, rheumatoid arthritis and osteoporosis, 2000–01

Musculoskeletal condition	Age group (years)										
	0–4	**5–14**	**15–24**	**25–34**	**35–44**	**45–54**	**55–64**	**65–74**	**75–84**	**85+**	**Total**
Rheumatoid arthritis											
Males	0.1	0.3	0.5	2.8	5.2	10.4	18.0	17.4	13.3	4.5	72.4
Females	0.1	0.2	1.5	6.3	13.0	17.7	30.4	31.7	37.8	34.9	173.7
Persons	0.2	0.5	2.0	9.1	18.2	28.1	48.4	49.1	51.2	39.4	246.2
Osteoarthritis											
Males	0.3	0.4	1.2	4.2	17.5	39.4	89.5	133.7	107.8	27.4	421.3
Females	0.2	0.1	0.6	4.1	16.4	53.7	116.9	176.6	219.6	173.5	761.8
Persons	0.4	0.5	1.8	8.3	33.9	93.1	206.4	310.2	327.4	200.9	1,183.0
Osteoporosis											
Males	0.0	0.1	0.1	0.1	0.9	2.0	3.0	5.4	9.5	3.3	24.4
Females	0.1	0.1	0.5	0.6	1.4	8.0	19.4	40.4	71.2	54.3	196.1
Persons	0.1	0.2	0.6	0.7	2.4	10.1	22.4	45.8	80.7	57.6	220.6

Notes

1. See Figure 7.8.

2. Given as $ million.

Source: AIHW Health Expenditure Database.

Table E7.6: NHPA expenditure as a proportion of allocated health expenditure, 2000–01

Disease category	Disease expenditure ($ million)	Each NHPA as per cent of total expenditure	Per cent of total NHPA costs
Cardiovascular	5,479	10.9	24.6
Musculoskeletal	4,634	9.2	20.8
Injuries	4,013	8.0	18.0
Asthma	692	1.4	3.1
Neoplasms	2,918	5.8	13.1
Mental disorders	3,741	7.5	16.8
Diabetes mellitus	812	1.6	3.6
Total (NHPAs)	**22,289**	**44.4**	**100.0**
All other causes	**27,857**	**55.6**	

Note: See Figure 7.10.

Source: AIHW Health Expenditure Database.

Appendix F

National Health Priority Area indicators

The NHPA initiative has taken an indicators-based approach for monitoring and reporting health outcomes in the priority areas. Sets of indicators have been developed for the priority areas of cardiovascular health, cancer control, injury prevention and control, mental health, diabetes mellitus, and asthma. Indicators have also been developed for some of the risk factors common to various NHPAs.

The Australian Health Ministers' Advisory Council (AHMAC) has asked the Australian Institute of Health and Welfare (AIHW) to monitor and regularly report against the NHPA indicators in its flagship publication Australia's Health. In addition to providing baseline information, the Institute provides biennial indicator updates. Time series for various indicators are also being maintained in the AIHW databases and will soon be published in e-format on its website. The website address for the NHPA subject area is: <http://www.aihw.gov.au/nhpa/index.cfm>.

The NHPA indicators are one of the most stable sets of indicators used for monitoring and reporting health issues in Australia. The indicators have been developed over the years, as and when a priority area was recognised by the Australian Health Ministers, using multi-step indicator development processes in consultation with various stakeholders. Not only have the validity and stability of the NHPA indicators has not only enhanced their acceptability for use across various jurisdictions but also some of the them are now being used in national health performance assessment.

Operational definitions and time series have been developed for most of the NHPA indicators. While some of the indicators have been revised or fine tuned to improve their sensitivity, the stability of the indicators over time has been maintained. This requirement has allowed data development to catch up. However, many of the NHPA indicators require further refinement in their design and generation of time series for regular reporting.

A characteristic feature of the NHPA indicators has been the size and internal composition of their sets. Developed using agreed frameworks, the indicator sets are well balanced in their composition, focusing on priorities identified by the National Health Priority Action Council (NHPAC). In addition, the upper limits on their numbers (between 20 and 30 for each priority area) has ensured their wider use. This approach has proved cost effective in regular monitoring and reporting.

The indicator development process is currently underway for arthritis and musculoskeletal conditions, as the latest NHPA. The indicators will be tested for validity, and the baselines generated. Time series on indicators for which data are available will be developed soon after. Strategies will also be developed to generate information for those indicators for which the available data are currently limited in content and time depth.