Australian Government
Australian Institute of Health and Welfare

# Chronic musculoskeletal conditions

**Web report** | Last updated: **14 Dec 2023** | Topic: Chronic musculoskeletal conditions

## About

Conditions that affect the bones, muscles and joints are known as musculoskeletal conditions. These conditions include long-term (chronic) conditions such as osteoarthritis, rheumatoid arthritis, juvenile arthritis, back problems, gout, and osteoporosis or osteopenia (low bone density).

This report is regularly updated with data from a range of sources. There are differences in the source year and frequency of publication. For more information, see notes.

**Cat. no:** PHE 317

### Findings from this report:

- The musculoskeletal conditions disease group was the leading contributor to non-fatal burden (23.1% of YLD), in 2023
- Private hospital (38%) portion of musculoskeletal spending was more than double the average in 2020–21
- Musculoskeletal conditions contributed to 9,277 deaths in 2021, or 5.4% of all deaths – largely as associated causes
- 18,500 to 30,100 Australians aged 0–24 are living with arthritis

# Summary

**Chronic musculoskeletal conditions** is an Australia's health topic

- Health of people with disability | 07 Jul 2022
- Injury | 24 Oct 2023
- Burden of disease | 14 Dec 2023

**On this page:**


- Introduction
- How common are chronic musculoskeletal conditions?
- Impact of chronic musculoskeletal conditions
- Treatment and management of chronic musculoskeletal conditions
- COVID-19 impact on chronic musculoskeletal conditions
- Comorbidities of chronic musculoskeletal conditions
- Where do I go for more information?


Conditions that affect the bones, muscles and joints and certain connective tissues are known as musculoskeletal conditions. These conditions include long-term (chronic) conditions such as back problems, osteoarthritis, osteoporosis or osteopenia, rheumatoid arthritis, gout, and juvenile arthritis (see glossary).

### Chronic musculoskeletal conditions in 2020-21

Data for 2020–21 are based on information self-reported by the participants of the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow-up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Due to these changes, comparisons with previous chronic musculoskeletal conditions data over time are not recommended.

On this page, comparisons over time (trends) only contain data from the NHS 2017–18 and prior collections.

## How common are chronic musculoskeletal conditions?

An estimated 6.9 million or 27% of people in Australia were affected by chronic musculoskeletal conditions, based on self-reported data from the Australian Bureau of Statistics (ABS) 2020–21 National Health Survey (NHS). Of these people:

- 3.9 million (16%) had back problems
- 3.1 million (12%) had arthritis
- 889,000 (3.6%) had osteoporosis or osteopenia (ABS 2022).

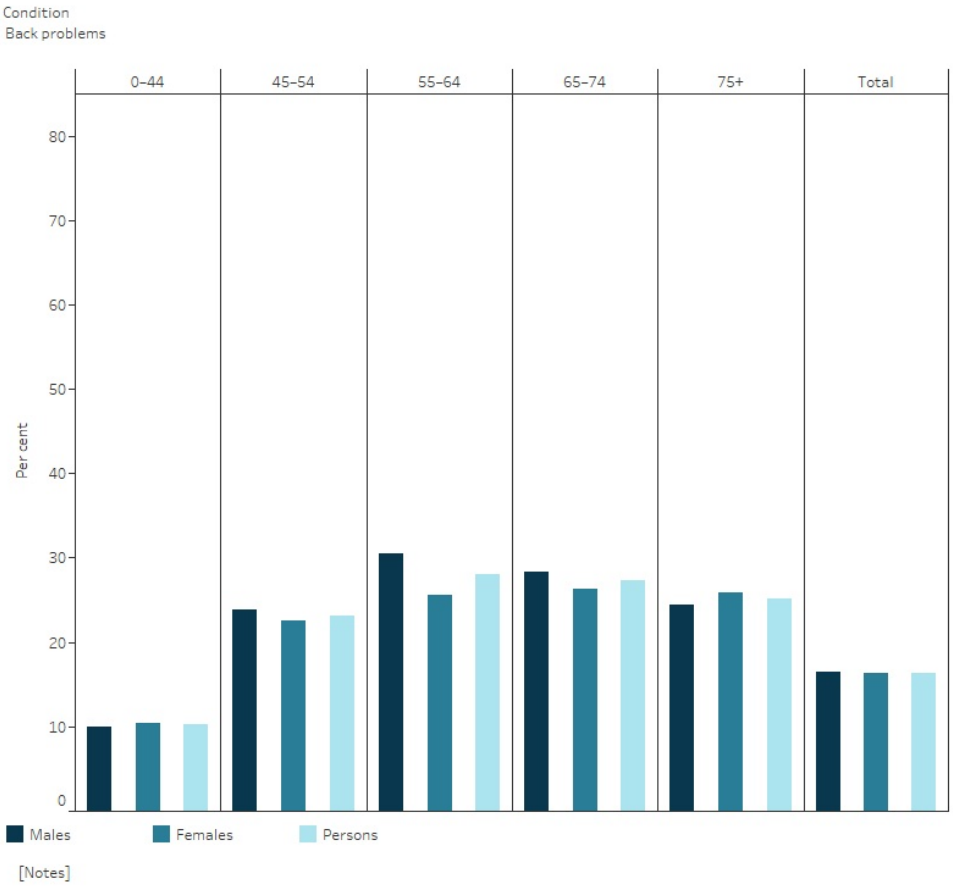
### Prevalence by age and sex

Females and older people were more likely to have chronic musculoskeletal conditions. According to the NHS, in 2017–18:

- 68% of people aged 75 and over had a musculoskeletal condition, compared with 13% of people aged under 45
- females, compared with males, were 1.2 times as likely to have any musculoskeletal condition, 4 times as likely to have osteoporosis, and 1.5 times as likely to have arthritis
- the prevalence of back problems was similar among males and females (Figure 1).

#### Figure 1: Prevalence of chronic musculoskeletal condition, by sex and age, 2017-18

This figure shows that the prevalence of musculoskeletal conditions increased with age, from 14% for persons aged 0–44 to 68% for persons aged 75 and over.



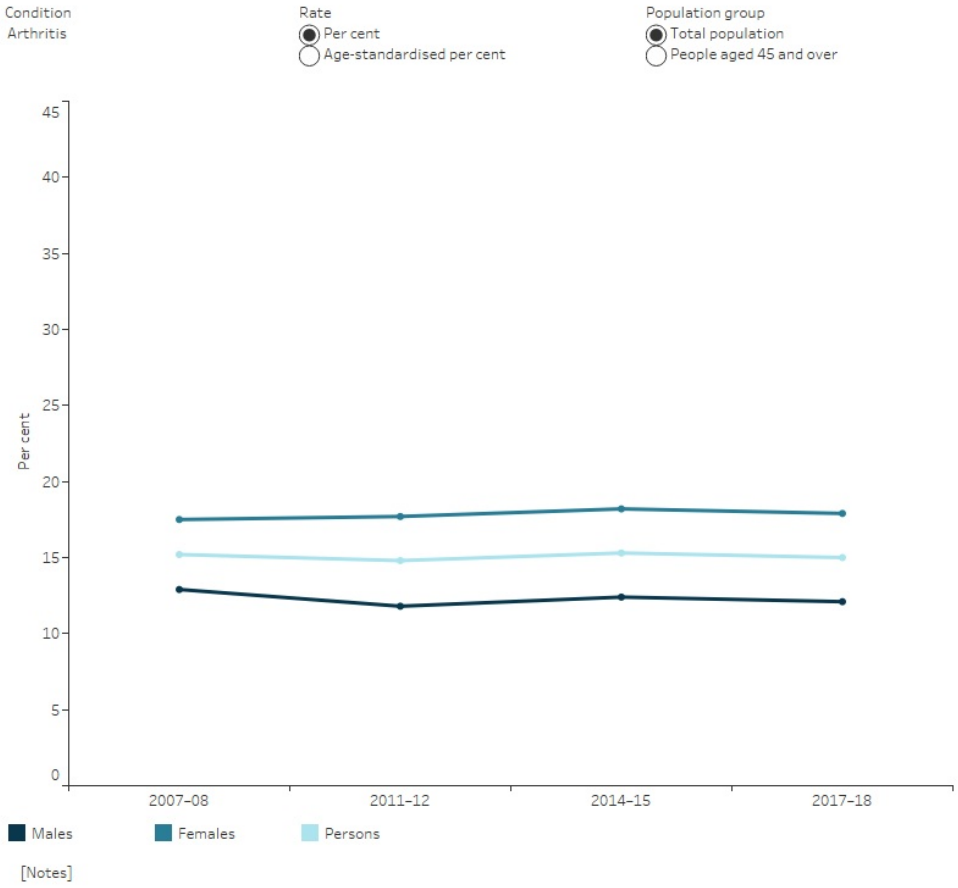

Source: AIHW analysis of ABS 2019a.
https://www.aihw.gov.au/

## Trends over time

Between 2007–08 and 2017–18 rates of chronic musculoskeletal conditions were relatively consistent (Figure 2).

### Figure 2: Prevalence of chronic musculoskeletal conditions, by sex, 2007-08 to 2017-18

This figure shows that 40% of females aged 45 and over had arthritis in 2017–18.




Source: AIHW analysis of ABS 2010, ABS 2013, ABS 2016, 2019a.
https://www.aihw.gov.au

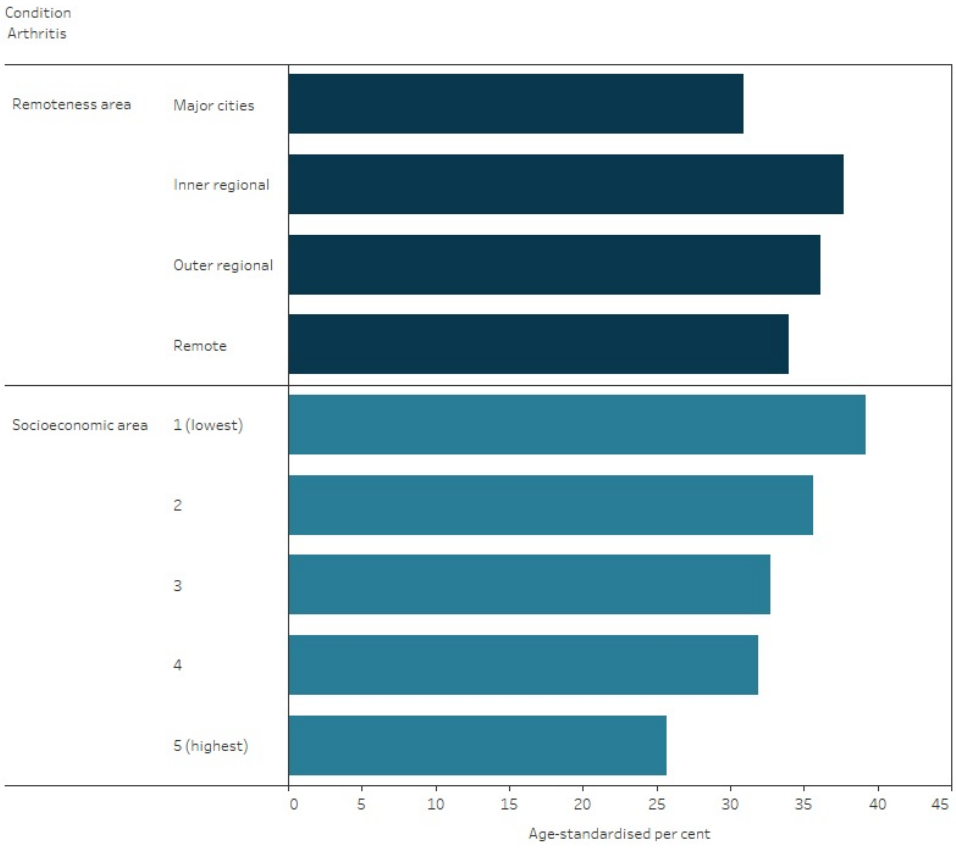
## Variation between population groups

The prevalence of musculoskeletal conditions generally increased with increasing socioeconomic disadvantage, but was similar across remoteness areas, after adjusting for differences in age structures (Figure 3).

For more information see All arthritis, Back problems and Osteoporosis.

### Figure 3: Prevalence of chronic musculoskeletal conditions in people aged 45 and over, by remoteness and socioeconomic area, 2017–18

This figure shows that 39% of persons living in the lowest socioeconomic area had arthritis in 2017–18.




[Notes]

Source: ABS 2019a.
https://www.aihw.gov.au

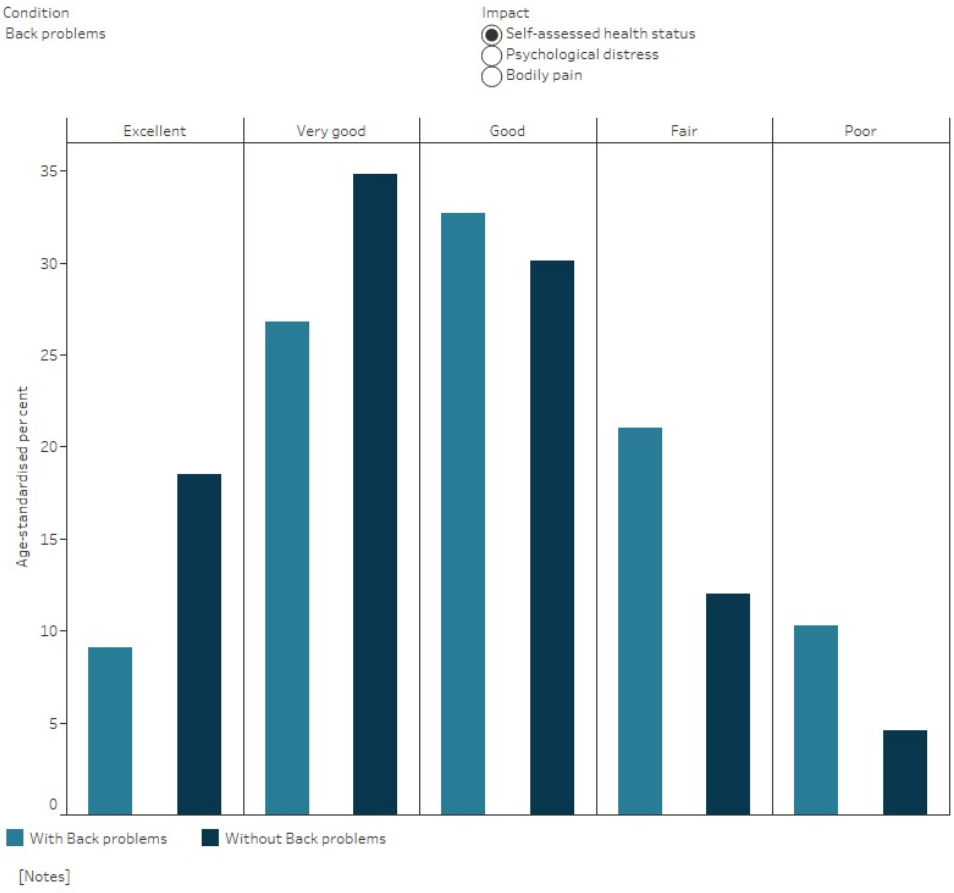
## Impact of chronic musculoskeletal conditions

Chronic musculoskeletal conditions are large contributors to illness, pain and disability in Australia. The 2018 Survey of Disability, Ageing and Carers found that, of the people with disability in Australia, an estimated 13% had back problems and another 13% had arthritis as the main long-term health condition causing the disability (ABS 2019).

People with chronic musculoskeletal conditions reported higher rates of poor health, psychological distress and bodily pain compared with people without the condition, after adjusting for differences in age structures (Figure 4).

### Figure 4: Impact of musculoskeletal conditions in people aged 45 and over, with and without the condition, age standardised, 2017–18

This figure shows that people with arthritis aged 45 and over were less likely to report having ‘excellent’ health compared with those without the condition.




Source: AIHW analysis of ABS 2019a.
https://www.aihw.gov.au

## Burden of disease

### What is burden of disease?

Burden of disease is measured using the summary metric of disability-adjusted life years (DALY, also known as the total burden). One DALY is one year of healthy life lost to disease and injury. DALY caused by living in poor health (non-fatal burden) are the 'years lived with disability' (YLD). DALY caused by premature death (fatal burden) are the 'years of life lost' (YLL) and are measured against an ideal life expectancy. DALY allows the impact of premature deaths and living with health impacts from disease or injury to be compared and reported in a consistent manner (AIHW 2022a).

In 2023:

- the musculoskeletal conditions disease group accounted for 12.8% of total disease burden (DALY); 23.1% of non-fatal burden (YLD), and 0.8% of fatal burden (YLL). It was the second leading disease group contributing to non-fatal burden after cancer (AIHW 2023a)
- among all individual conditions, back problems were the leading cause of non-fatal burden (accounting for 7.9% of YLD)
- within the musculoskeletal conditions disease group, back problems accounted for 34% of burden (DALY), followed by other musculoskeletal conditions (30%), osteoarthritis (20%) and rheumatoid arthritis (16%).

### Variation by age and sex

In 2023:

- the rate of burden from musculoskeletal conditions increased with age, peaking at ages 75–79 (66.3 DALY per 1,000 population)
- the age-standardised rate of total burden from musculoskeletal conditions was 20% higher among females compared with males (26.2 and 21.8 per 1,000 population, respectively) (Figure 5).

### Figure 5: Burden of disease due to musculoskeletal conditions by sex, age and year

This figure shows the fatal burden from musculoskeletal conditions was highest for people aged 75–79 (3.0 YLL per 1,000 population).

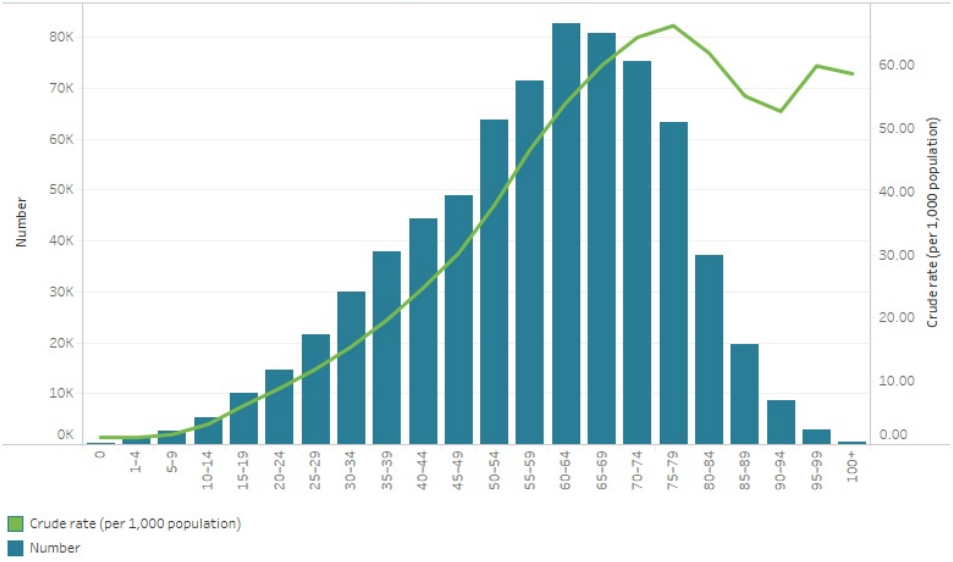
| Measure: | Year: | Sex: |
|---|---|---|
| DALY | 2023 | Persons |

**DALY**= Disability-adjusted life years; **YLD**= Years lived with disability; **YLL**= Years of life lost

In 2023, there were
**722,733 DALY in Persons**
from Musculoskeletal disorders , equivalent to **24.05 per 1,000 population** (age-standardised rate)
and **12.8%** of the total burden in Australia.

Note: Diseases displaying a rate of 0.00 per 1,000 population refer to a rate <0.005 per 1,000 population.

**Musculoskeletal disorders DALY in Persons by age, 2023**




Crude rate (per 1,000 population)
Number

Note: Rates were age-standardised to the 2001 Australian Standard Population.
Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

### Trends over time

The age standardised rate of burden from musculoskeletal conditions was relatively stable between 2003 and 2023, averaging 24.2 DALY per 1,000 population across the 5 time points reported.

For more information, see the Australian Burden of Disease Study 2023.

### Variation between population groups

In 2018, the age standardised rate of total burden of musculoskeletal conditions:

- was highest for people living in *Inner regional* areas, and lowest for people living in *Remote and very remote* areas (27.8 and 19.6 DALY per 1,000 population, respectively)
- was 1.5 times as high for people living in the lowest socioeconomic areas (with the highest level of disadvantage), compared with people living in the highest socioeconomic areas (with the lowest level of disadvantage) (29.2 and 19.1 DALY per 1,000 population, respectively) (AIHW 2021a) (Figure 6).

For more information, see the Australian Burden of Disease Study 2018: Interactive data on disease burden.

### Figure 6: Burden of disease due to musculoskeletal conditions for remoteness area and socioeconomic group and year

This figure shows that in 2018, the total burden of disease due to musculoskeletal conditions was highest for people living in *Inner regional* areas.


Source: AIHW Australian Burden of Disease Database.
https://www.aihw.gov.au

### Modifiable risk factors contribute to burden

In 2018, 16% of the total burden (DALY) due to musculoskeletal conditions could be attributed to modifiable risk factors. These risk factors included:

- overweight and obesity, which contributed to 8.9% musculoskeletal burden, and 28% of the osteoarthritis burden
- occupational exposures and hazards, which contributed to 5.6% of musculoskeletal burden, and 17% of the back problems burden
- tobacco use, which contributed to 2% of the musculoskeletal burden (AIHW 2021a).

For definitions and information on the burden of disease associated with these conditions see Burden of disease.

## Health system expenditure

In 2020–21, an estimated $14.7 billion of expenditure in the Australian health system was for musculoskeletal conditions, representing the highest spending of all disease groups (9.8% of total health expenditure) (AIHW 2023b).

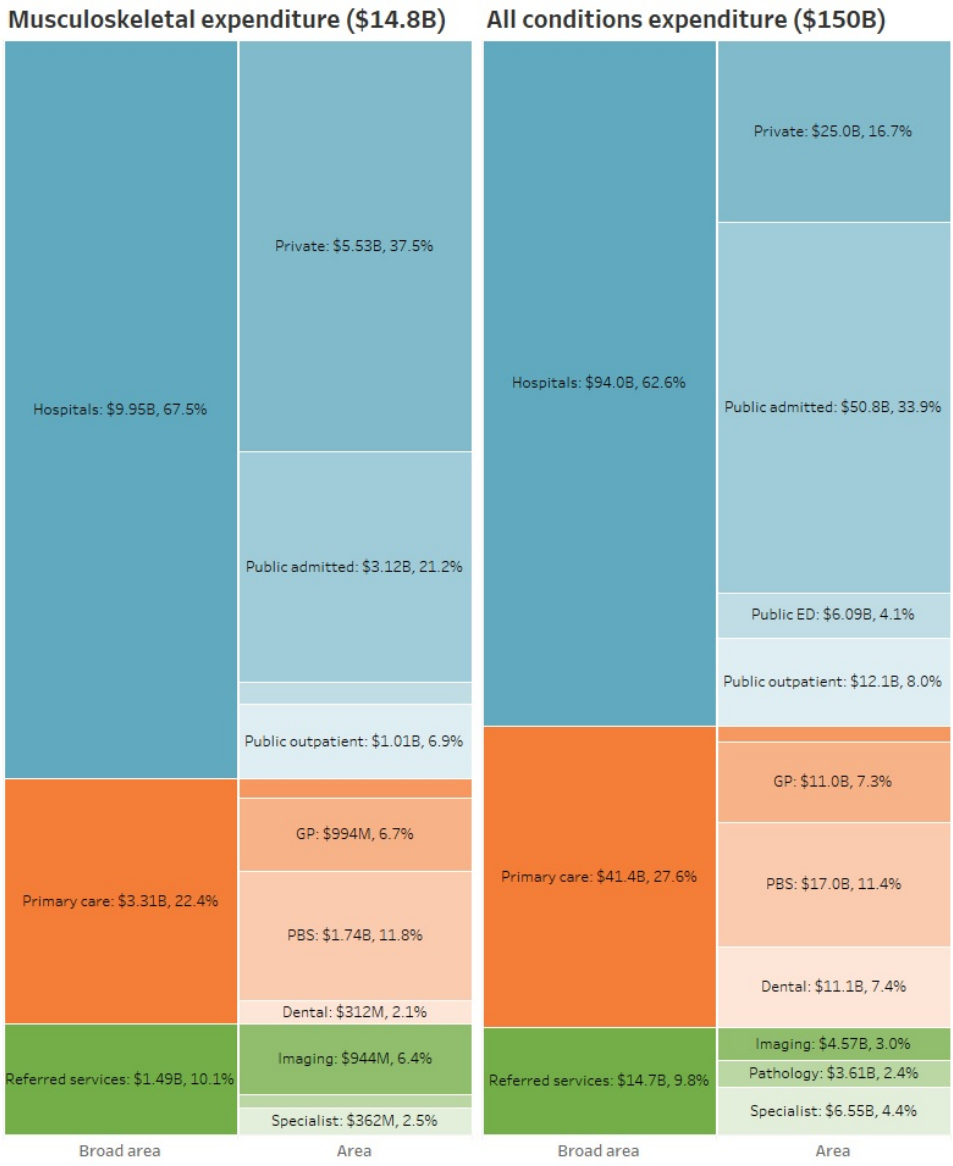
### Where is the money spent?

In 2020–2021:

- hospital services represented 68% ($10 billion) of musculoskeletal expenditure, which was slightly higher than the hospital proportion for all disease groups (63%). The private hospital proportion of musculoskeletal expenditure was more than double the proportion for all disease groups (38% and 17%, respectively)
- primary care accounted for 22% ($3.3 billion) of musculoskeletal spending, which was slightly lower to the primary care proportion for all disease groups (28%).
- referred medical services represented 10% of musculoskeletal spending, which was similar to the referred services proportion for all disease groups. The medical imaging proportion of musculoskeletal expenditure was over double the proportion for all disease groups (6.4% and 3.0%, respectively).

### Figure 7: Musculoskeletal condition expenditure attributed to each area of the health system, with comparison to all disease groups, 2020–21

This figure shows that the public admitted patients' hospital proportion of musculoskeletal expenditure was 21% or $3.1 billion in 2020–21.



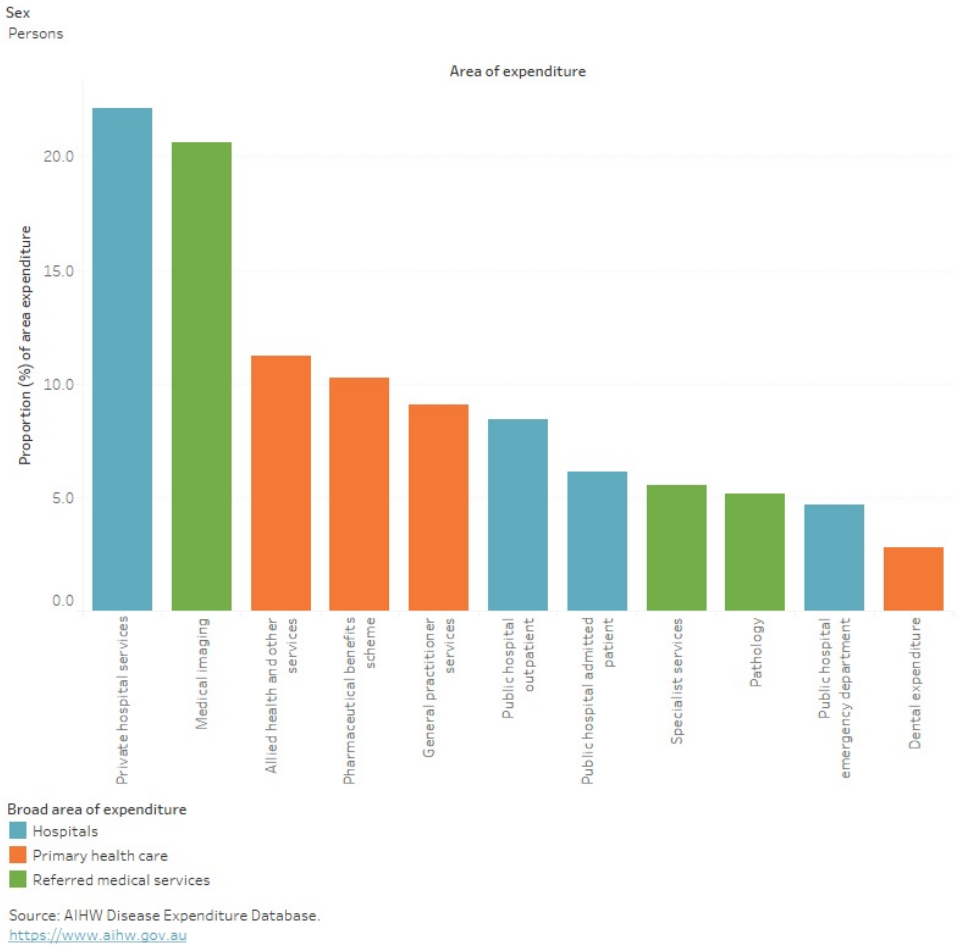

Note: Total health expenditure includes spending for all disease groups included in the Australian Burden of Disease Study.
Source: AIHW Disease Expenditure Database.
https://www.aihw.gov.au

In 2020–21, musculoskeletal conditions accounted for:

- 22% ($5.5 billion) of all private hospital service expenditure – ranking first of all disease groups
- 21% ($943.7 million) of all medical imaging expenditure – ranking second of all disease groups (Figure 8)

### Figure 8: Proportion of expenditure attributed to musculoskeletal conditions, for each area of the health system, 2020–21

This figure shows musculoskeletal conditions accounted for 11% of all allied health and other services expenditure in 2020–21.




### Who is the money spent on?

The distribution of health system expenditure on musculoskeletal conditions by age and sex reflects the prevalence distribution, with more spending for older age groups and females. In 2020–21:

- 81% of musculoskeletal expenditure was for people aged 45 and over
- 21% more musculoskeletal expenditure was attributed to females than males ($7.9 billion and $6.5 billion, respectively) with a remaining $320.1 million (2.2%) unattributed to any sex.

For more information, see Health system spending on disease and injury in Australia, 2020-21.

In 2018–19, it was estimated that musculoskeletal conditions expenditure per case was similar for females and males (about $1,200 per case) (AIHW 2022b).

For more information, see Health system spending per case and for certain risk factors.

## How many deaths were associated with musculoskeletal conditions?

In 2021, musculoskeletal conditions:

- were recorded as an underlying and/or associated cause for 9,277 deaths or 26.5 deaths per 100,000 population in Australia, representing 5.4% of all deaths
- were the underlying cause for 1,602 deaths (17% of musculoskeletal condition deaths) and an associated cause only, for 7,675 deaths (83% of musculoskeletal condition deaths).

Of the specific conditions analysed in this report, osteoporosis and osteoarthritis contributed the most substantially to any-cause musculoskeletal deaths (26% and 24% respectively), while rheumatoid arthritis contributed the most substantially to underlying-cause musculoskeletal deaths (14%).

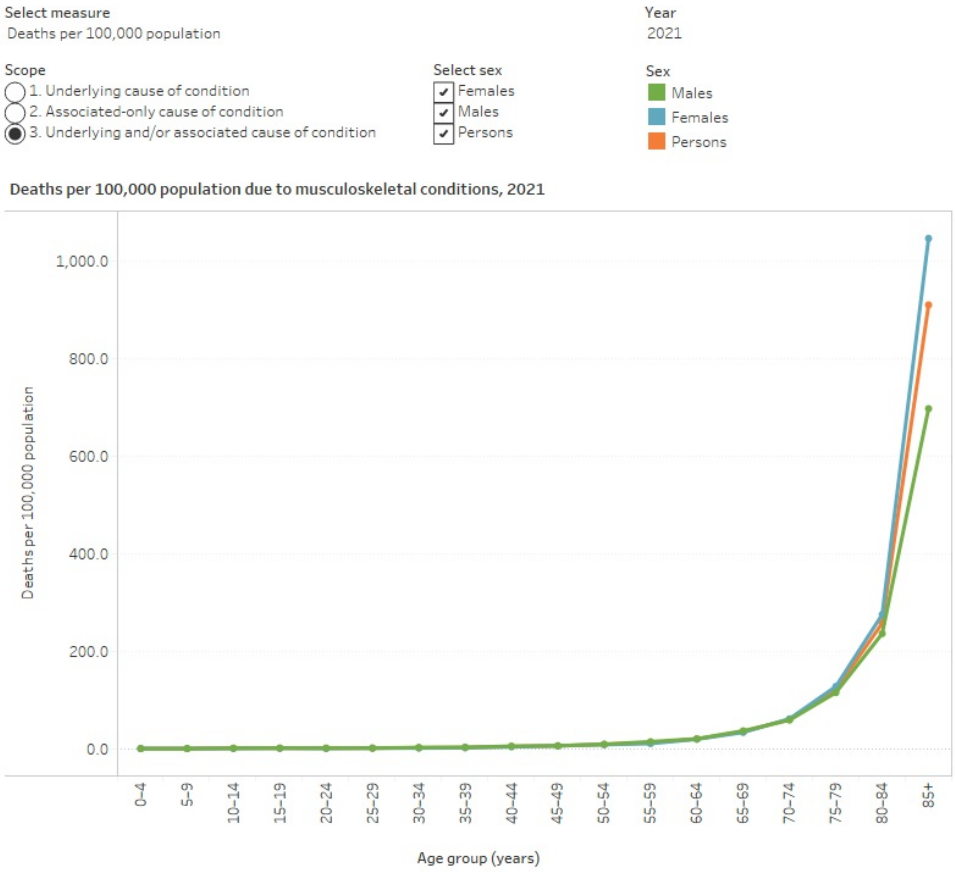
### Variation by age and sex

In 2021, musculoskeletal conditions mortality (as the underlying and/or associated cause) in comparison to all deaths, was relatively more concentrated among:

- older people (78% of musculoskeletal deaths were among people aged 75 and over, compared with 67% for total deaths)
- females (62% of musculoskeletal deaths were among females compared with 48% of total deaths) (Figure 9).

### Figure 9: Age distribution for musculoskeletal condition mortality, by sex, 2011 to 2021

This figure shows that the death rates due to musculoskeletal conditions increased with age and was highest for people aged 85 and over.




Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

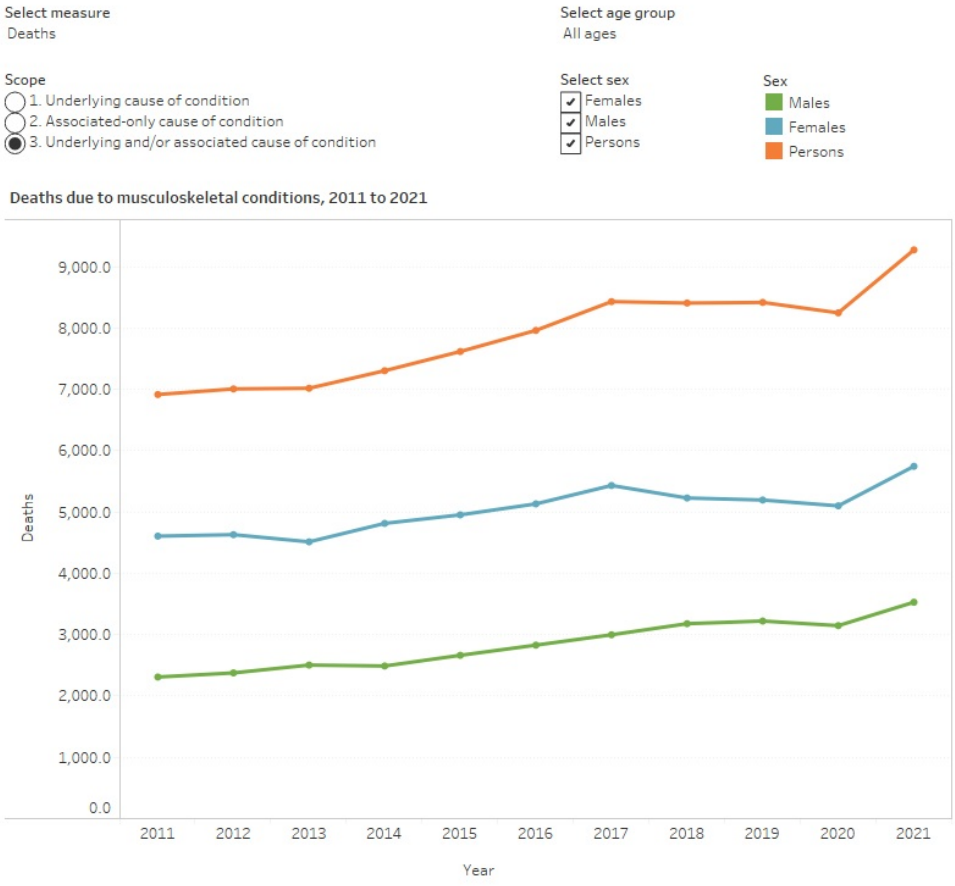
### Trends over time

Age standardised mortality rates for musculoskeletal conditions (as the underlying and/or associated cause) between 2011 and 2021:

- fluctuated in a range between 24 and 27 per 100,000 population
- were 1.2 to 1.3 times higher among females compared with males (Figure 10).

### Figure 10: Trends over time for musculoskeletal condition mortality, 2011 to 2021

This figure shows deaths due to musculoskeletal conditions increased steadily from 2011 to 2017, decreased between 2017 and 2020 and increased again in 2021.




Source: AIHW analysis of the NMD.
https://www.aihw.gov.au

### Variation between population groups

In 2021, age standardised mortality rates for musculoskeletal conditions (as the underlying and/or associated cause of death) were:

- 1.3 times as high for people living in *Remote and very remote* areas compared with people living in *Major cities* (32 and 25 per 100,000 population, respectively)
- 1.5 times as high for people living in the lowest socioeconomic areas (with the most disadvantage) compared with people living in the highest socioeconomic areas (with the least disadvantage) (30 and 20 per 100,000 population, respectively).

## Treatment and management of chronic musculoskeletal conditions

### Primary care

Musculoskeletal conditions are usually managed by general practitioners and allied health professionals. Treatment can include physical therapy, medicines (for pain and inflammation), self-management (such as diet and exercise), education on self-management and living with the condition, and referral to specialist care where necessary (WHO 2019).

Until 2017, the Bettering the Evaluation and Care of Health (BEACH) survey was the most detailed source of data about general practice activity in Australia (Britt et al. 2016). According to this survey, an estimated 18% of general practice visits in 2015–16 were for management of musculoskeletal conditions (Britt et al. 2016).

It is worth noting that there is currently no nationally consistent primary health care data collection to monitor provision of care by GPs. See General practice, allied health and other primary care services.

### Hospital treatment

People with musculoskeletal conditions that are very severe, or who require specialised treatment or surgery, may be admitted to hospital.

Data from the National Hospital Morbidity Database (NHMD) show that in 2021–22, there were 1.1 million hospitalisations with a principal or additional diagnosis (any diagnosis) of musculoskeletal, together representing 9.5% of all hospitalisations.

The rest of this section discusses hospitalisations with a musculoskeletal principal diagnosis, unless otherwise stated. However, charts and tables also include statistics for any diagnosis of a musculoskeletal condition.

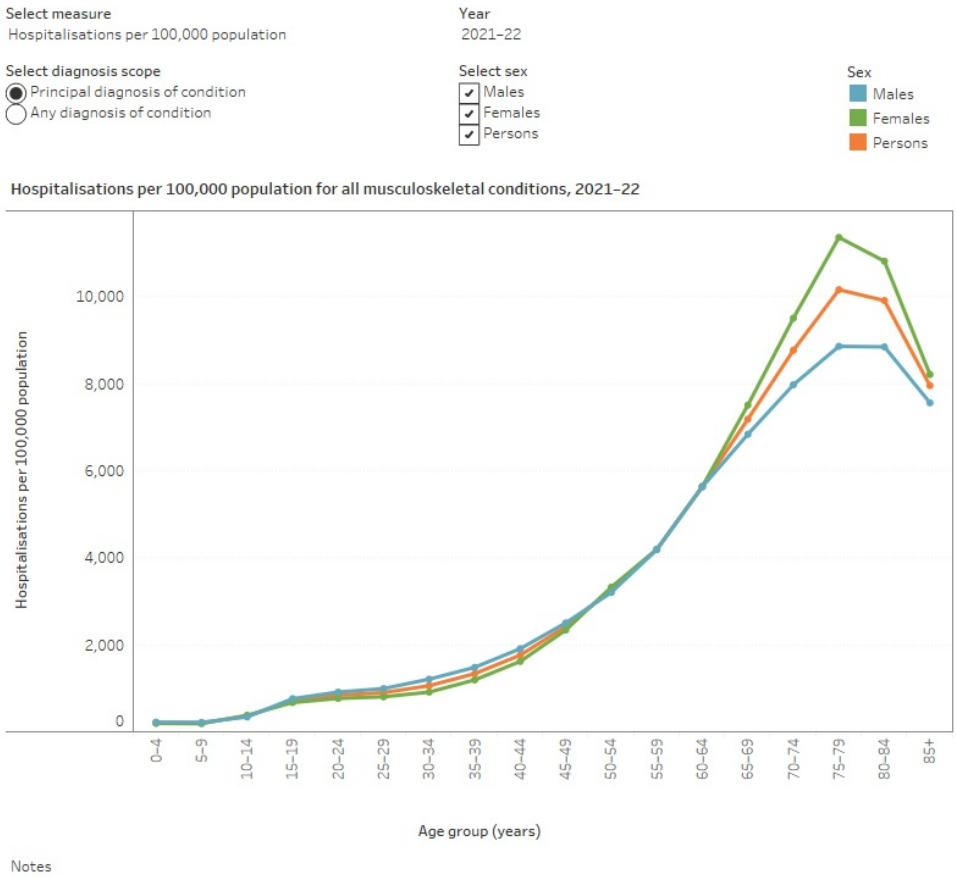
In 2021–22:

- there were 745,100 musculoskeletal condition hospitalisations, representing 6.4% of all hospitalisations in Australia, and 2,900 hospitalisations per 100,000 population

- musculoskeletal hospitalisations included: osteoarthritis (32%), back problems (24%), osteoporosis (1.4%), rheumatoid arthritis (1.3%), gout (0.9%), and other musculoskeletal conditions (40%)
- musculoskeletal conditions accounted for 2.4 million bed days, representing 7.6% of all bed days
- 49% of musculoskeletal condition hospitalisations were overnight stays, with an average length of 5.5 days (Figure 11).

### Figure 11: Age distribution for musculoskeletal hospitalisations, by sex, 2015-16 to 2021-22

This figure shows that in 2021-22 hospitalisations for musculoskeletal conditions increased with age until 75-79 years, declining thereafter.




Notes

Source: AIHW analysis of the NHMD.
https://www.aihw.gov.au

### Variation by age and sex

In 2021-22, musculoskeletal conditions hospitalisation rates were:

- highest for people aged 75-79 years (10,200 per 100,000 population)
- 1.1 times as high for females compared with males (3,000 and 2,700 per 100,000 population, respectively) (Figure 12).

### Trends over time

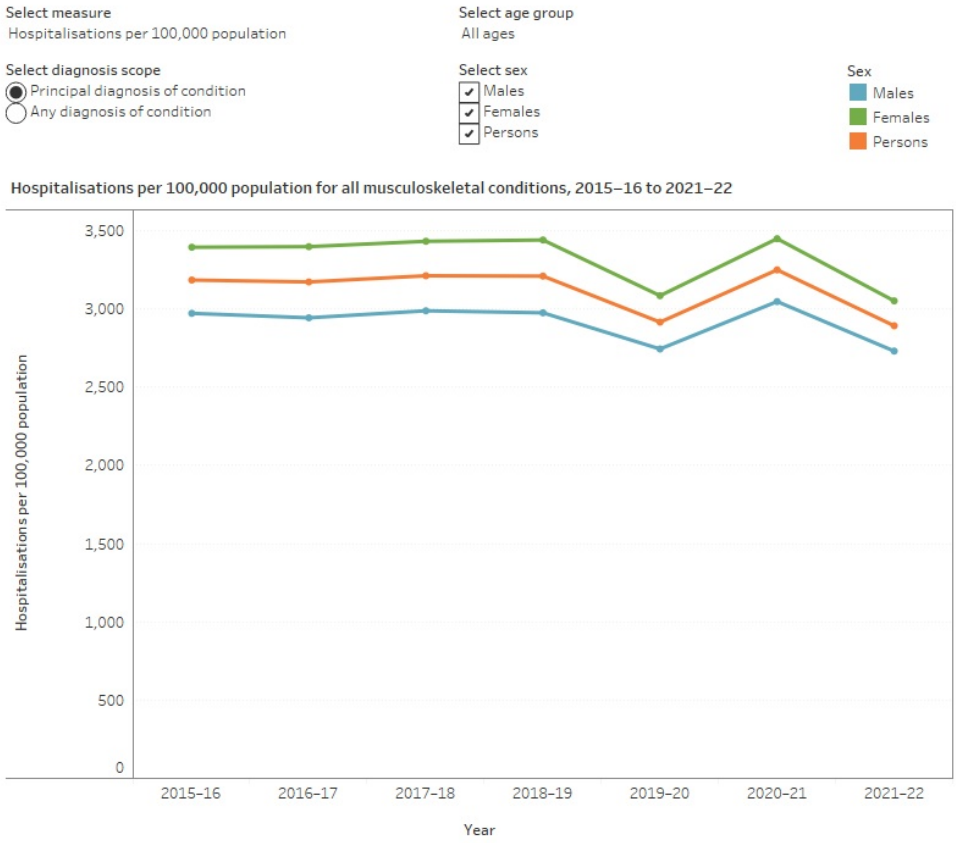
From 2015-16 to 2021-22, for musculoskeletal hospitalisations:

- the rate was steady for the 4 years to 2018-19 (at about 3,200 hospitalisations per 100,000 population), and then fluctuated over the next 3 years, dipping to a low of about 2,900 hospitalisations per 100,000 population, in 2021-22
- the proportion and average length of overnight stays were relatively stable, averaging to 49% and 5.4 days, across the period (Figure 12).

It should be noted that the rate of hospitalisations over the past few years may have been affected by the COVID-19 pandemic.

### Figure 12: Trends over time for musculoskeletal hospitalisations, 2015-16 to 2021-22

This figure shows that the hospitalisation rates for musculoskeletal conditions were consistently higher for females compared to males.




Notes

Source: AIHW analysis of the NHMD.
https://www.aihw.gov.au

## Data limitations

The prevention, management and treatment of musculoskeletal conditions beyond hospital settings cannot currently be examined in detail due to limitations in available data on:

- primary and allied health care at the national level
- use of over-the-counter medicines to manage pain and inflammation
- diagnosis information for prescription pharmaceuticals (which would allow a direct link between musculoskeletal conditions and use of subsidised medicines).

## COVID-19 impact on chronic musculoskeletal conditions

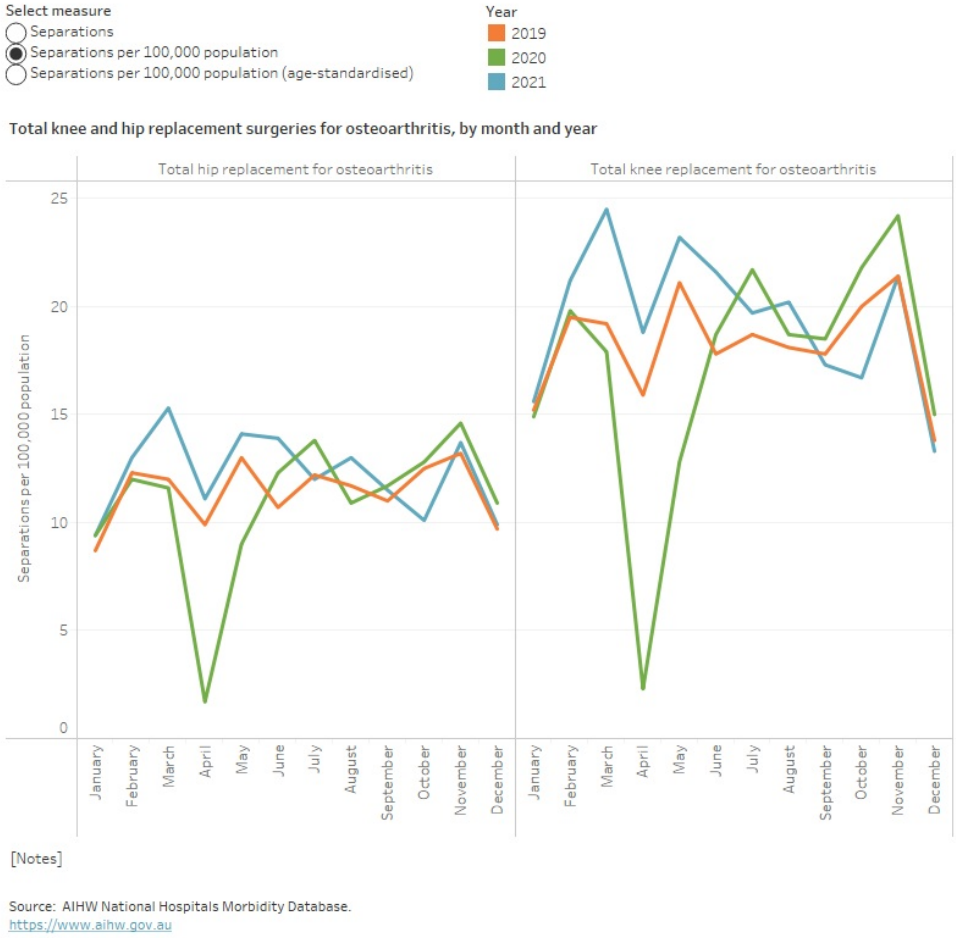
The COVID-19 pandemic had substantial impacts on hospital activity generally. The range of social, economic, business and travel restrictions, including restrictions on, or suspension of, some hospital services, and associated measures in other healthcare services to support physical distancing in Australia resulted in an overall decrease in hospital activity between 2019–20 and 2020–21 (AIHW 2022c).

At the beginning of the COVID-19 pandemic in Australia, non-urgent elective surgery was suspended for one month, from late March to late April 2020. For more information on how the pandemic has affected the population's health in the context of longer-term trends, see 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

In 2019–20, the age standardised rate of total hip and knee replacement surgery where osteoarthritis was the principal diagnosis declined 8.6% and 11.4% respectively from 2018–19. This decrease was driven by the April–June 2020 quarter, which saw 31% and 37% fewer admissions for hip and knee replacements respectively, than April–June 2019 (Figure 13). In 2020–21, rates rebounded to exceed pre-pandemic levels, but decreased below pre-pandemic levels in 2021–22 (see Osteoarthritis).

### Figure 13: Total hip and knee replacement surgeries, by month, 2019 to 2021

This figure shows that in 2021, there were between 2,000 and 4,000 separations per month for hip replacements where osteoarthritis was the principal diagnosis.



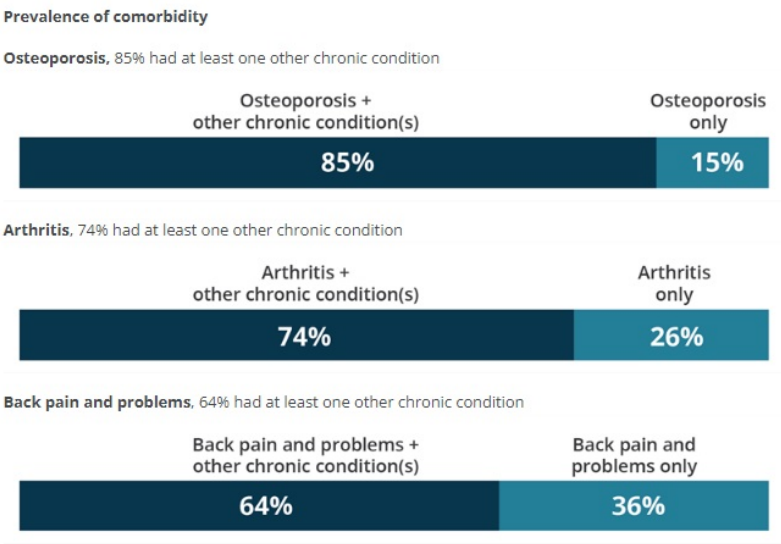

Waiting times for elective surgeries increased notably for 2020–21 admissions. In 2020–21, the median waiting times for total hip replacement surgery and total knee replacement surgery increased on 2019–20 by 49% and 38% respectively. This compares to an increase of 23% for all elective surgery (AIHW 2021b).

In 2020–21, the percentage of total hip replacements and total knee replacements with waiting times exceeding one year were 21% and 32% respectively. These represent 13 and 20 percentage point increases on 2019–20, which compare to a 4.8 percentage point increase for all elective surgeries (AIHW 2021b).

## Comorbidities of chronic musculoskeletal conditions

People with musculoskeletal conditions often have other long-term conditions (comorbidities) (Figure 14).

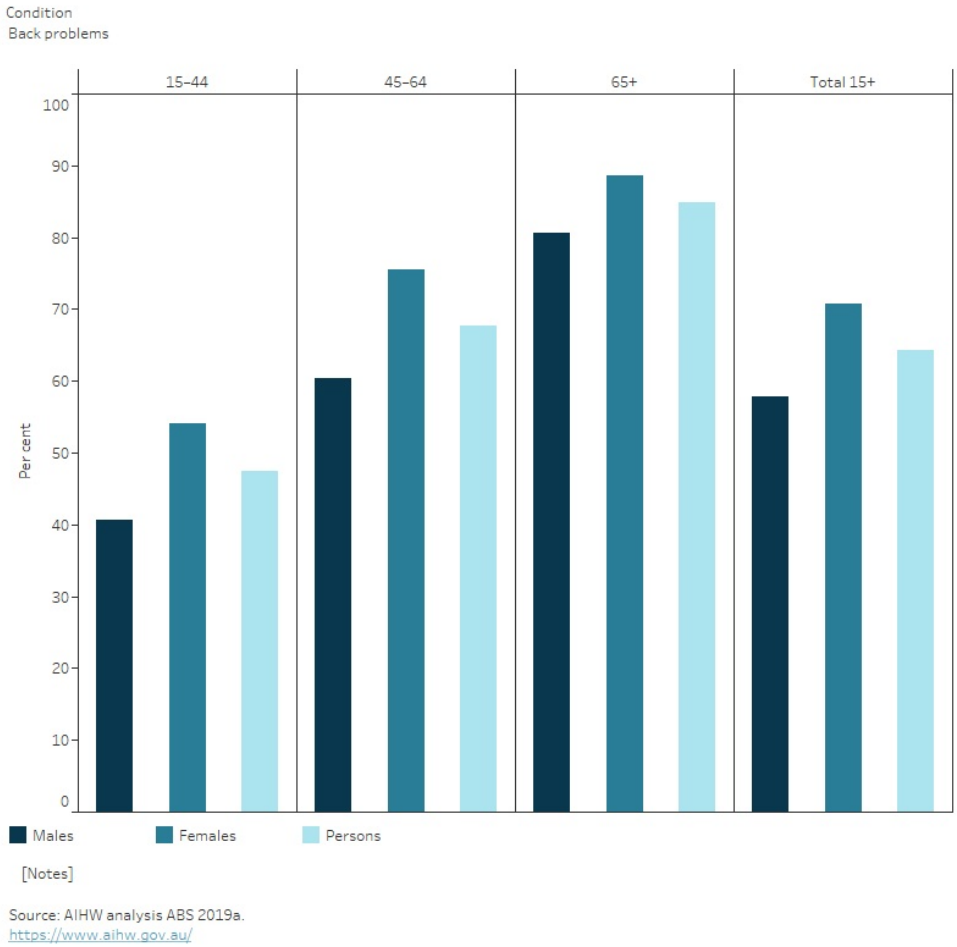
### Figure 14: Proportion of people with selected musculoskeletal conditions and 1 or more comorbidity, 2017–18




The number of comorbidities varies by age and sex. For example, the proportion of people with back problems who had at least one other chronic condition increased with age, from 47% (aged 1544) to 85% (aged 65 and over). Among those with back problems, the proportion of people with comorbidities was higher in females than males across all age groups (Figure 15).

**Figure 15: Proportion of people with musculoskeletal conditions who have at least one other chronic condition in people aged 15 and over, by sex and age, 2017–18**

This figure shows that with the prevalence of having at least one other chronic condition increased with age.




Musculoskeletal conditions often co-occur. In comparison to those without the condition, people aged 45 and over with:

- arthritis were 1.8 times as likely to also have back problems
- back problems were 1.6 times as likely to also have arthritis
- osteoporosis were 2.1 times as likely to also have arthritis.

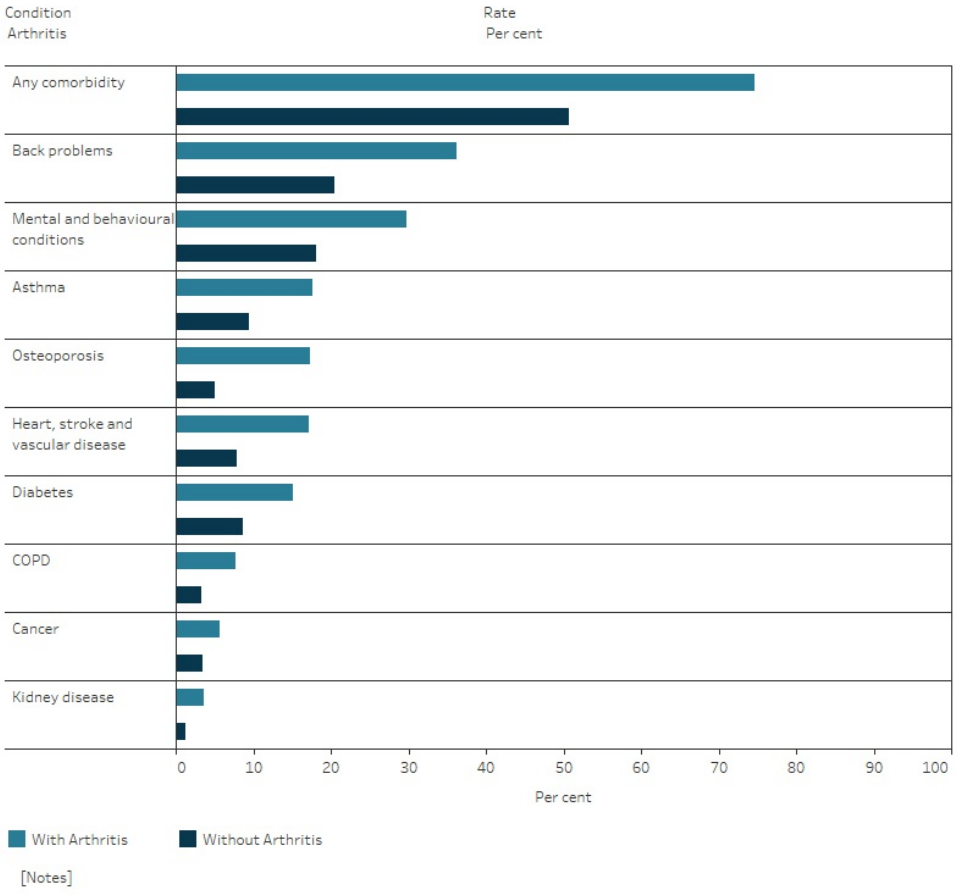
Mental and behavioural conditions commonly co-occur with musculoskeletal conditions. Compared with people without musculoskeletal conditions, for people aged 45 and over with mental and behavioural conditions were:

- 1.9 times as likely in people with back problems
- 1.6 times as likely in people with arthritis
- 1.5 times as likely in people with osteoporosis (Figure 16).

Adjusting for differences in the age structure of the groups did not affect the pattern of these results.

**Figure 16: Prevalence of other chronic conditions in people aged 45 and over, with and without musculoskeletal conditions, 2017–18**

This figure shows that reporting of selected chronic conditions was more common in people aged 45 and over with musculoskeletal conditions than those without.




## Where do I go for more information?

For more information on the musculoskeletal conditions covered in this report, see:

- ABS National Health Survey – first results (2017–18)
- ABS Health Conditions Prevalence, 2020–21
- Australian Centre for Monitoring Health.

For more on this topic, visit Chronic musculoskeletal conditions.

### References

ABS (Australian Bureau of Statistics) (2019) *Disability, ageing, and carers, Australia: summary of findings, 2018*, ABS website, accessed 18 February 2022.

ABS (2022) *Health conditions prevalence*, ABS website, accessed 21 March 2022.

AIHW (Australian Institute of Health and Welfare) (2021a) *Australian Burden of Disease Study 2018: Interactive data on risk factor burden*, AIHW website, accessed 10 March 2022.

AIHW (2021b) *Elective Surgery*, AIHW website, accessed 22 February 2022.

AIHW (2022a) *Australian Burden of Disease Study 2022*, AIHW, Australian Government, accessed 22 May 2023. doi:10.25816/e2v0-gp02.

AIHW (2022b) *Health system spending per case of disease and for certain risk factors*, AIHW, Australian Government, accessed 19 May 2023.

AIHW (2022c) *Admitted Patients*, AIHW website, accessed 7 March 2022.

AIHW (2023a) *Australian Burden of Disease Study 2023*, AIHW, Australian Government, accessed 14 December 2023.

AIHW (2023b) *Disease expenditure in Australia 2020–21*, AIHW, Australian Government, accessed 14 December 2023.

Britt H, Miller GC, Bayram C, Henderson J, Valenti L, Harrison C, Pan Y, Charles J, Pollack AJ, Chambers T, Gordon J and Wong C (2016) '*A decade of Australian general practice activity 2006–07 to 2015–16*', *General Practice Series*, 43(1):1–155.

WHO (World Health Organization) (2019) *Musculoskeletal conditions*, WHO website, accessed 18 February 2022.

# All arthritis

**Page highlights**

**What is arthritis?**

Arthritis is an umbrella term for a wide range of inflammatory conditions affecting the joints. Osteoarthritis, rheumatoid arthritis and gout are common types of arthritis.

**How common is arthritis?**

An estimated 3.6 million (15%) people in Australia reported having arthritis (excluding gout) in 2017–18.

**Impact of arthritis**

- People with arthritis had around double the rates of 'fair' to 'poor' health (31%), 'moderate' to 'very severe' pain (56%), and 'high' to 'very high' psychological distress (22%) compared with those without the condition.
- In 2023, musculoskeletal conditions were responsible for 13% of the total burden of disease (approximately 723,000 disability-adjusted life years (DALY)).
- In 2020–21, health expenditure for osteoarthritis and rheumatoid arthritis were estimated to be $4.3 billion and $966.1 million respectively.

**Treatment and management of arthritis**

In 2021–22, osteoarthritis was the most common type of arthritis hospitalisation and as a principal diagnosis accounted for 2.5% of all hospitalisations.

**Comorbidities of arthritis**

75% of people aged 45 and over with arthritis had at least one other chronic condition in 2017–18, back problems being the most common at 36%.

## What is arthritis?

Arthritis is an umbrella term for a wide range of inflammatory conditions affecting the joints. This often results in pain, stiffness, swelling and redness in affected joints. Age, overweight and obesity, injury and genetic factors increase the risk of developing arthritis. Osteoarthritis, rheumatoid arthritis and gout are common types of arthritis.

## How common is arthritis?

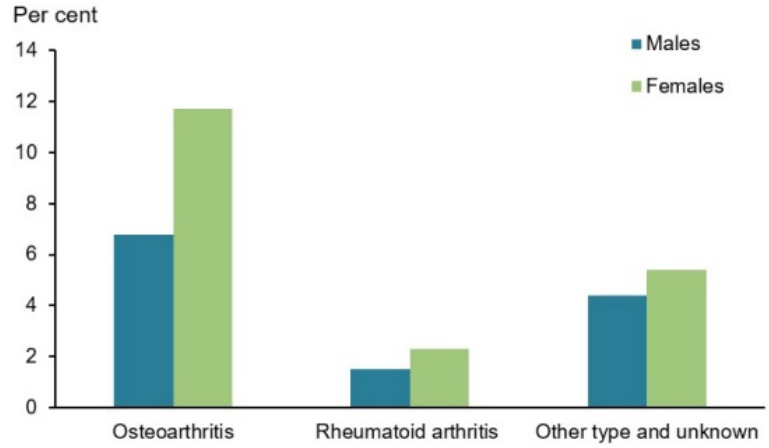
Arthritis – including osteoarthritis, rheumatoid arthritis and 'other type and unknown' – affected an estimated 3.6 million (15%) people in Australia, according to the 2017–18 Australian Bureau of Statistics (ABS) National Health Survey (NHS) (ABS 2018).

Note: This does not include gout. For more information, see gout.

Osteoarthritis and rheumatoid arthritis are the most common forms of arthritis:

- osteoarthritis is a chronic condition characterised by the deterioration of the cartilage that overlies the ends of bones in joints. Approximately 2.2 million people in Australia (9.3%) had osteoarthritis, affecting 12% of females and 6.8% of males) in 2017–18 (ABS 2018)
- rheumatoid arthritis is a systemic autoimmune disease where the body's immune system attacks its own tissues. Approximately 456,000 people in Australia (1.9%) had rheumatoid arthritis, affecting 2.3% of females and 1.5% of males in 2017–18 (ABS 2018) (Figure 1).

### Figure 1: Prevalence of self-reported arthritis in Australia, by arthritis type and sex, 2017–18




Note: Refers to people who self-reported that they were diagnosed by a doctor or nurse as having arthritis (current and long term) and also people who self-reported having arthritis.

Source: ABS 2018 (All arthritis 2023 Supplementary data table 1.1).

### Prevalence in Aboriginal and Torres Strait Islander (First Nations) people

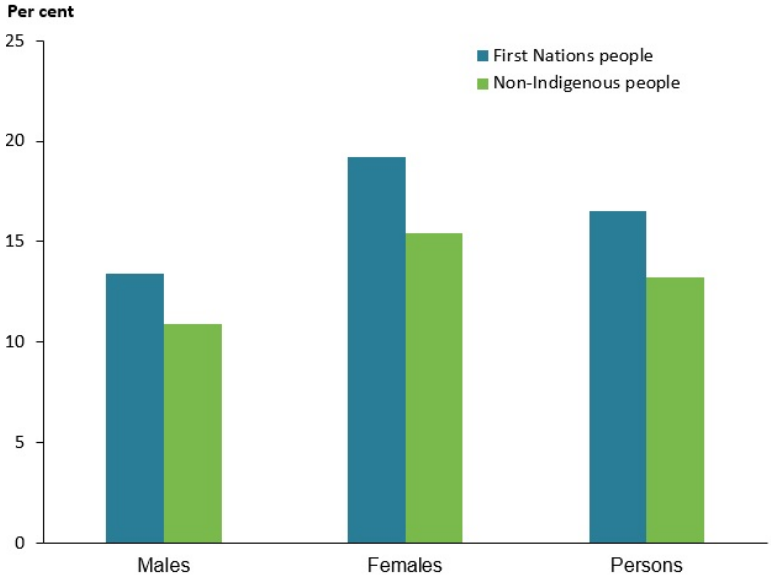
The Australian Institute of Health and Welfare (AIHW) uses 'First Nations people' to refer to Aboriginal and/or Torres Strait Islander people in this report.

According to self-reported data from the ABS National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), in 2018–19, about 85,600 (11%) of First Nations people reported having arthritis – including about 8,800 who lived in remote areas (5.9% of the remote First Nations population) (ABS 2019a).

After adjusting for differences in age structures, arthritis prevalence was:

- more common in First Nations females compared with First Nations males (19% and 13%, respectively)
- slightly higher for First Nations people compared with non-Indigenous people (17% and 13%, respectively) (Figure 2).

### Figure 2: Prevalence of arthritis by Indigenous status and sex, 2018-19




Note: Age-standardised to the Australian population as at 30 June 2001.

Source: ABS 2019a (All arthritis 2023 Supplementary data table 1.2)

## Impact of arthritis

Arthritis can have a profound impact on a person's quality of life and wellbeing due to acute and chronic pain, physical limitations, management of the condition and mental health impacts. This can often result in withdrawal from social, community and occupational activities (Briggs et al. 2016).

### How does arthritis affect quality of life?

Although arthritis affects people of all ages, its prevalence increases sharply from the age of 45 years. It can have a significant impact on a person's physical health, due to the pain and physical limitations associated with the disease.

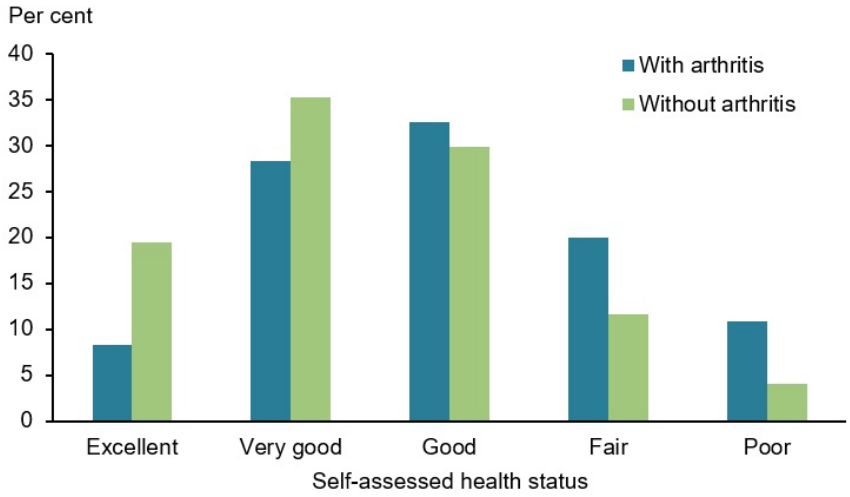
Arthritis can also affect mental wellbeing. The chronic and progressive symptoms and the management of the condition can cause distress, which may lead to mental health issues such as anxiety or depression (Sharma et al. 2016).

According to the 2017–18 NHS, people aged 45 and over with arthritis were:

- 1.9 times as likely to report having ‘fair’ to ‘poor’ health compared with those without arthritis (31% and 16%, respectively) (Figure 3)
- 2.3 times as likely as people without arthritis to experience ‘moderate’ to ‘very severe’ pain in the last 4 weeks (56% and 24%, respectively) (Figure 4)
- 2.2 times as likely as those without arthritis to experience high or very high levels of psychological distress (22% and 10%, respectively) (Figure 5).

In addition, 45% of people aged 45 and over with arthritis described their pain as having a ‘moderate’ to ‘extreme’ interference with their normal work during the last 4 weeks (ABS 2019b).

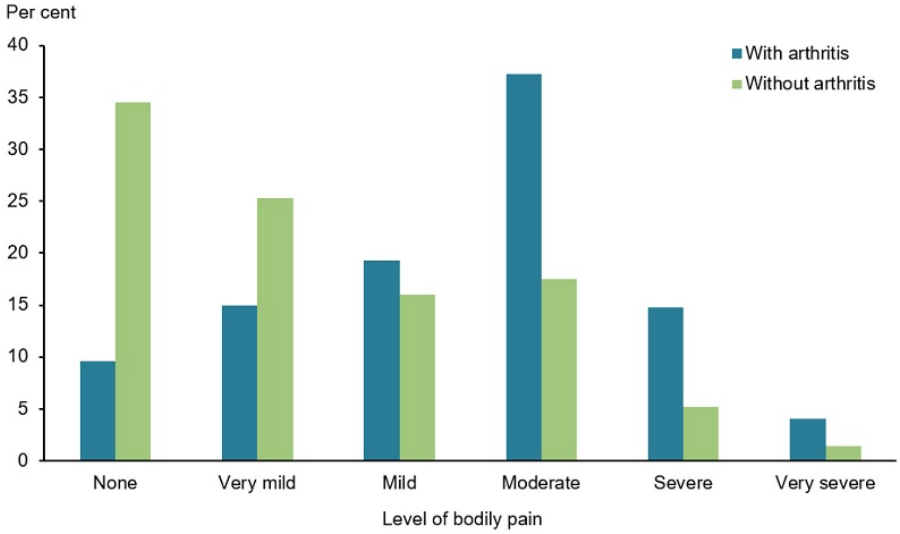
**Figure 3: Self-assessed health of people aged 45 and over with and without arthritis, 2017-18**




Note: Age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2019b (All arthritis 2023 Supplementary data table 2.1).

**Figure 4: Pain[(a)] experienced by people aged 45 and over with and without arthritis, 2017-18**

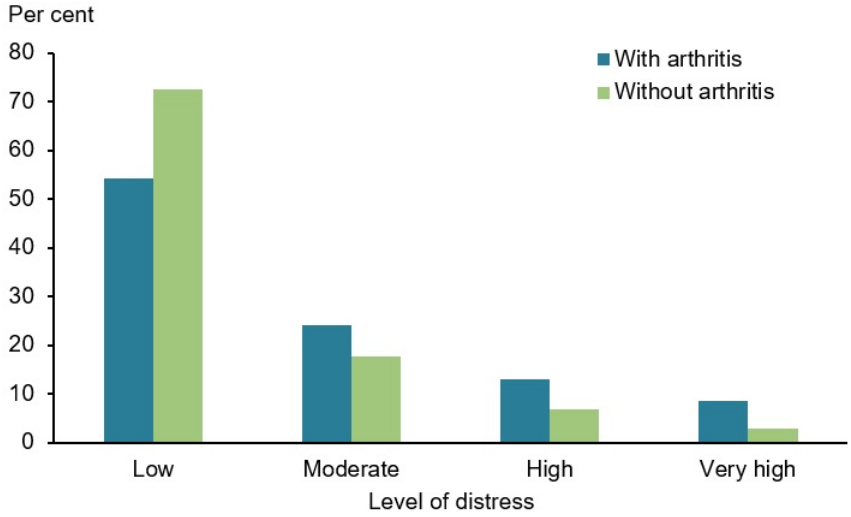



(a) Bodily pain experienced in the 4 weeks prior to interview.

Note: Age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2019b (All arthritis 2023 Supplementary data table 2.2).

**Figure 5: Psychological distress[(a)] experienced by people aged 45 and over with and without arthritis, 2017–18**




(a) Psychological distress is measured using the Kessler Psychological Distress Scale (K10), which involves 10 questions about negative emotional states experienced in the previous 4 weeks. The scores are grouped into Low: K10 score 10–15, Moderate: 16–21, High: 22–29, Very high: 30–50.

Note: Age-standardised to the 2001 Australian population.

Source: AIHW analysis of ABS 2019b (All arthritis 2023 Supplementary data table 2.4).

### Burden of disease

**What is burden of disease?**

Burden of disease is measured using the summary metric of disability-adjusted life years (DALY, also known as the total burden). One DALY is one year of healthy life lost to disease and injury. DALY caused by living in poor health (non-fatal burden) are the 'years lived with disability' (YLD). DALY caused by premature death (fatal burden) are the 'years of life lost' (YLL) and are measured against an ideal life expectancy. DALY allows the impact of premature deaths and living with health impacts from disease or injury to be compared and reported in a consistent manner (AIHW 2022).

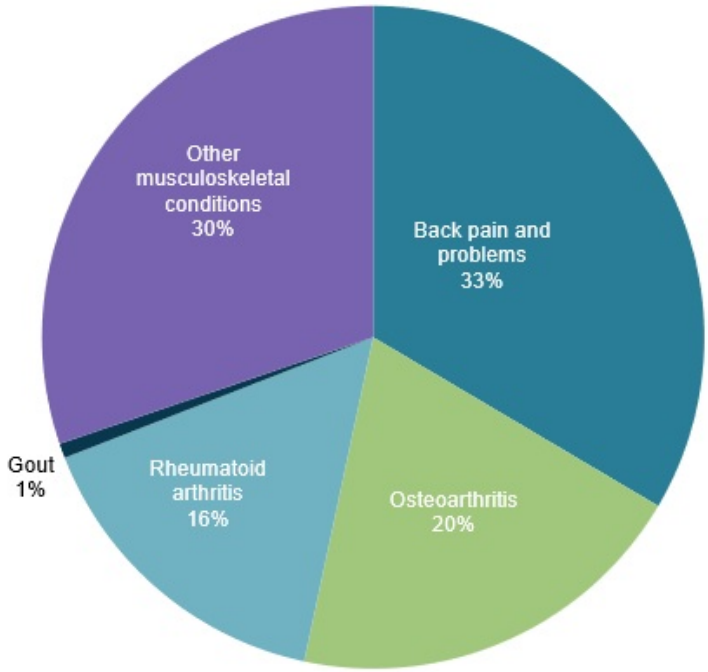
Common forms of arthritis (osteoarthritis, rheumatoid arthritis and gout) are large contributors to illness, pain and disability in Australia. Based on data from the Australian Burden of Disease Study 2023, musculoskeletal conditions were responsible for 13% of the total burden of disease (approximately 723,000 disability-adjusted life years (DALY)). Of this proportion:

- osteoarthritis contributed 20% of disease burden
- rheumatoid arthritis contributed 16%
- gout contributed 0.7%.

The remaining burden was attributed to 'other musculoskeletal conditions' (30%) and 'back pain and problems' (34%) (AIHW 2023a) (Figure 6).

For more information, see osteoarthritis, rheumatoid arthritis and gout.

**Figure 6: Musculoskeletal conditions burden (DALY), by disease, 2023**




Source: AIHW 2023a.

### Health system expenditure

Arthritis significantly impacts the Australian economy. Increased health care costs and higher use of health care services (for example, general practitioners, specialists, allied health and pharmaceuticals) required to treat and manage arthritis represent direct financial costs to the health care system.

There are also indirect costs associated with arthritis and/or musculoskeletal conditions and comorbidities, such as productivity losses, disability support pensions and other welfare payments, early retirement and carer costs (AIHW 2014; Arthritis Australia 2014).

In 2020–21, health expenditure for arthritis was estimated to be:

- $4.3 billion for osteoarthritis, representing 2.9% of total disease expenditure
- $966.1 million for rheumatoid arthritis, representing 0.6% of total disease expenditure (AIHW 2023b).

For more information, see Disease expenditure in Australia 2020–21.

## Treatment and management of arthritis

### Primary health care

At present, there is no cure for arthritis, with treatment aiming to manage symptoms and maximise quality of life. Arthritis-related conditions are predominantly managed in primary health care settings by a range of health professionals. Treatment involves a combination of self-management (such as diet and exercise), education on living with the condition, physiotherapy, medication (for pain and inflammation), and referral to specialist care where necessary (WHO 2019).

Until 2017, the Bettering the Evaluation and Care of Health (BEACH) survey was the most detailed source of data about general practice activity in Australia (Britt et al. 2016). Based on BEACH survey data, arthritis was managed at an estimated 3.5% of general practice visits in 2015–16 (Britt et al. 2016).

It is worth noting that there is currently no nationally consistent primary health care data collection to monitor provision of care by GPs. See General practice, allied health and other primary care services.

### Medications

Medication is primarily used to manage symptoms of pain, inflammation and improve functioning and quality of life among people with arthritis. Medications can range from general over-the-counter analgesics (painkillers) to highly specialised medications and vary depending on the type and severity of the condition.

### Hospitalisations for arthritis

Osteoarthritis was the most common type of arthritis hospitalisation in 2021–22, and as a principal diagnosis accounted for 2.1% of all hospitalisations. Rheumatoid arthritis and gout accounted for 0.1% each.

**Surgery**

Joint replacement surgery may be required for those with severe arthritic conditions who are unresponsive to medication and exercise (RACGP 2018). These procedures restore joint function, help relieve pain and improve quality of life of the affected person. Osteoarthritis is the most common condition leading to hip and knee replacement surgery in Australia (AOANJRR 2019).

For more information on these conditions, see the osteoarthritis, rheumatoid arthritis, juvenile arthritis and gout pages.

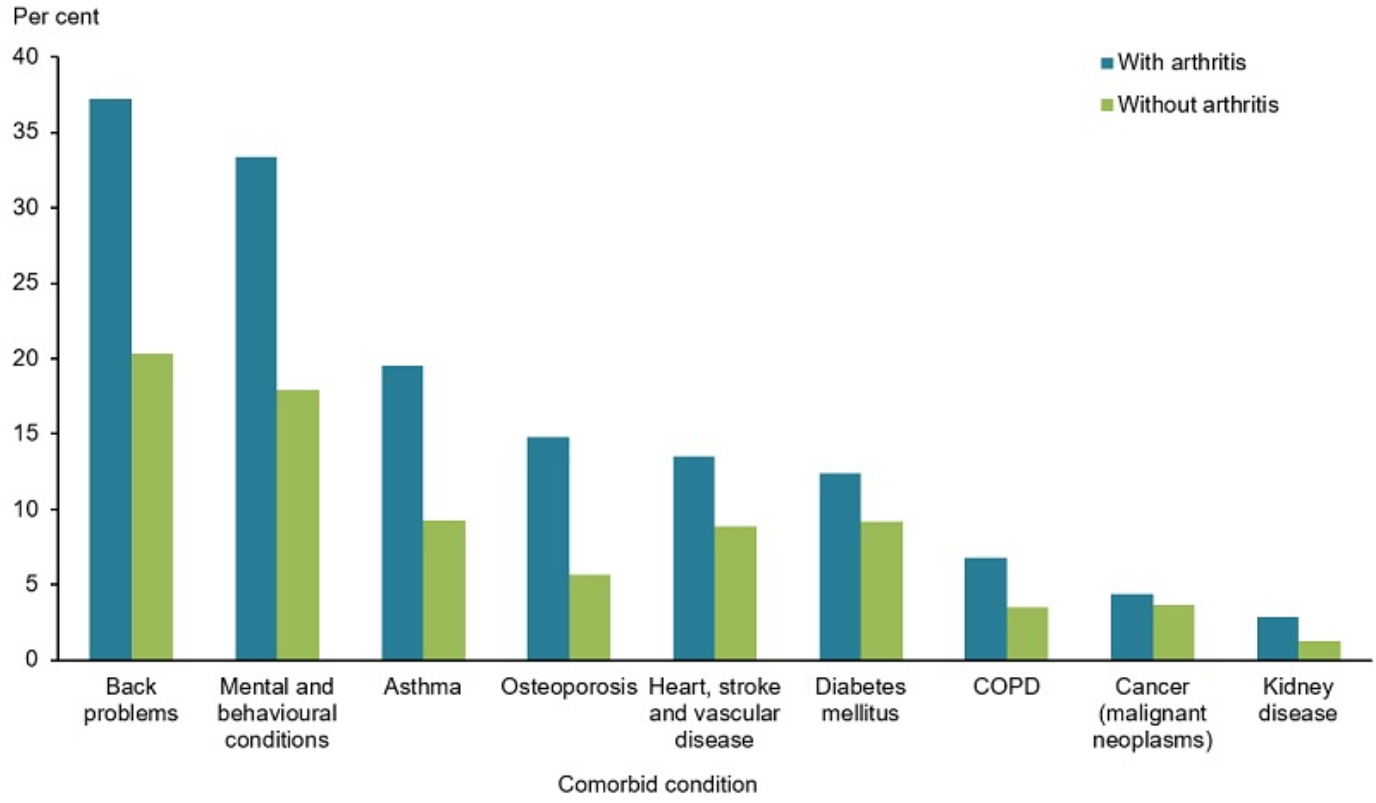
### Comorbidities of arthritis

People with arthritis often have other chronic diseases and long-term conditions (comorbidities).

In 2017–18:

- 75% people aged 45 and over with arthritis had at least one other chronic condition
- back problems were the most common comorbidity (36%), followed by mental and behavioural conditions (30%) and asthma (18%) (ABS 2019b) (Figure 7).

**Figure 7: Prevalence of chronic conditions in people aged 45 and over with and without arthritis, 2017–18**




Notes

1. Age-standardised to the 2001 Australian population.
2. Proportions do not total 100% as one person may have more than one additional diagnosis.

Source: AIHW analysis of ABS 2019b (All arthritis 2023 Supplementary data table 2.5).

### References


ABS (Australian Bureau of Statistics) (2018) *National Health Survey: First results, 2017–18*. ABS cat. no. 4364.0.55.001, AIHW, Australian Government, accessed 28 April 2021.

ABS (2019a) *National Aboriginal and Torres Strait Islander Health Survey: First Results*, Australia, 2018–19. ABS cat. no. 4715.0, ABS, Australian Government, accessed 28 April 2021.

ABS (2019b) *Microdata: National Health Survey, 2017–18*, AIHW analysis detailed microdata, accessed 28 April 2021.

AIHW (Australian Institute of Health and Welfare) (2014) *Health-care expenditure on arthritis and other musculoskeletal conditions: 2008–09*, AIHW, Australian Government, accessed 28 April 2021.

AIHW (2022) *Australian Burden of Disease Study 2022*, AIHW, Australian Government, accessed 06 June 2023. doi:10.25816/e2v0-gp02, accessed 28 April 2021.

AIHW (2023a) *Australian Burden of Disease Study 2023*, AIHW, Australian Government, accessed 14 December 2023.

AIHW (2023b) *Disease expenditure in Australia 2020–21*, AIHW, Australian Government, accessed 14 December 2023.

AOANJRR (Australian Orthopaedic Association National Joint Replacement Registry) (2019) *Annual report 2019: Hip, knee and shoulder arthroplasty*. AOA website, accessed 28 April 2021.

Arthritis Australia (2014) *Time to move: rheumatoid arthritis, a national strategy to reduce a costly burden*, Arthritis Australia website, accessed 28 April 2021.

Briggs AM, Cross MJ, Hoy DG, Sànchez-Riera L, Blyth FM, Woolf AD and March LM (2016) '*Musculoskeletal Health Conditions Represent a Global Threat to Healthy Aging: A Report for the 2015 World Health Organization World Report on Ageing and Health*', *Gerontologist* 56:S243-S255.

Britt H, Miller GC, Henderson J, Bayram C, Harrison C, Valenti L, Pan Y, Charles J, Pollack AJ, Wong C and Gordon J (2016) '*General practice activity in Australia 2015–16*', General practice series no. 40. Sydney University Press.

RACGP (The Royal Australian College of General Practitioners) (2018) *Guideline for the management of knee and hip osteoarthritis*, RACGP website, accessed 28 April 2021.

Sharma A, Kudesia P, Shi Q and Gandhi R (2016) '*Anxiety and depression in patients with osteoarthritis: impact and management challenges*', *Open Access Rheumatology: Research and Reviews*, 8:103–113.

WHO (World Health Organization) (2019) *Musculoskeletal conditions: fact sheet*, WHO website, accessed 3 June 2020.

# Technical notes

## Data sources

### Australian Burden of Disease Database

The Australian Burden of Disease Database contains aggregate burden of disease metrics from the Australian Burden of Disease Study (ABDS) undertaken by the AIHW. This includes measures of fatal burden (years of life lost, YLL), non-fatal burden (years lived with disability, YLD) and total burden (disability-adjusted life years, DALY)

The 2023 study builds on the AIHW's previous burden of disease studies and disease monitoring work and provides Australian-specific estimates for over 200 diseases and injuries in 2023, including comparisons with previous studies.

The 2018 (ABDS) also provides estimates of how much of the burden can be attributed to 40 different risk factors. Results were published in November 2021.

For further information see Burden of disease.

### Disease Expenditure Database

The AIHW Disease Expenditure Database provides a broad picture of the use of health system resources classified by disease groups and conditions.

It contains estimates of expenditure by the Australian Burden of Disease Study diseases and injuries, age group, and sex for admitted patient, emergency department and outpatient hospital services, out-of-hospital medical services, and prescription pharmaceuticals.

It does not allocate all expenditure on health goods and services by disease – for example, neither administration expenditure nor capital expenditure can be meaningfully attributed to any particular condition due to their nature.

For more information see Disease expenditure in Australia.

### National Aboriginal and Torres Strait Islander Health Survey

The National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) is conducted by the Australian Bureau of Statistics (ABS) to obtain national information on the health of First Nations people, their use of health services and health-related aspects of their lifestyle. The most recent NATSIHS was conducted in 2018–19.

The NATSIHS collects information from First Nations people of all ages in non-remote and remote areas of Australia, including discrete First Nations communities.

Further information can be found in ABS National Aboriginal and Torres Strait Islander Health Survey, 2018–19.

### National Health Survey

The National Health Survey (NHS) is conducted by the ABS to obtain national information on the health status of Australians, their use of health services and facilities, prevalence of long-term health conditions and health risk factors. The most recent NHS was conducted in 2020–21. It is important to note that the 2020–21 NHS data should be considered a break in time series from previous NHS collections and used for point-in-time national analysis only. The survey was collected during the COVID-19 pandemic, via an online, self-complete form, which significantly changed the data collection and survey estimates.

The NHS collects self-reported data on whether a respondent had one or more long-term health conditions; that is, conditions that lasted, or were expected to last, 6 months or more.

When interpreting data from the NHS, some limitations need to be considered:

- Data that are self-reported rely on respondents knowing and providing accurate information.
- The survey does not include information from people living in nursing homes or otherwise institutionalised.
- Residents of *Very remote* areas and discrete First Nations communities were excluded from the survey. This is unlikely to affect national estimates, but will impact prevalence estimates by remoteness.

Further information can be found in National Health Survey: First results, 2017–18.

### National Hospital Morbidity Database

The National Hospital Morbidity Database (NHMD) is a compilation of episode-level records from admitted patient morbidity data collection systems in Australian hospitals.

Reporting to the NHMD occurs at the end of a person’s admitted episode of care (separation or hospitalisation) and is based on the clinical documentation for that hospitalisation.

The NHMD is based on the Admitted Patient Care National Minimum Data Set (APC NMDS). It records information on admitted patient care (hospitalisations) in essentially all hospitals in Australia, and includes demographic, administrative and length-of-stay data, as well as data on the diagnoses of the patients, the procedures they underwent in hospital and external causes of injury and poisoning.

The hospital separations data do not include episodes of non-admitted patient care given in outpatient clinics or emergency departments. Patients in these settings may be admitted subsequently, with the care provided to them as admitted patients being included in the NHMD.

The following care types were excluded when undertaking the analysis: 7.3 (newborn – unqualified days only), 9 (organ procurement – posthumous) and 10 (hospital boarder).

Further information about the NHMD can be found in Admitted patient care NMDS 2020–21 and Admitted patient care NMDS 2021–22.

### National Mortality Database

The National Mortality Database (NMD) holds records for deaths in Australia from 1964. It comprises information about causes of death and other characteristics of the person, such as sex, age at death, area of usual residence and Indigenous status. The cause of death data are provided to the AIHW by the Registries of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include cause of death coded by the ABS. The data are maintained by the AIHW in the NMD.

Revised and preliminary versions are subject to further revision by the ABS. For data by Indigenous status, the level of identification of Indigenous status is considered sufficient to enable analysis in 5 jurisdictions – New South Wales, Victoria, Queensland, Western Australia and the Northern Territory.

The data quality statements underpinning the AIHW NMD can be found in the following ABS publications:

- ABS quality declaration summary for Deaths, Australia.
- ABS quality declaration summary for Causes of death, Australia.

For more information see National Mortality Database (NMD).

## Classifications

Australia uses the International Statistical Classification of Diseases and Related Health Problems (ICD) to code causes of death (WHO 2019). In this report, deaths were coded using the 10th Revision (ICD-10) (Table 1).

Table 1: International Classification of Disease (ICD) codes

| MSK Condition | ICD-10 edition codes |
|---|---|
| Rheumatoid arthritis | M05-M06 |
| Osteoarthritis | M15-M19 |
| Back problems | M40, M41, M45-M54, M99 |
| Gout | M10 |
| Osteoporosis | M80-M82 |
| All musculoskeletal conditions | M00-M99 |

Soruce: WHO 2019.

For hospital diagnoses and procedures, a classification modified for Australia is used. Data were coded using the ICD-10-AM classification (International Statistical Classification of Diseases and Related Health Conditions, 7$^{th}$ to 11th Revision, Australian Modification) (ACCD 2019a), incorporating the Australian Classification of Health Interventions (ACHI) (ACCD 2019b) (Tables 2 to 4).

Table 2: ICD-10-AM codes

| Chronic musculoskeletal condition | ICD-10-AM 7th to 11$^{th}$ edition codes | Definition/description |
|---|---|---|
| Arthritis | M05–M06 | Rheumatoid arthritis |
| | M15–M19 | Osteoarthritis |
| Back Problems | M40-43 | Deforming Dorsopathies |
| | M45-51 | Spondylopathies/other dorsopathies |
| | M53-54 | Other dorsopathies |
| | M99 | Biomechanical lesions, not elsewhere classified |

| | | |
|---|---|---|
| Gout | M10 | Gout |
| Osteoarthritis | M15 | Polyarthrosis |
| | M16 | Coxarthrosis [arthrosis of hip] |
| | M17 | Gonarthrosis [arthrosis of knee] |
| | M18 | Arthrosis of first carpometacarpal joint |
| | M19 | Other arthrosis |
| Osteoporosis | M80 | Osteoporosis with pathological fracture |
| | M81 | Osteoporosis without pathological fracture |
| | M82 | Osteoporosis in diseases classified elsewhere |

Table 3: ICD-10-AM codes used in identifying minimal trauma fractures in the AIHW National Hospital Morbidity Database

| **MSK condition** | **ICD-10-AM 7th to 11th edition codes** | **Definition/description** |
|---|---|---|
| *Minimal trauma fractures* | | |
| Hip fracture | S72.0 | Fracture of neck of femur |
| | S72.1 | Pertrochanteric fracture |
| | S72.2 | Subtrochanteric fracture |
| Shoulder and upper arm fracture | S42 | Fracture of shoulder and upper arm |
| Lower leg including ankle fracture | S82 | Fracture of lower leg, including ankle |
| Lumbar spine and pelvis fracture | S32 | Fracture of lumbar spine and pelvis |
| Forearm fracture | S52 | Fracture of forearm |
| Fractures (all) | S02 | Fracture of skull and facial bones |
| | S12 | Fracture of neck |
| | S22 | Fracture of rib(s), sternum and thoracic spine |
| | S32 | Fracture of lumbar spine and pelvis |
| | S42 | Fracture of shoulder and upper arm |
| | S52 | Fracture of forearm |
| | S62 | Fracture at wrist and hand level |
| | S72 | Fracture of femur |
| | S82 | Fracture of lower leg, including ankle |
| | S92 | Fracture of foot, except ankle |
| | T02 | Fractures involving multiple body regions |
| | T08 | Fracture of spine, level unspecified |
| | T10 | Fracture of upper limb, level unspecified |
| | T12 | Fracture of lower limb, level unspecified |
| *With a first external cause of:* | | |
| Minimal trauma falls | W00 | Fall on same level involving ice and snow |
| | W01 | Fall on same level from slipping, tripping and stumbling |

| | | |
|---|---|---|
| | W03 | Other fall on same level due to collision with, or pushing by, another person |
| | W04 | Fall while being carried or supported by other persons |
| | W05–W08 | Fall involving wheelchair; bed; chair; other furniture |
| | W18 | Other fall on same level |
| | W19 | Unspecified fall |
| Other minimal trauma events | W22 | Striking against or struck by other objects |
| | W50 | Hit, struck, kicked, twisted, bitten or scratched by another person |
| | W51 | Striking against or bumped into by another person |
| | W54.8 | Other contact with dog |

Table 4: The Australian Classification of Health Interventions (ACHI) codes 10th edition codes used in identifying total knee and hip replacement in the AIHW National Hospital Morbidity Database

| **MSK surgery** | **ACHI 10th edition codes** |
|---|---|
| Total knee replacement | 4951700, 4951800, 4951900, 4953401, 4952100, 4952101, 4952102, 4952103, 4952400 and 4952401 |
| Total hip replacement | 4931800 and 4931900 |

## References


Australian Modification (ICD-10-AM) –11th edition, tabular list of diseases and alphabetic index of diseases, Adelaide: Independent Hospital Pricing Authority.

ACCD (2019b) Australian Classification of Health Interventions (ACHI) – 11th edition, tabular list of interventions, and alphabetic index of interventions, Adelaide: Independent Hospital Pricing Authority.

ABS (Australian Bureau of Statistics) (2019) *National Health Survey: Users' Guide, 2017–18*, ABS website, accessed 27 September 2023.

ABS (2022) *National Health Survey: First results methodology*, ABS website, accessed 27 September 2023.

WHO (World Health Organization) (2019) International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10), Geneva: WHO.

# Notes

## Data sources

These web articles were last updated on 14 December 2023. See table below for details of updates by data source.

Updates to content by data source

| Topic | Data source | Latest time period reported | Measure content last update |
|---|---|---|---|
| Burden of Disease | Australian Burden of Disease Study 2023 | 2023 | 14 December 2023 |
| Health expenditure | Disease expenditure in Australia 2020–21 | 2020–21 | 14 December 2023 |
| Hospitalisations | National Hospital Morbidity Database (NHMD) | 2021–22 | 14 December 2023 |
| Deaths | National Mortality Database (NMD) | 2021 | 30 June 2023 |
| Prevalence (survey, self-report)* | National Health Survey | 2017–18* | 8 December 2020 |

*Chronic musculoskeletal condition web pages include data from 2020–21 NHS, updated on 30 June 2023

# Data

# Related material

## Resources

## Related topics

- Chronic disease