The health of Australians
—an overview

KEY POINTS

- Australia's life expectancy at birth remains among the highest in the world—almost 84 years for females and 79 years for males.

- Australia's health compares well with that of other OECD countries, ranking in the best third on 17 of 31 comparable indicators.

- Our total fertility rate continues to increase, reaching 1.97 births per female in 2008—the highest rate since 1977, but still below the 'replacement rate' of 2.1.

- Males are as likely as females to rate their general health as good or better, despite doing more poorly on many other indicators of health status.

- Almost one-third of people aged 16–85 years with disability in 2007 had symptoms of a mental disorder in the previous 12 months.

- Coronary heart disease causes the most 'lost years' through death in males aged under 75 years; breast cancer causes the most among females.

- Type 2 diabetes is projected to become the leading cause of disease burden by 2023.

How healthy are Australians?

How does Australia compare with other countries?

How is this changing over time?

This chapter describes Australia's health using general measures of health status, for example life expectancy, birth and death rates, chronic disease prevalence, disability status and self-perceived health. The population is considered as a whole, with some key differences highlighted for Aboriginal and Torres Strait Islander people. More detailed discussions of Indigenous health and the health of other groups is in Chapter 5, and the health of various age groups is discussed in Chapter 6. Individual diseases and conditions are considered in detail in Chapter 4.

2.1 Australia's changing population

To understand a population's health, it is useful to start with its demographic features: the size of the population, the ratio of males to females, its age composition, and how these characteristics are changing. These features are an important aspect of health monitoring, as they not only reflect past health events but also provide insights into the current and future health of the population.

An ageing population, for example, is more than just a demographic trend. Simply because there are more older people there can over time be more cases of ill health in the population, and more deaths—even if older people are healthier than their counterparts in earlier times. An increasingly older population also places extra demands on health services.

Other helpful insights come from statistics about fertility, mortality and life expectancy. Birth and death rates are major drivers of a population's age structure, whereas life expectancy summarises the outlook on life based on current mortality patterns. Migration also contributes to changes in the size, structure and health of the population. These factors are discussed below.

Age and sex structure

The estimated resident population of Australia in June 2009 was 21.9 million, having grown by 2.1% over the preceding 12 months (ABS 2009a). Since Federation in 1901, the Australian population has increased by over 18 million, with almost 3 million added in the last decade. Overall, natural increase (that is, the number of births exceeding the number of deaths) has contributed more to this growth than immigration, accounting for around two-thirds of the total increase in the past 50 years. In the last decade, however, immigration has become a more important component, accounting for up to 60% of Australia's population growth each year.

Since 1901, Australia has seen some significant demographic changes. Two of these have been declining fertility and declining mortality. A decline in fertility since the 1950s has led to slow growth of the population at younger ages, whereas declining mortality has led to large growth in the number of people in older age groups. This has resulted in a shift away from the traditional 'population pyramid' structure to more of a 'population column' shape. But this pattern is not seen for the Aboriginal and Torres Strait Islander population, which has the more traditional pyramid shape of relatively large numbers of younger people and fewer elderly (Figure 2.1). More about Australia's Indigenous population can be found in Chapter 5.

Males **Females**

Age group

Indigenous Australians
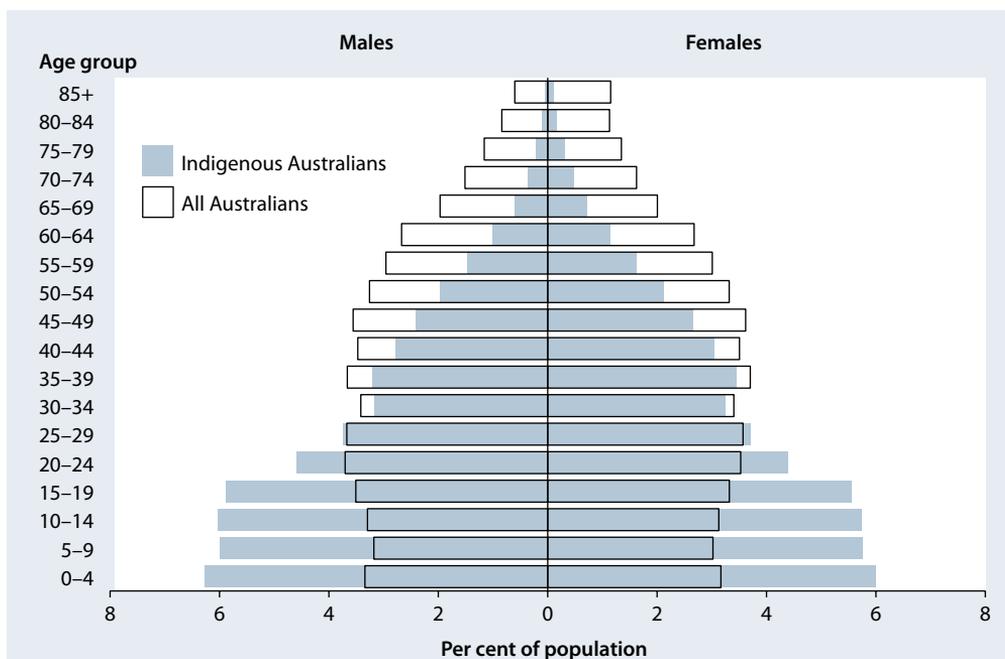
All Australians

Note: The age group 85+ includes all ages 85 years and over, and is not directly comparable with other 5-year age groups.

Source: AIHW Population Database.

Figure 2.1: Age structure of the Australian population, by Indigenous status, 2009
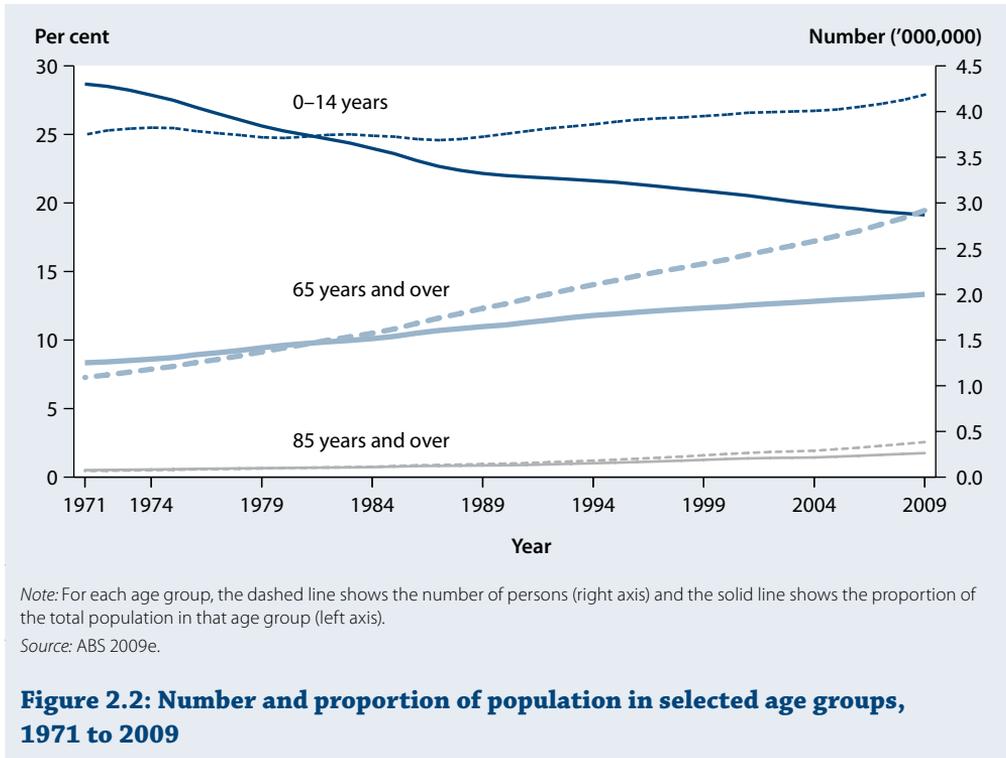
Median age

The median age of the population is the mark at which half is older and half is younger. It was estimated to be 36.9 years in June 2009, having increased by 5.1 years over the previous two decades (ABS 2009e). This increase results from Australia's long period of low fertility and rising life expectancy.

Some developed countries have an even higher median age than Australia's. In Japan and Italy, for example, the number of persons aged 65 years and over exceeds the number of children aged under 15, and the median ages are 42.9 and 42.3 years respectively.

The older population

During the past several decades, the number and proportion of the population aged 65 years and over have risen considerably (Figure 2.2). In 2009, more than 2.9 million Australians (13.3% of the population) were aged 65 years or over, compared with just under 1.1 million (8.3%) in 1971. The increase in the population aged 85 years and over has been even more marked, with the number of people increasing more than fivefold over the same period. The number of centenarians (people aged 100 years or more) has also risen substantially, from just 200 in 1971 to more than 3,700 in 2009: today around 1 in every 6,000 Australians is aged 100 years or older.

Note: For each age group, the dashed line shows the number of persons (right axis) and the solid line shows the proportion of the total population in that age group (left axis).

Source: ABS 2009e.

Figure 2.2: Number and proportion of population in selected age groups, 1971 to 2009

Consequences of population ageing

As shown above, while falling mortality rates have increased the proportion of older Australians, falling fertility rates have decreased the proportion of the population aged under 15 years (although the absolute number of people of this age has increased). The resulting change in age distribution, known as 'population ageing', has economic and social consequences for the future.

Children and the elderly are likely to depend on others for financial and physical support. For children and some older people this may be direct personal assistance; for others it may be indirect, in the form of income support funded through taxation. The segment of the population most likely to provide this support is people of working age, generally considered to be those aged 15–64 years. A common way of assessing demographic change is to calculate measures that compare the number of 'dependants' to the number of 'supporters'. These measures are called dependency ratios (Box 2.1).

Between 1971 and 2009 the Australian youth dependency ratio decreased significantly, from 45% to 28%. This means that in 2009 there were 3.5 working age adults to support each child aged under 15 years, compared with 2.2 in 1971. In contrast, the old-age dependency ratio significantly increased over the same period, from 13% to 20% (that is, from 7.5 working-age adults per person aged 65 years and over to 5). The age dependency ratio overall has shifted from 59% to 48%—a slight increase in the number of 'supporters' compared with 'dependants'.

Based on current population and employment projections the Treasury expects the youth dependency ratio to remain stable over the next few decades while the old-age dependency ratio continues to rise, reaching over 37% by 2050—that is, fewer than three persons in

the labour force to support each person aged 65 years or over (Treasury 2010). The overall age dependency ratio is expected to rise to over 65% by 2050—1.5 working age adults for every 'dependent' person.

In countries such as Japan and Italy, where larger proportions of the population are elderly, the old-age dependency ratio is expected to exceed 70% by 2050 (OECD 2009a). In many countries this shift is being partly offset by people aged 65 or over staying in the workforce. Treasury suggests that increased productivity could also help to compensate for the increased health and social costs associated with Australia's ageing population (Treasury 2010).

Box 2.1: Dependency ratios

Dependency ratios compare the number of people likely to be 'dependent' (that is, not in the labour force) to the number of people likely to be providing support by being in the labour force. Three measures are commonly calculated:

- the youth dependency ratio, which compares the number of children (aged 0–14 years) to the number of working-age adults (aged 15–64 years)

- the old-age dependency ratio, which compares the number of people aged 65 years and over to the number aged 15–64 years

- the age dependency ratio, which compares the total number of people aged 0–14 years and 65 years and over to the number aged 15–64 years.

Each ratio is generally multiplied by 100 and expressed as a percentage. A higher dependency ratio suggests less support is available to meet the needs of dependants; a ratio greater than 100% implies there are more dependants than there are supporting persons.

Fertility

Two different measures are commonly used to describe trends and patterns in fertility: the number of children born to each female, and the age of mothers giving birth.

Total fertility rate

The total fertility rate (TFR) is a summary measure used to describe the number of children a female could expect to bear during her lifetime if she experienced current age-specific fertility rates throughout her childbearing life.

The TFR in Australia was 1.97 births per female in 2008 (ABS 2009b). It had been falling since the early 1960s until 2004, but since then it has been steadily rising. The 2008 TFR is the highest since 1977 (2.01) but is still below the replacement rate of 2.1—the rate needed to maintain the population size by 'replacing' the number of deaths.

The TFR is higher in Indigenous females compared with non-Indigenous females; in 2008 it was 2.52, but it has decreased substantially since the 1960s, when it was 5.8.

Age-specific fertility rates

Until the mid-1970s the distribution of fertility across all age groups was relatively stable, with 20–24 years and 25–29 years being the peak fertility age groups (Figure 2.3). Since then, fertility rates in these age groups have declined and fertility rates in the older age groups have risen.

In 2004, for the first time, the fertility of females aged 35–39 years exceeded that of females aged 20–24 years, with this trend continuing—and the difference increasing—since then. The age-specific fertility rates for all age groups, except for those aged 25–29 years, increased between 2007 and 2008.

Births per 1,000 females

Notes

1. The number of live births during the calendar year, according to the age of the mother, per 1,000 of the female resident population of the same age at 30 June.
2. In the calculation of these rates, births to females aged under 15 years are included in the 15–19 years age group.

Sources: ABS 2008a, 2009b.

Figure 2.3: Age-specific fertility rates, 1928 to 2008

Median age of mothers

The median age of females giving birth is another useful measure of the fertility patterns in a population. The median age has been increasing over the past few decades, reflecting the increase in fertility rates in the older age groups. The median age of all females who gave birth in 1997 was 29.4 years; by 2008 this had increased to 30.7 years (ABS 2009b).

A more specific form of this measure is the median age of females at the birth of their first child. The median age of first-time mothers in 2007 was 28.0 years (Laws & Sullivan 2009). This age, similarly to the median age of all females giving birth, has also been rising over the past few decades. This trend can be attributed to a number of factors including social, educational and economic influences, and increased access to assisted reproduction technology (Carolan 2003; Cleary-Goldman et al. 2005).

More about Australia's mothers and babies can be found in Chapter 6.

Migration

Inward and outward migration (immigration and emigration, respectively) also contribute to population change. Immigration has been a major factor in shaping Australian society, and today one-quarter of the population was born overseas.

A simple way to measure the effect of migration on the population is to consider the value of net overseas migration. This is calculated as the number of long-term or permanent arrivals minus the number of long-term or permanent departures. Australia's net overseas migration in 2008–09 was more than 285,000 persons, accounting for 64% of the country's net population growth over the 12 months to June 2009 (ABS 2009a).

In most countries, including Australia, immigrants who are not refugees are selected on various grounds, including their health status. For this reason, their health tends to be as good as or better than that of the general population—a phenomenon known as the 'healthy migrant effect'. On the other hand, socioeconomic, cultural and genetic factors mean that some risk factors and diseases are more common among certain immigrant groups. Information on the health of overseas-born Australians can be found in Chapter 5.

Mortality

Data on death and its causes are vital measures of a population's health. Examining trends and patterns in mortality can help to explain changes and differences in health status, evaluate health strategies, and guide planning and policy making. Cause-specific mortality (which is discussed in Section 2.6) provides further insight into the events contributing to deaths, and changes in the pattern of these causes reflect changes in behaviours, exposures, and social and environmental circumstances as well as the effects of medical and technological advances.

There were 137,854 deaths registered in Australia in 2007. Male deaths outnumbered female deaths (70,569 compared with 67,285), with a death rate ratio of 106 males to 100 females (Table 2.1). About 25% of male and 15% of female deaths in 2007 were of persons aged under 65. The median age at death was 77.5 years for males and 83.5 years for females (ABS 2008d).

Table 2.1: Deaths by age and sex, 2007

Age (years)	Males		Females		Sex ratio	
	Number	**Rate[a]**	**Number**	**Rate[a]**	**Crude[b]**	**Rate ratio[c]**
<1	655	460.8	548	407.9	120	113
1–14	294	15.1	212	11.4	139	132
15–24	928	61.2	372	25.8	249	237
25–44	3,467	115.3	1,810	60.0	192	192
45–64	12,244	469.4	7,453	282.6	164	166
65–84	35,938	3,158.8	27,109	2,110.1	133	150
85 and over	17,034	15,107.5	29,779	12,999.4	57	116
Unknown age	9	. .	2	. .	. .	. .
Total	**70,569**	**673.7**	**67,285**	**634.9**	**105**	**106**

. .   Not applicable.

(a)   Age-specific number of deaths per 100,000 persons.

(b)   Male deaths per 100 female deaths.

(c)   Male death rate divided by female death rate, multiplied by 100.

Note: For more detailed information, see Table S6 🖱 .

Source: ABS 2008d.

Trends

Death rates are declining in Australia, continuing a very long trend. The age-standardised death rate (Box 2.2) for females fell by 73% between 1907 and 2007, from 1,844 to 493 per 100,000. The corresponding male death rate fell by 68%, from 2,234 to 722 per 100,000.

Box 2.2: Comparing death rates: age standardisation

Statistics relating to deaths are sometimes presented as crude death rates, that is, the number of deaths in a year divided by the size of the corresponding population, indexed to 100,000. The crude death rate in Australia was 656 deaths per 100,000 persons in 2007.

However, the risk of getting various diseases and of dying varies greatly with age. This may make comparisons across populations misleading if they have different age structures, and even small age differences may lead to false conclusions. Similarly, analysis of time trends in death rates may be flawed unless this age relationship is taken into account. Age-specific comparisons can be made—that is, comparing death rates at specific ages—but this can be cumbersome because it requires numerous comparisons.

Variations in age structure, between populations or over time, can be adjusted for by a statistical procedure called age standardisation. This procedure converts the age structure of the different populations to the same 'standard' structure. Using age-specific rates from the different populations, overall rates that would occur in the standard age structure can be calculated and compared. This allows the different populations to be compared on an equal age basis.

Unless otherwise specified, death rates in this report have been directly age-standardised (see Glossary) to the Australian population as at 30 June 2001. Both the Australian Institute of Health and Welfare and the Australian Bureau of Statistics have agreed to adopt 2001 as the national standard population. This same standard population was used in the 2004, 2006 and 2008 editions of *Australia's health*. The population at 30 June 1991 was the standard used in the 1996, 1998, 2000 and 2002 editions, whereas the 1992 and 1994 editions used the population at 30 June 1988 as the standard. For this reason, age-standardised death rates in this publication are not directly comparable with those given in editions before 2004.

These reductions in mortality have occurred across all age groups. Mortality reductions in infancy and early childhood (0–4 years) have been substantial, with deaths in this age group accounting for 25% of all deaths in 1910, 15% in 1930 and 1% in 2007. Declining infant mortality (deaths of those aged under 1 year) contributed significantly to this. Death rates among those of 'parent age' (25–44 years) fell rapidly during the first half of the 20th century and have since continued to decline. Death rates among older Australians have also decreased considerably, particularly in the last 30–40 years (AIHW 2006).

With the great increase in Australia's population over the century, reductions in death rates do not necessarily mean a lower death count. The annual number of deaths increased from 45,305 in 1907 to 137,854 in 2007, but much of this reflects population growth. Although the bulk of deaths in Australia (46%) currently occurs among those aged 65–84 years, the number in the 85 years and over group is increasing rapidly. The latter group is already the category with the largest number of female deaths.

Life expectancy

Life expectancy is the average number of years a person can expect to live if the existing mortality patterns continue (Box 2.3). It is one of the most commonly used summary indicators of a population's health.

A direct consequence of declining death rates, as described earlier, is that Australians in general enjoy one of the highest life expectancies in the world. Australian females born in 2006–2008 could expect to live an average of 83.7 years, and a male could expect to live 79.2 years (ABS 2009c). But not all groups within the Australian community are so fortunate—among Aboriginal and Torres Strait Islander people, life expectancy at birth is considerably less than this. More detail about life expectancy for Indigenous Australians is presented in Chapter 5.

Box 2.3: Calculating life expectancy

Technically, life expectancy is the average number of years of life remaining to a person at any specified age. The most commonly used measure is life expectancy at birth, which estimates the average number of years a newborn can expect to live. Life expectancy is also calculated for other ages, for example at ages 30, 65 and 85 years.

Life expectancy for a person is based on the prevailing mortality patterns in a population; the calculation assumes that the current death rates will persist throughout the person's life. For example, the life expectancy of newborns is based on age-specific death rates that year and not on future, projected death rates.

In general, the Australian Bureau of Statistics calculates life expectancy based on 3 years of data. This reduces the effect of small variations in death rates from year to year. Life expectancy calculated in this way is reported as relating to a 3-year period, for example life expectancy for people born in 2006–2008.

For ease of understanding, in this report life expectancy is expressed as the age a person may expect to live to, rather than the additional number of years after achieving a particular age. For example, the life expectancy of a 65-year-old male is presented as 83.6 years, rather than 18.6 years.

Because of some difficulties in obtaining accurate information about deaths of Indigenous Australians, a slightly adjusted method is used to calculate life expectancy for Aboriginal and Torres Strait Islander people (see Chapter 5, Box 5.2).

Life expectancy at different ages

The calculation of life expectancy at birth takes into consideration factors affecting the full course of life, including the relatively higher death rates in the first few years of life. Some of these factors do not extend beyond those early years. People aged 30 years would have overcome many of these early risk factors and therefore would have a greater life expectancy. In 2006–2008, life expectancies for 30-year-old females and males were 84.5 years and 80.3 years respectively, about 0.8 years and 1.1 years greater than for newborns in that period.

These increments in life expectancy with age continue into the later years of life as well. In 2006–2008, Australian females and males aged 65 years could look forward to living to the ages of 86.6 years and 83.6 years respectively; again, substantially greater than life expectancy at birth and at age 30 years. For those aged 85 years, life expectancy was greater still at 92.0 years for females and 90.9 years for males.

Trends in life expectancy

Life expectancy in Australia has continued to improve during the 21st century, just as it did over the 20th. Apart from a period around 1960 to 1970, when the death rates for heart disease were at their peak, there was a clear and continual improvement in life expectancy throughout the last century and into this century.

The overall increase in life expectancy at birth between 1901–1910 and 2006–2008 was about 43%. For females, the increase was 24.9 years—from 58.8 to 83.7 years. For males, it was 24.0 years—from 55.2 to 79.2 (Table 2.2). Male life expectancy has been consistently lower than for females all through this period, although the size of the difference has varied.

Table 2.2: Life expectancy (years) at different ages, 1901–1910 and 2006–2008

	Males		Females	
Age	1901–1910	2006–2008	1901–1910	2006–2008
Birth	55.2	79.2	58.8	83.7
30	66.5	80.3	69.3	84.5
65	76.3	83.6	77.9	86.6
85	88.7	90.9	89.2	92.0

Note: For more detailed information, see Table S8 🖱 .
Sources: ABS 2008c, 2009c.

Early in the 20th century, improvements in life expectancy were made at middle or younger ages, with reductions in infant and child mortality being the major contributors (Figure 2.4). Life expectancies at birth and at age 30 years showed similar increasing trends over most of the 20th century. Life expectancy at age 65 years increased only slightly between the early 1900s and 1970, but from 1970 on it has consistently improved. Improvements in life expectancy for persons aged 85 years have also occurred since the 1970s.

Life expectancy (years)

Legend:
- At age 85
- At age 65
- At age 30
- At age 1
- At birth

Note: Some estimates have been pro-rated for missing years and for consistent time intervals, and are usually based on 3-year periods.
Source: ABS 2008b.
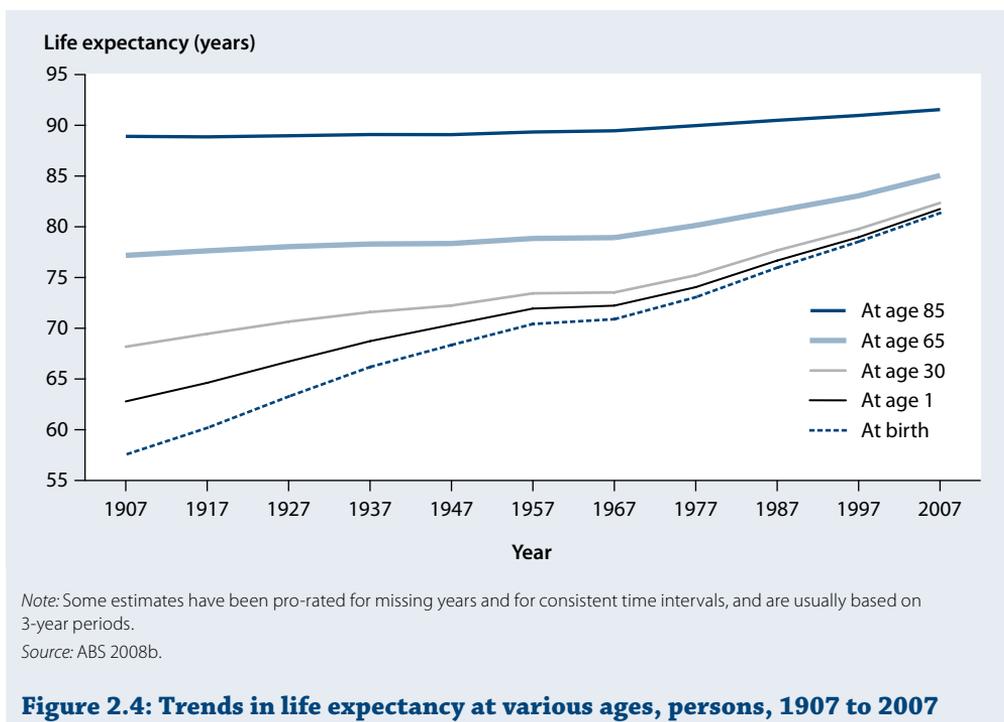
Figure 2.4: Trends in life expectancy at various ages, persons, 1907 to 2007

International comparisons of life expectancy

Overall, Australians enjoy one of the highest life expectancies in the world, at 81.4 years in 2007 for males and females combined—second only to Japan, at 82.6 years (OECD 2009b).

The Australian male life expectancy in 2007 (79.0 years) was marginally behind Iceland and Japan. Life expectancy for Australian females (83.7 years) was also among the countries with the highest life expectancy (Table 2.3).

Table 2.3: Life expectancy (years) at birth, selected countries, 2007

Country	Males	Country	Females
Iceland	79.4	Japan	86.0
Japan	79.2	France	84.4
Australia	**79.0**	**Australia**	**83.7**
Sweden	78.9	Sweden	83.0
New Zealand	78.2	Austria	82.9
Netherlands	78.0	Iceland	82.9
France	77.5	Korea	82.7
Austria	77.3	Netherlands	82.3
Greece	77.0	New Zealand	82.2
Korea	76.1	Greece	82.0
Mexico	72.6	Poland	79.7
Poland	71.0	Slovak Republic	78.1
Slovak Republic	70.5	Mexico	77.4
Turkey	69.3	Hungary	77.3
Hungary	69.2	Turkey	74.2

Source: OECD 2009b.

2.2 How Australia compares

In most aspects of health Australia matches or leads other comparable countries (those from the Organisation for Economic Co-operation and Development: OECD). Figures 2.5 and 2.6 show broadly how Australia ranked in 1987 and 2006 on various measures of health among the 30 member countries of the OECD. Where data were available for a substantial number of countries (on average, 24 countries for each indicator), comparisons were made for the years 1987 and 2006. In a few cases data relate to the preceding or following 1 or 2 years.
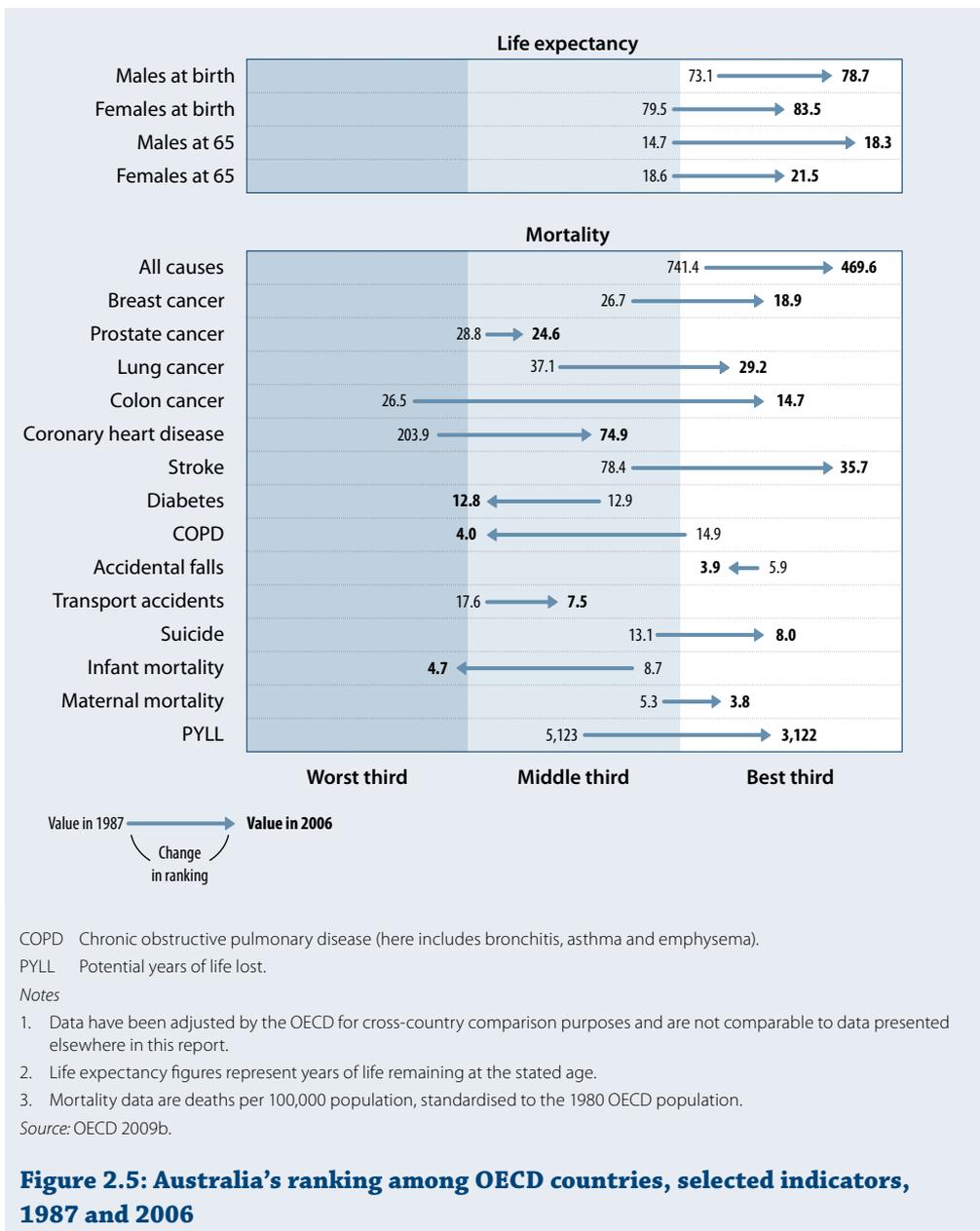
As well as rankings, actual rates or numbers for each indicator are shown on the figures. This is because the level of an indicator may have improved even though Australia's comparative ranking has fallen, and vice versa. For each indicator:
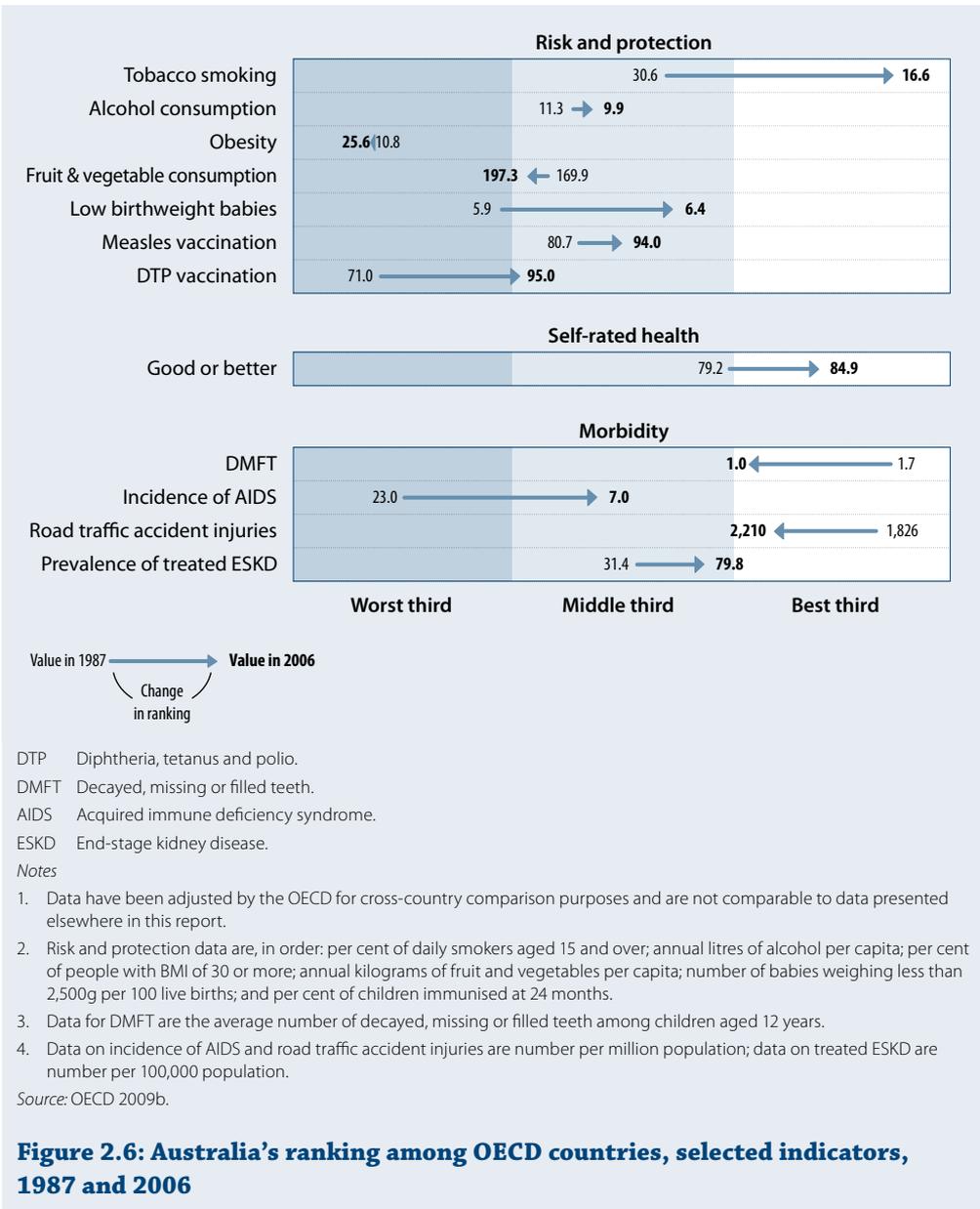
- the direction and position of the arrow shows the change in ranking over the period

- the data next to the arrow head is the most recent value.

Figure 2.5 shows Australia's standing with regard to life expectancy and mortality. In 2006, Australia's life expectancy at birth and at age 65 were among the highest in the world, both having increased substantially over the previous 20 years. Between the years compared, Australia's ranking among OECD countries improved markedly for mortality rates from coronary heart disease, stroke, lung cancer and colon cancer. However, since 1987 our ranking has fallen in relation to death rates for chronic obstructive pulmonary disease, diabetes and, to a lesser extent, accidental falls, although the actual death rates for these diseases have decreased. Notably, our ranking on infant mortality rates decreased from the middle third to the worst third, although the actual rates have almost halved from 8.7 to 4.7 deaths per 1,000 live births.

Australia's ranking in relation to a range of other factors is shown in Figure 2.6. Our smoking rates have continued to fall, with the ranking improving from middle third to best third. However, our obesity rates are still among the highest in the world, with around 1 in 4 Australian adults being obese.

The ranking for low birthweight babies improved between 1987 and 2006, moving from the worst third into the middle third, although the proportion of Australian babies with low birthweight actually increased slightly over this time. Similarly, the incidence of treated end-stage kidney disease in Australia has more than doubled, but our comparative ranking has improved. Childhood immunisation rates have improved substantially, although our ranking on this measure is comparatively low due to the large number of countries with close to complete child immunisation. The incidence of AIDS in Australia has decreased by almost 70% since 1987, moving it from the worst third into the middle third.

2

Life expectancy

Males at birth	73.1 →	**78.7**
Females at birth	79.5 →	**83.5**
Males at 65	14.7 →	**18.3**
Females at 65	18.6 →	**21.5**

Mortality

All causes	741.4 →	**469.6**
Breast cancer	26.7 →	**18.9**
Prostate cancer	28.8 → **24.6**	
Lung cancer	37.1 →	**29.2**
Colon cancer	26.5 →	**14.7**
Coronary heart disease	203.9 → **74.9**	
Stroke	78.4 →	**35.7**
Diabetes	**12.8** ← 12.9	
COPD	**4.0** ← 14.9	
Accidental falls		**3.9** ← 5.9
Transport accidents	17.6 → **7.5**	
Suicide	13.1 →	**8.0**
Infant mortality	**4.7** ← 8.7	
Maternal mortality	5.3 → **3.8**	
PYLL	5,123 →	**3,122**

Worst third   **Middle third**   **Best third**

Value in 1987 → **Value in 2006**
Change in ranking

COPD   Chronic obstructive pulmonary disease (here includes bronchitis, asthma and emphysema).

PYLL   Potential years of life lost.

Notes

1. Data have been adjusted by the OECD for cross-country comparison purposes and are not comparable to data presented elsewhere in this report.

2. Life expectancy figures represent years of life remaining at the stated age.

3. Mortality data are deaths per 100,000 population, standardised to the 1980 OECD population.

Source: OECD 2009b.

Figure 2.5: Australia's ranking among OECD countries, selected indicators, 1987 and 2006

Figure 2.6: Australia's ranking among OECD countries, selected indicators, 1987 and 2006

DTP   Diphtheria, tetanus and polio.

DMFT   Decayed, missing or filled teeth.

AIDS   Acquired immune deficiency syndrome.

ESKD   End-stage kidney disease.

Notes

1. Data have been adjusted by the OECD for cross-country comparison purposes and are not comparable to data presented elsewhere in this report.

2. Risk and protection data are, in order: per cent of daily smokers aged 15 and over; annual litres of alcohol per capita; per cent of people with BMI of 30 or more; annual kilograms of fruit and vegetables per capita; number of babies weighing less than 2,500g per 100 live births; and per cent of children immunised at 24 months.

3. Data for DMFT are the average number of decayed, missing or filled teeth among children aged 12 years.

4. Data on incidence of AIDS and road traffic accident injuries are number per million population; data on treated ESKD are number per 100,000 population.

Source: OECD 2009b.

2.3 Perceptions of health and life

As Chapter 1 pointed out, health is not just the absence of disease but also encompasses 'physical, mental and social wellbeing'. One way of measuring this aspect of health is to ask people how they feel about their own health, their state of mind and their life in general. Although they are based on a person's own opinion, the answers to these types of questions seem often able to capture the combined effects of various physical and psychological factors. Studies also indicate that these self-assessments are useful in predicting a person's future health, including how long they will live (Idler et al. 1999).

In Australia, information about individual and population health states is collected through national and state-wide surveys. In particular, three surveys run by the Australian Bureau of Statistics (ABS) provide national information on three major aspects of Australia's health:

- the National Health Survey (NHS; Box 2.4) provides self-reported general health information on a regular basis. The latest NHS was conducted in 2007–08.

- the National Survey of Mental Health and Wellbeing (NSMHWB; Box 2.5) is a useful source of information about mental health and mental disorders. The 2007 survey also collected information about self-perceived physical and mental health.

- the Survey of Disability, Ageing and Carers (SDAC; Box 2.6) provides information about the functional limitations and activity restrictions experienced by individuals, and the assistance they need and receive. Results from the latest survey, run in 2009, are not yet available.

Much of the information from these surveys about perceptions of health can be linked to people's background health issues, long-term conditions and disability. It may also be linked to their health risk factors and behaviours.

This section provides an overview of perceptions of health and life in Australia based on self-reports from the two latest ABS surveys—the 2007–08 NHS and the 2007 NSMHWB. Perceptions of physical health, mental health and quality of life are presented for the Australian population as a whole, as well as for those with disability and certain long-term conditions. In addition, Chapter 5 presents some information about self-perceived health among different population groups.

Box 2.4: National Health Survey

The National Health Survey (NHS) is a face-to-face survey run every 3 years by the Australian Bureau of Statistics. It is designed to obtain information on the health of Australians, their use of health services and facilities, and health-related aspects of their lifestyle (ABS 2009d). The survey aims to be nationally representative, but it does not include information from people living in non-private dwellings or institutions (such as nursing homes, hospitals or prisons). The most recent survey was run in 2007–08, with previous surveys run in 2004–05, 2001, 1995, 1989–90, 1983 and 1977.

The NHS data, based on self-reports, cover assessment of health, the presence of various long-term conditions, health risk factors and the use of health services. For some conditions, information is also collected about age at diagnosis, medications used and other actions taken for treatment or management. The latest survey also asked about a person's disability level and associated restrictions in everyday activities.

For self-assessment of health, survey respondents aged 15 years and over are asked to rate their general health status against five categories—excellent, very good, good, fair or poor. Respondents aged 18 years and over are also asked a series of questions about their feelings and emotions, called the Kessler Psychological Distress Scale, which gives an indication of their psychological distress levels over the past month.

General health

As this chapter shows, most Australians enjoy good health, and self-assessments of health by respondents to the 2007–08 NHS support this. A large proportion of respondents reported that their health was good, very good or excellent. Fewer than 1 in 6 reported that their health was fair or poor (Table 2.4). A similar proportion of respondents to the 2007 NSMHWB reported their physical health as fair or poor.

Despite the fact that males do more poorly than females on many other indicators of health status—such as life expectancy—no differences between males and females were found in health ratings.

Table 2.4: Trends in self-assessed health status, persons aged 15 years and over (per cent)

	Males			Females			Persons		
Rating	2001	2004–05	2007–08	2001	2004–05	2007–08	2001	2004–05	2007–08
Excellent/ very good	50.1	54.7	54.8	52.9	58.1	57.3	51.5	56.4	56.1
Good	31.4	28.8	29.6	29.2	26.9	28.5	30.2	27.8	29.0
Fair/poor	18.5	16.5	15.6	17.9	15.1	14.2	18.2	15.7	14.9

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

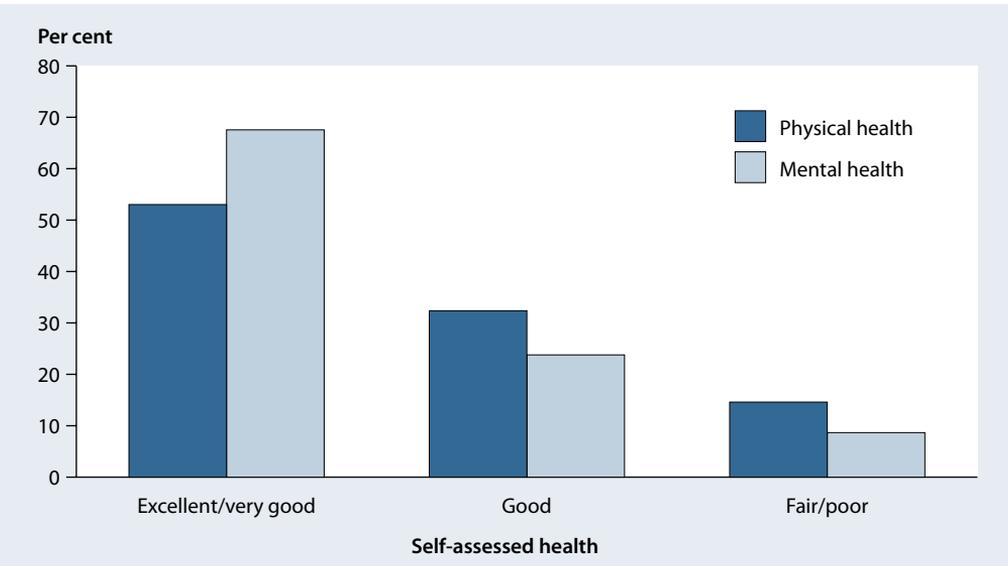*Source:* AIHW analysis of the 2001, 2004–05 and 2007–08 National Health Surveys.

The proportion of respondents reporting their health as fair or poor is on the decline, from 18.2% in 2001 to 14.9% in 2007–08 (Table 2.4). The results from the 2007 NSMHWB confirm this downward trend.

Unsurprisingly, the proportion of people reporting their health as fair or poor increases with age. While fewer than 1 in 10 of those aged 15–24 years reported their health as fair or poor in the 2007–08 NHS, this increased to 3 in 10 among those aged 65 years and over. Similar age patterns for self-assessed physical health were noted in the 2007 NSMHWB (see Figure 2.8*).

Mental health

Based on the 2007 NSMHWB (see Box 2.5), many Australians—45% of those aged 16–85 years—have had one or more mental disorders in the course of their life (ABS 2008e). However, when referring to their present mental health, two-thirds of the NSMHWB respondents rated it as excellent or very good (Figure 2.7). Fewer than 1 in 10 respondents rated their mental health as fair or poor. No differences between males and females were found in mental health ratings.

Although physical health tends to deteriorate as we age, mental health does not follow the same pattern. Figure 2.8 shows that the percentage of people rating their mental health as fair or poor tends to remain fairly constant as age increases.
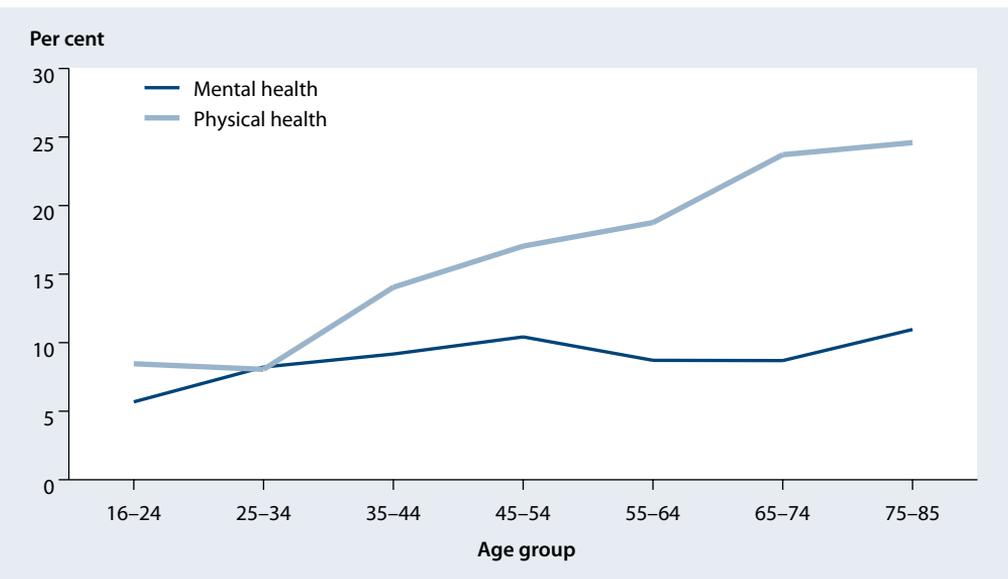
Per cent

Notes

1. Persons aged 16–85 years.
2. Based on self-reported information.
3. Data are age-standardised to the Australian population as at June 2001.

Source: AIHW analysis of the 2007 National Survey of Mental Health and Wellbeing.

Figure 2.7: Self-assessed physical and mental health, 2007

Per cent

Note: Persons aged 16–85 years.

Source: AIHW analysis of the 2007 National Survey of Mental Health and Wellbeing.

Figure 2.8: Self-assessed fair/poor health status, by age group, 2007

Box 2.5: National Survey of Mental Health and Wellbeing

The National Survey of Mental Health and Wellbeing (NSMHWB), conducted by the Australian Bureau of Statistics, is designed to obtain national information on the prevalence of mental health disorders among Australians aged 16–85 years (ABS 2008e). The most recent survey was run in 2007, with a previous survey in 1997. The 2007 survey focused on the three most common groups of mental disorders: affective disorders (including depression), anxiety disorders and substance use disorders. The survey does not include information from people living in non-private dwellings or institutions (such as nursing homes, hospitals or prisons).
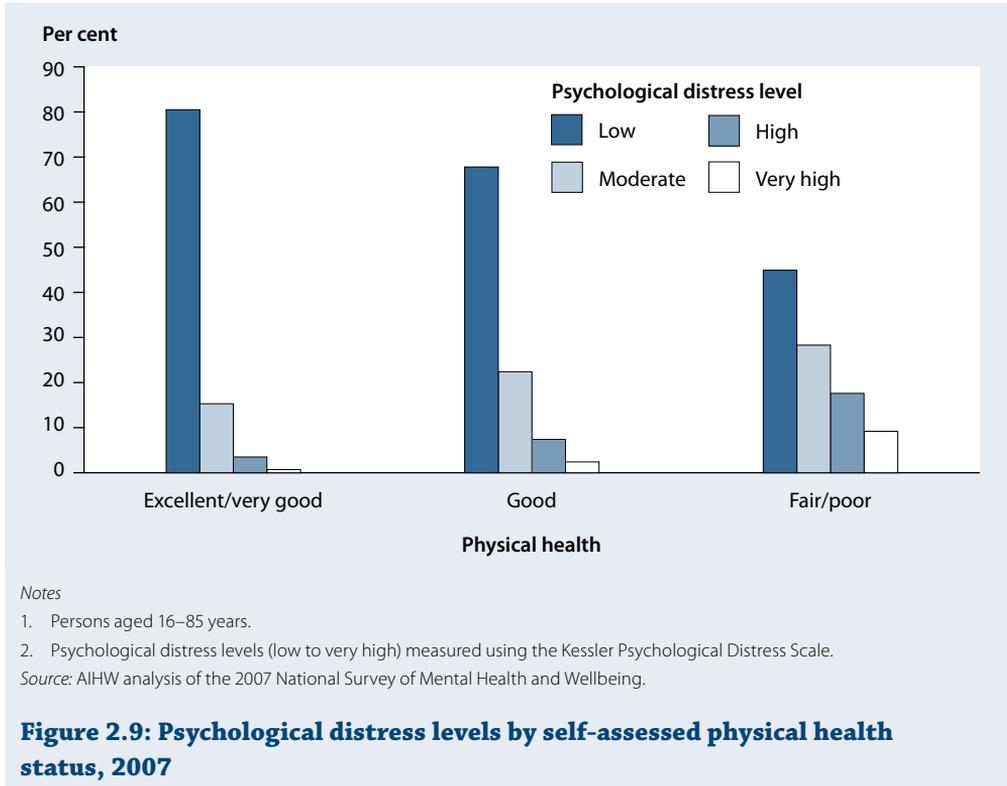
The 2007 NSMHWB included a variety of diagnostic modules derived from the World Mental Health-Composite International Diagnostic Interview (WMH-CIDI) instrument. The information collected through these modules can be used to determine whether a person meets diagnostic thresholds for the mental disorders included in the survey. People who meet these thresholds are sufficiently unwell to be diagnosed with the given mental disorder if they were to be assessed by a doctor according to standard diagnostic criteria.

Other information from the 2007 NSMHWB is based on self-reports and includes physical conditions, the use of health services for mental health problems, and information about social networks and care giving. People were also asked about the nature and severity of any activity limitations or disability.

Respondents were asked to assess their physical and mental health against five grades from excellent to poor, as in the National Health Survey. They were also asked to assess their quality of life and how they felt about their current health status compared with 1 year ago. The Kessler Psychological Distress Scale was applied to measure psychological distress levels among respondents.
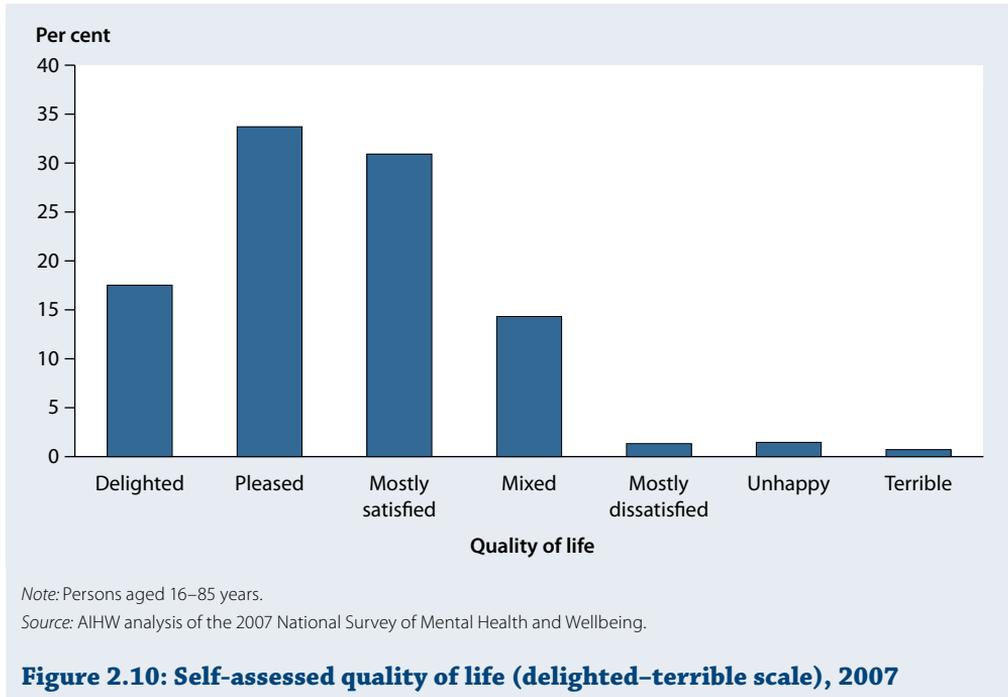
Psychological distress

When asked about their feelings and emotions over the previous month, around 1 in 10 respondents to the 2007 NSMHWB showed high to very high levels of psychological distress. There is a strong relationship between self-assessed physical health and psychological distress ratings. Of the respondents who rated their physical health as fair or poor, 1 in 4 had high to very high psychological distress levels compared with less than 1 in 20 of those who rated their physical health as very good or excellent (Figure 2.9). Not surprisingly, more than half of those who rated their mental health as fair or poor reported high to very high levels of psychological distress.

Notes
1.   Persons aged 16–85 years.

2.   Psychological distress levels (low to very high) measured using the Kessler Psychological Distress Scale.

Source: AIHW analysis of the 2007 National Survey of Mental Health and Wellbeing.

Figure 2.9: Psychological distress levels by self-assessed physical health status, 2007

Future outlook on health

When asked in the 2007 NSMHWB about their quality of life over the previous year and how they felt about the future, most respondents said they were mostly satisfied, pleased or delighted. Around 14% of respondents said they had mixed feelings about their life, while less than 5% were displeased (Figure 2.10).

Note: Persons aged 16–85 years.
Source: AIHW analysis of the 2007 National Survey of Mental Health and Wellbeing.

Figure 2.10: Self-assessed quality of life (delighted–terrible scale), 2007

As might be expected, most respondents who rated their physical and mental health as good, very good or excellent were satisfied with their quality of life, whereas those rating their health as fair or poor were more likely to report mixed feelings.

Self-assessed health and other health indicators

Data about self-assessed health in the NHS can be linked to information about other indicators of health, such as disability level, presence of long-term conditions, and health risk factors and behaviours. Although data from cross-sectional surveys like the NHS cannot show cause and effect, Table 2.5 shows that, in general, the relationships between self-assessed health and these types of indicators follow expected patterns.

For example, those with healthy behaviours—such as healthy weight, not smoking, and eating plenty of fruit and vegetables—were more likely than those with risky behaviours to rate their health as very good or excellent. Similarly, those without any long-term conditions rated their health more favourably than those who did have such a condition. The relationship varies with the type of disease or condition: according to the 2007–08 NHS, those with cancer or diabetes were more likely to rate their health as fair or poor in comparison with those with back pain (42% compared with 24%). Those with severe disability were also much more likely to rate their health as fair or poor compared with those without disability.

Table 2.5: Self-assessed health status and other health indicators, 2007–08 (per cent)

	Health status		
Indicator	Excellent/very good	Good	Fair/poor
Has a long-term condition	54	30	16
Has back pain or a disc disorder	45	32	24
Has cancer	30	28	42
Has diabetes	19	39	42
No long-term condition	74	22	4
Has profound or severe disability[(a)]	17	23	60
No disability	69	26	5
Healthy weight (BMI 18.5–24.9)	63	25	12
Obese (BMI ≥ 30)	36	39	25
Daily smoker	39	38	23
Never smoked	62	27	11
Eats 4 or more serves of vegetables daily	62	25	13
Does not eat vegetables	40	29	31

BMI   Body mass index.

(a)   The person sometimes or always needs help with a self-care, mobility or communication task.

Notes

1.   Persons aged 15 years and over.

2.   Based on self-reported information.

3.   Data are age-standardised to the Australian population as at 30 June 2001.

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

2.4 Functioning, disability and health

What is disability?

A basic measure of our health and wellbeing is how well we function from day to day. Do we feel sufficiently energetic and well? Can we move around and can we feed, dress and generally take care of ourselves? How well can we communicate with others, and can we take part in work and wider social activities?

Diseases and injuries can often impair how a person functions for a while, but mostly they recover fully. However, for some people the effect can be long term because there is lasting damage or the health condition is chronic. Alternatively, a person may have some permanent impairment from birth. In both these situations, the resulting disability may bring special needs for assistance into the person's daily life.

These days we have moved away from categorising people as 'disabled'. We look instead at how they are able to function day-to-day and the effects that health and other conditions have on their lives. A person's experience of disability is also affected by their environment: do structures, systems and services provide support for social and economic participation, health and wellbeing, or are there barriers? For example, are buildings and public transport designed so that people with wheelchairs can gain access to them? Do policies make it easier for people with disability to be employed where possible?

The ABS Survey of Disability, Ageing and Carers (SDAC; Box 2.6) looks at how well a person is able to function in the basic ('core') activities of everyday life—self-care, mobility and communication—to see if they are limited or restricted in those activities. It also looks at schooling and employment in the same light. From this survey we can determine how many Australians have functional impairment and what degree or severity of limitation it causes them.

This section provides an overview of how many Australians have activity or participation limitations and restrictions, including projections of future prevalence. It also provides a special snapshot of mental health among people with disability, using data from the 2007 National Survey of Mental Health and Wellbeing (NSMHWB). More detailed information, including a comparison of the general health of Australians with and without disability, is in Chapter 5.

Box 2.6: Survey of Disability, Ageing and Carers

Conducted by the Australian Bureau of Statistics, the Survey of Disability, Ageing and Carers (SDAC) collects information on people with disability, older people (aged 60 years or over), and people who care for an older person or a person with disability (ABS 2004). Surveys were run in 1988, 1993, 1998 and 2003, with the latest survey (results of which are not yet available) run in 2009.

The SDAC covers people in private and non-private dwellings. This includes people in cared accommodation establishments but excludes those in correctional institutions. The survey collects data on disability due to impairments, activity limitations and participation restrictions, health status, causes of disability, the need for and receipt of assistance with various activities, and information about caring and its effects on the carer.

The 2003 SDAC collected information about the nature and severity of specific activity limitations or restrictions in 'core activities' (self-care, mobility and communication), and in schooling or employment. The severity of a person's disability was determined based on their level of core activity limitation. This was classified as:
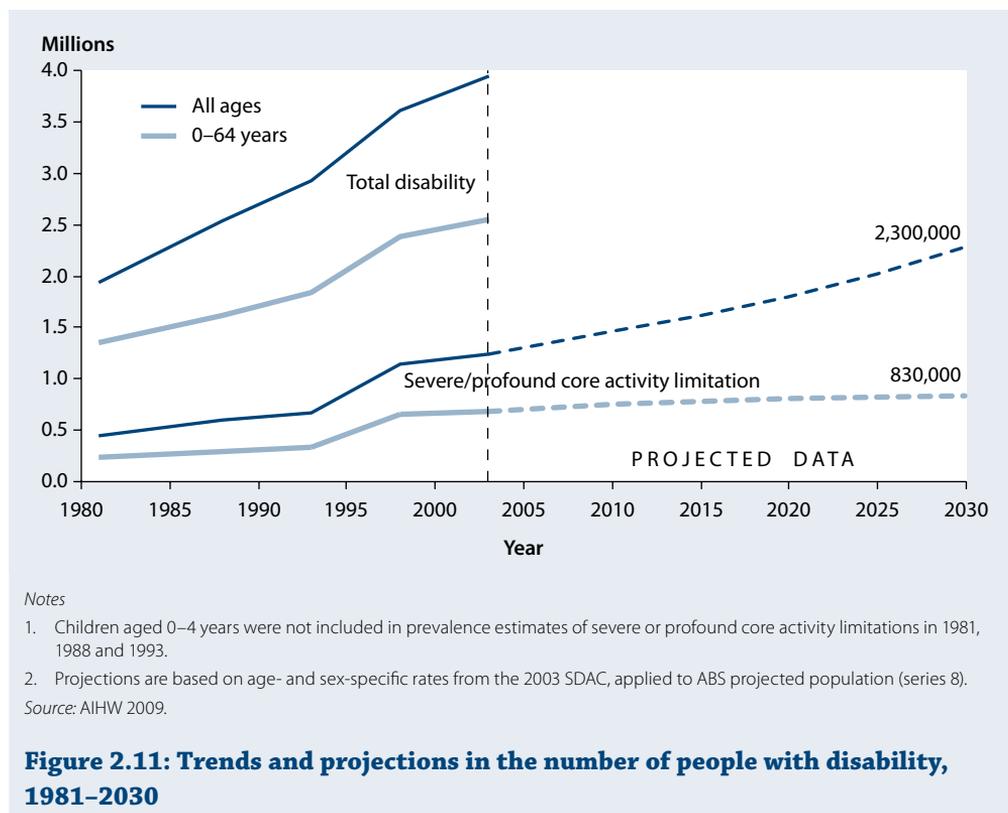
- profound—the person is unable to do, or always needs help with, a core activity task
- severe—the person sometimes needs help with a core activity task, has difficulty being understood by family and friends, or can communicate more easily in sign language or other non-spoken forms of communication
- moderate—the person needs no help but has difficulty with a core activity task
- mild—the person has no difficulty with any core activity tasks, but uses aids or special equipment, has difficulty using public transport, and cannot easily walk 200 m, bend to pick up an object off the floor, or walk up and down stairs without a handrail (ABS 2004).

Respondents to the survey could also report any other limitations or restrictions in non-core activities.

Australians with disability

In 2003 an estimated 3.9 million Australians had some degree of disability, of whom 1.2 million (6% of the population) had severe or profound core activity limitations (ABS 2004). Disability rates and severity of limitation or restriction varied with age. In particular, the prevalence of severe or profound core activity limitation (referred to in this section as 'severe disability') increased from around 2% of young adults to 12% of people aged 65–74 years and 58% of those aged 85 years and over.

It is projected that, by 2030, the number of Australians living with severe disability will have increased to 2.3 million because of population growth and ageing (Figure 2.11).

Notes

1. Children aged 0–4 years were not included in prevalence estimates of severe or profound core activity limitations in 1981, 1988 and 1993.
2. Projections are based on age- and sex-specific rates from the 2003 SDAC, applied to ABS projected population (series 8).

Source: AIHW 2009.

Figure 2.11: Trends and projections in the number of people with disability, 1981–2030

The 2007–08 NHS and the 2007 NSMHWB also asked respondents about functioning, using a shortened version of the disability assessment questionnaire from the SDAC, called the Short Disability Module. These data can be used to examine aspects of physical and mental health among people with disability living in the community, and to compare the health of people with and without disability. However, unlike the SDAC, these surveys do not include people living in non-private dwellings, such as cared accommodation. As a result they are likely to exclude many people with disability, particularly those with more severe limitations. Also, the Short Disability Module does not include all of the components generally used for assessing disability. The NHS and NSMHWB cannot therefore be used to estimate the prevalence of disability in Australia.

Disability and mental health

A growing body of international evidence suggests that the mental health of people with disability is markedly poorer than that of others (Chan et al. 2004; Emerson 2003; Okoro et al. 2009; Scott et al. 2009; White et al. 2005). Australian data support this. The 2007 NSMHWB suggests that more than half of people aged 16–64 years with severe or profound disability had symptoms of a mental disorder in the previous 12 months (see Box 2.7). Almost 30% of all people with disability had experienced a mental disorder with symptoms in the previous 12 months.

Box 2.7: Mental health data

The 2007 National Survey of Mental Health and Wellbeing (see Box 2.5) provides a number of different measures of the prevalence of mental disorders. These are based on whether or not the person has reported having symptoms, either during their lifetime or in the last 12 months, of selected major disorders—those being anxiety disorders, affective disorders and substance use disorders. Each measure sheds light on different aspects of mental disorder and potential service needs.

The data used in this section focus on people who reported symptoms of a major mental disorder in the previous 12 months. This is because these people will often be those who currently need intervention and specific help. However, because these data alone would provide an inadequate picture of the overall prevalence of major mental disorders among people with disability, lifetime data (that is, a disorder at any point in a person's life, with or without symptoms in the last 12 months) are also provided. Table 2.6 gives figures for both lifetime mental disorders and disorders with symptoms in the last 12 months, along with data on the specific classes of disorder.

Broadly speaking, rates of mental disorders increase with higher levels of activity limitation or restriction, with the exception of alcohol use disorder (Table 2.6). Anxiety disorder and affective disorders stand out among people with severe or profound core activity limitations, particularly those aged 16–64 years, at rates of 45% and 27% respectively. In each disability category, depressive episodes are around three times as common among people aged 16–64 years as among people aged 65–85 years. Of particular concern is the large number of people with disability reporting that they had seriously considered suicide in the previous 12 months.

Substance use disorder (that is, harmful use or dependence on illicit or licit drugs) is most common among people aged 16–64 years with the highest level (profound or severe) of core activity limitation, double the rate among people the same age without disability. Elevated rates of substance use disorder are also apparent among people with less severe limitations and restrictions. Mental disorders specifically related to alcohol use tell a slightly different story: alcohol use disorder is most prevalent among 16–64 year olds with disability but without specific limitations or restrictions.

Table 2.6: Mental disorders and comorbidities among Australians with disability, by disability status, people aged 16–85 years, 2007

	Disability status						
	Severe/ profound core activity limitation		Moderate/ mild core activity limitation or schooling/ employment restriction		No specific limitation or restriction		
	16–64 years	65–85 years	16–64 years	65–85 years	16–64 years	65–85 years	Total
Number in group ('000)	306	175	1,609	359	2,360	960	5,769
	Per cent						Number ('000)
Any lifetime mental disorder	81.1	44.2	72.2	36.6	60.3	30.0	3,329
Any 12-month mental disorder[a]	56.0	20.1	42.8	12.5	29.0	7.6	1,697
Anxiety disorder[a]	44.7	13.1	33.3	8.4	22.7	5.4	1,313
Depressive episode[a]	16.9	6.4	12.1	4.3	5.8	1.6	425
Bipolar affective disorder[a]	9.2	1.4	5.7	n.p.	2.0	0.1	169
Affective disorder[a]	27.0	7.8	19.4	4.8	8.3	2.1	641
Substance use disorder[a]	9.7	2.0	8.1	1.2	7.0	0.9	337
Alcohol use disorder[a]	5.2	1.8	5.7	1.2	5.9	0.9	263
Considered suicide[b]	15.0	1.8	8.0	1.2	2.9	1.1	261

n.p. Not published due to small sample size.

(a)   Disorder with symptoms in the previous 12 months.

(b)   Seriously considered committing suicide in the previous 12 months.

Source: AIHW analysis of ABS 2007 NSMHWB confidentialised unit record file.

Disability or health?

Disability is defined in the context of health in the International Classification of Functioning, Disability and Health (WHO 2001), but this does not necessarily mean that a person with disability is in poor health. Disability may arise in the interaction of health conditions and environmental and personal factors, and in many cases the health condition involved may have long since passed. As shown in Table 2.5, 40% of 2007–08 NHS respondents who had severe or profound disability rated their health as good, very good or excellent.

As the preceding section on mental health suggests, health conditions can be an outcome of disability as well as a cause of it. For example, people with physical disabilities and who cannot exercise may be at risk of problems such as heart disease, Type 2 diabetes and osteoporosis. Other health conditions can also arise and progress independently of a person's pre-existing disability. Although they cannot show causation, data from the 2007–08 NHS suggest that people with disability are far more likely than people without disability to have multiple health conditions (see Figure 5.8 and Section 5.4).

Among those with disability and health conditions it may be difficult to determine whether a new symptom is a complication of an existing condition or represents a new problem. For example, symptoms of depression are sometimes thought to be due to a person's intellectual disability rather than a new, unrelated and treatable health condition. This problem, where a pre-existing condition that affects a person's functioning obscures new symptoms, is called 'diagnostic overshadowing'.

The common occurrence of mental disorders and other long-term health conditions among people with severe disability suggests that there is a considerable risk of this problem occurring. This has many implications for the health status and needs of people with disability, because they may not get the diagnosis and help they need to stay healthy and function as well as possible.

2.5 Long-term conditions

Based on the latest NHS, an estimated 75% of Australians had a long-term condition in 2007–08—that is, a disease or health problem that had lasted, or was expected to last, 6 months or more. This proportion has remained stable for over 10 years (74.5% in 1995 compared with 75.3% in 2007–08).

Many conditions are commonly reported by both males and females (Table 2.7), but some are more commonly reported by one or the other sex. For example, hearing loss and high cholesterol feature in the top 10 conditions reported by males, whereas osteoarthritis and migraines are more commonly reported by females.

The list of top 10 conditions in the table below is similar to that reported in previous editions of *Australia's health*, except that mood (affective) disorders entered this ranking for the first time in 2007–08.

Table 2.7: Commonly reported long-term conditions, 2007–08

Condition	Males		Females	
	Per cent	Rank	Per cent	Rank
Long-sightedness	22.8	1	28.5	1
Short-sightedness	20.1	2	25.3	2
Hayfever and allergic rhinitis	14.1	3	16.0	3
Back pain/problems, disc disorders[a]	14.1	4	13.5	4
Hearing loss	13.1	5	7.4	11
Asthma	8.9	6	11.0	6
Hypertensive disease	8.8	7	10.0	7
Chronic sinusitis	6.7	8	11.2	5
Mood (affective) problems	6.2	9	8.7	9
High cholesterol	6.0	10	5.4	15
Osteoarthritis	5.9	11	9.7	8
Migraine	3.3	16	8.0	10

(a)   Includes back problems not elsewhere classified.
Source: ABS 2009d.

Age-specific distributions

The types of long-term conditions that people reported varied with age (Table 2.8). For example, conditions such as asthma, and hayfever and rhinitis were common in the younger age groups, whereas osteoarthritis and hypertensive diseases (high blood pressure or related conditions) featured as common conditions for those aged 55 years and over. Long- and short-sightedness were common in most age groups. As noted above, 2007–08 saw the emergence of mood (affective) disorders as commonly reported conditions; these were most apparent in the 15–24 years and 25–34 years age groups.

Table 2.8: Five most commonly reported long-term conditions, by age group, 2007–08

Age (years)	Condition	Per cent[a]	Age (years)	Condition	Per cent[a]
0–14	Asthma	10.3	45–54	Long-sightedness	49.5
	Hayfever & allergic rhinitis	7.2		Short-sightedness	31.8
	Allergy (undefined)	5.4		Back pain & disc problems[b]	20.8
	Short-sightedness	4.0		Hayfever & allergic rhinitis	17.7
	Long-sightedness	3.5		Chronic sinusitis	12.6
15–24	Hayfever & allergic rhinitis	17.5	55–64	Long-sightedness	59.4
	Short-sightedness	17.2		Short-sightedness	37.6
	Asthma	11.2		Hypertensive diseases	23.6
	Back pain & disc problems[b]	8.6		Back pain & disc problems[b]	22.9
	Mood (affective) disorders	7.8		Osteoarthritis	20.4
25–34	Short-sightedness	22.6	65–74	Long-sightedness	56.4
	Hayfever & allergic rhinitis	19.2		Short-sightedness	37.3
	Back pain & disc problems[b]	14.1		Hypertensive diseases	32.0
	Mood (affective) disorders	9.8		Hearing loss	26.3
	Chronic sinusitis	9.6		Osteoarthritis	23.6
35–44	Short-sightedness	22.7	75 and over	Long-sightedness	52.6
	Hayfever & allergic rhinitis	20.7		Hearing loss	41.8
	Back pain & disc problems[b]	17.8		Hypertensive diseases	38.7
	Long-sightedness	15.3		Osteoarthritis	32.0
	Chronic sinusitis	10.9		Short-sightedness	30.3

(a)   The proportion in each age group who reported that long-term condition.

(b)   Includes back problems not elsewhere classified.

Source: ABS 2009d.

Numbers of conditions

The number of long-term conditions that people report generally increases with their age. Less than 2% of those aged up to 14 years reported having five or more such conditions. In comparison, half of those aged 65 years or older reported having five or more long-term conditions. Slightly higher proportions of females than males reported having five or more conditions (Table 2.9).

Table 2.9: Prevalence of five or more long-term conditions, by sex and age group, 2007–08 (per cent)

Sex	0–14	15–24	25–34	35–44	45–54	55–64	65–74	75–84	85 and over
Males	1.3	2.6	5.5	10.8	22.2	36.2	49.1	52.6	68.0
Females	1.5	7.9	11.5	15.1	23.2	42.2	49.3	59.7	71.7

Source: 2007–08 National Health Survey.

Consultations with health professionals

Consulting a health professional can be done for a number of reasons—for example, poor health, maintaining good health, or advice about health. It is important to note that the statistics below do not attribute any consultations to health conditions that a person may or may not have.

Generally, the more long-term conditions people reported, the more likely they were to report having consulted a health professional in the year before interview.

Of those who reported no or one long-term condition, 1 in 7 reported visiting a specialist in the last 12 months, compared with 1 in 2 of those who reported five or more conditions (Figure 2.12). The differences were less marked for those who visited allied health professionals.
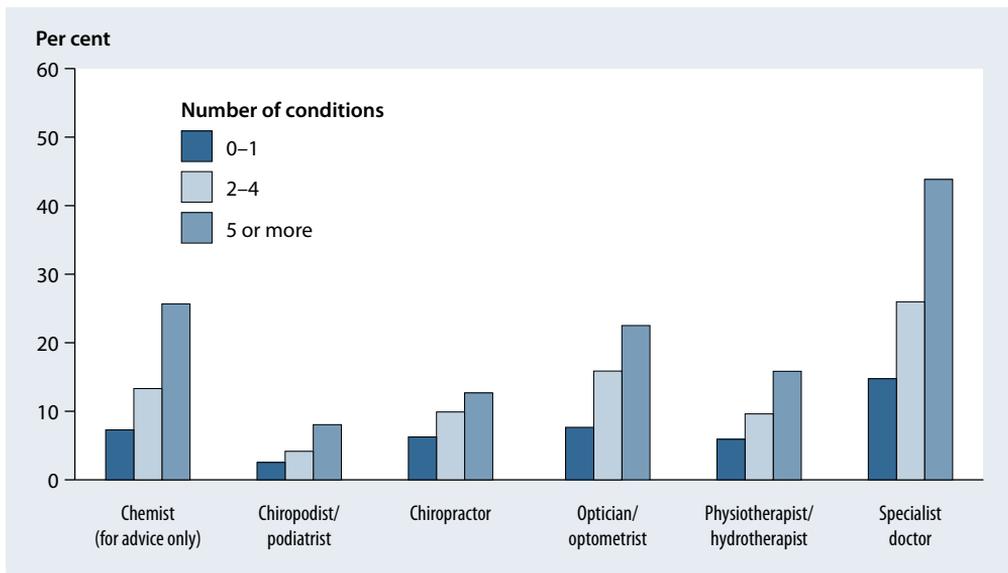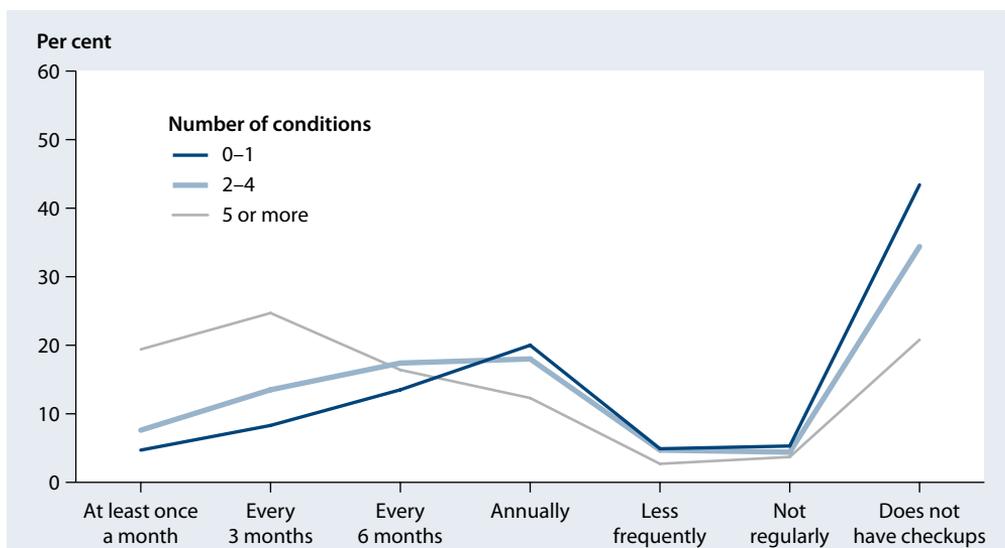

Note: Proportions have been directly age-standardised to the Australian population as at 30 June 2001.
Source: 2007–08 National Health Survey.

Figure 2.12: Proportion consulting various health professionals in preceding 12 months, by number of long-term conditions, people aged 15 years and over, 2007–08

About two-thirds (65%) of people aged 15 years and over say they have check-ups with a GP; those with more long-term conditions visit GPs for check-ups more frequently than those who have no or one long-term condition (Figure 2.13).

Note: Proportions have been directly age-standardised to the Australian population as at 30 June 2001.
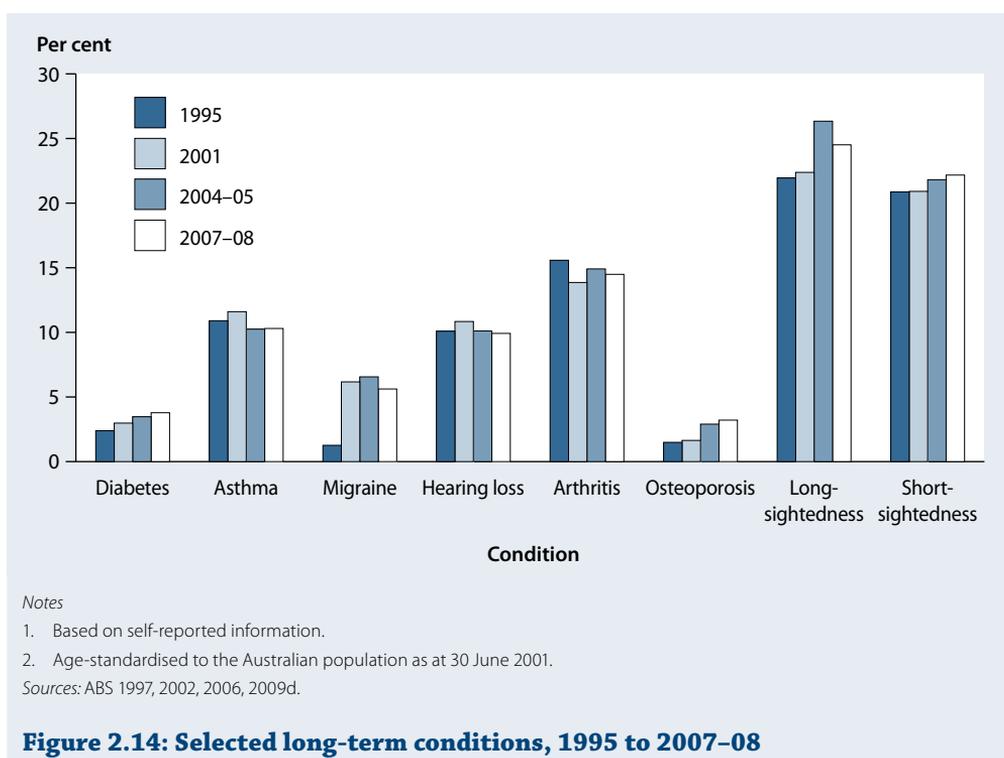*Source:* 2007–08 National Health Survey.

Figure 2.13: Frequency of check-ups by number of long-term conditions, people aged 15 years and over, 2007–08

Trends in prevalence

Results from the last four NHSs provide information about self-reported long-term conditions in the community for over 10 years. For many conditions, the proportions reported remain similar over time—for example, hearing loss (Figure 2.14). For other conditions, such as diabetes and osteoporosis, progressive increases in the proportions of people reporting them are evident.

Changes in prevalence rates over time can be due to factors such as better diagnosis, changing survival rates and increased awareness as well as to real changes in how common the condition is in the population. Sometimes it is hard to untangle which of these many factors is at work. More information about specific conditions can be found in Chapter 5.

Per cent

Notes

1. Based on self-reported information.

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

Sources: ABS 1997, 2002, 2006, 2009d.

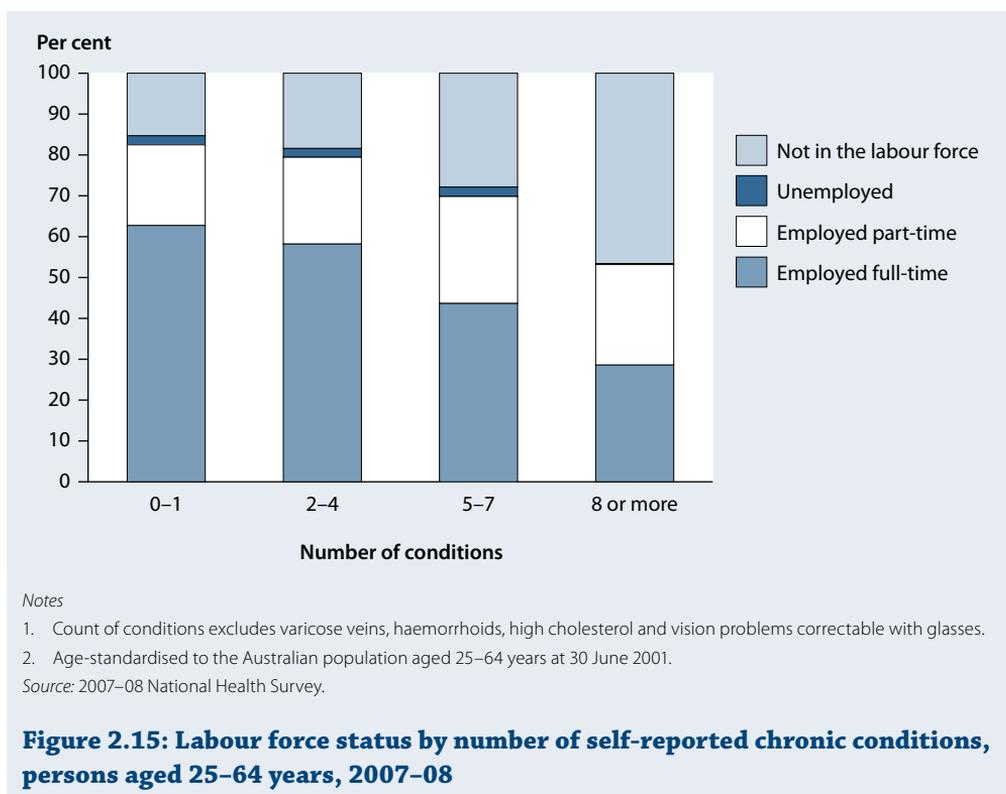**Figure 2.14: Selected long-term conditions, 1995 to 2007–08**

Chronic conditions and employment

Many long-term health conditions can greatly affect individuals' physical and mental wellbeing and their ability to participate in everyday activities. Examples include conditions such as depression, arthritis, diabetes, and heart and respiratory problems. In comparison, other long-term conditions—for example, short-sightedness that can be corrected with glasses—may have little effect on a person's day-to-day life.

A major consequence of chronic conditions can be their effect on employment prospects. Depending on how severely an individual is affected by their condition, they may not be able to work full-time, may need to have extended periods of sick leave, or may require special equipment or assistance to do a particular task. All of these factors can make it difficult to get or keep a job. People may also find they are unable to work at all due to their health.

Figure 2.15 shows the labour force and employment status of people according to the number of chronic conditions they reported in the 2007–08 NHS, excluding those conditions least likely to affect their ability to participate in life activities. Although no causality can be inferred from these cross-sectional data, it is clear that the likelihood of being employed decreased as the number of conditions increased. After adjustment for age, almost 1 in 2 of those with eight or more conditions were not in the labour force (that is, neither employed nor looking for work), compared with 1 in 7 people with no or one condition. Part-time employment rates were similar across the groups, but the proportion of people employed full time varied greatly, from 63% of those with no or one condition to 29% of those with eight or more. The proportion who were unemployed (that is, not having a job but looking for work) also decreased as the number of conditions increased.

Per cent

Notes

1. Count of conditions excludes varicose veins, haemorrhoids, high cholesterol and vision problems correctable with glasses.

2. Age-standardised to the Australian population aged 25–64 years at 30 June 2001.

Source: 2007–08 National Health Survey.

Figure 2.15: Labour force status by number of self-reported chronic conditions, persons aged 25–64 years, 2007–08

2.6 Causes of death

This section provides an overview of the leading causes of death in Australia as well as the main causes of years of life lost due to premature death.

Cause-of-death statistics are usually based on the 'underlying cause', which is the disease or injury that initiated the train of events leading directly to an individual's death—in other words, the condition believed to be the primary cause of death. Any other condition or event that is not the underlying cause, but is still considered to contribute to the death, is known as an associated cause. In Australia, the underlying cause is derived from information on death certificates, using an automated process.

Leading causes of death

For the population as a whole, the top 20 causes presented here have been listed as specific causes rather than at the broader International Classification of Diseases (ICD) chapter level (Box 2.8). Information on cancer deaths, for example, has been provided by individual cancer type rather than for cancer overall.

Box 2.8: Classifying causes of death

The major causes of death are coded according to the 10th revision of the International Classification of Diseases (ICD-10) (WHO 1992). ICD-10 categorises diseases into 21 broad groupings (chapters) on the basis of type of condition or body system. Causes of death can be further subdivided either on the basis of similar disease causation (for example infectious diseases) or into specific entities (for example tuberculosis, breast cancer or AIDS). Commonly accepted groupings have been used in this report.

The top 20 specific causes of death were responsible for about 68% of all deaths in 2007 (Table 2.10). Coronary heart disease (also known as ischaemic heart disease: heart attack and related disorders) was the leading specific cause of death in both sexes and accounted for more than one-sixth of all deaths that year.

Lung cancer and cerebrovascular disease (notably stroke) were the second and third leading cause of male deaths, followed by chronic obstructive pulmonary disease (COPD) and prostate cancer. In contrast, cerebrovascular disease, and dementia and Alzheimer disease were the second and third leading cause of death among females, followed by lung cancer and breast cancer.

Colorectal cancer, COPD, diabetes, cancers with an unknown primary site, and dementia and Alzheimer disease were among the top 10 leading causes of death in both sexes. The latter two groups have become more important causes of death in recent years.

Major causes of death by life stage

The statistics for various age groups are provided here at the broad ICD chapter level, rather than at the specific disease level, to give a better picture of the broad distribution of causes of death. Overall, cancer and other tumours was the most common cause of death for males in 2007, followed by cardiovascular disease and respiratory system diseases. For females, cardiovascular disease was the most common cause of death, followed by cancer and other tumours, and respiratory system diseases.

However, the relative contribution of different underlying causes of death varies with age (Table 2.11). Conditions emerging from the perinatal period dominate the infant mortality statistics, followed by congenital anomalies. Injury and poisoning followed by cancer and other tumours are the most common causes of death in the age groups 1–14 years and 15–24 years. The changes in leading causes of death as age increases reflect both longer exposure to various environmental factors and the underlying ageing processes. Among those aged 25–44 years, injury and poisoning is the leading cause of death in males, but cancer and other tumours takes over as the leading cause of death among females. In both sexes, cancer and other tumours is the most common cause of death among those aged 45–64 years, followed by cardiovascular disease, which includes both coronary heart disease and stroke. Cancer and other tumours, and cardiovascular disease are again the two most common causes among those aged 65–84 years, but cardiovascular disease dominates the 85 and over age group.

Respiratory diseases are significant contributors to death among those at older ages. Prominent among these is COPD, a leading specific contributor to deaths overall. Dementia and Alzheimer disease, which is split across two ICD chapters, contributes almost 1 in 10 deaths in the 85 and over age group.

Table 2.10: Leading underlying specific causes of death, all ages, 2007

		Males			Females		
			Number of	% all male		Number of	% all female
Rank	Cause of death (code)		deaths	deaths	Cause of death (code)	deaths	deaths
1	Coronary heart diseases (I20–I25)		12,119	17.2	Coronary heart diseases (I20–I25)	10,610	15.8
2	Lung cancer (C33,C34)		4,715	6.7	Cerebrovascular diseases (I60–I69)	6,975	10.4
3	Cerebrovascular diseases (I60–I69)		4,516	6.4	Dementia and Alzheimer disease (F01,F03,G30)	4,905	7.3
4	Chronic obstructive pulmonary disease (J40–J44)		2,965	4.2	Lung cancer (C33,C34)	2,911	4.3
5	Prostate cancer (C61)		2,938	4.2	Breast cancer (C50)	2,680	4.0
6	Dementia and Alzheimer disease (F01,F03,G30)		2,415	3.4	Chronic obstructive pulmonary disease (J40–J44)	2,187	3.3
7	Colorectal cancer (C18–C21)		2,221	3.1	Heart failure and complications and ill-defined heart diseases (I50–I51)	2,083	3.1
8	Diabetes (E10–E14)		1,923	2.7	Diabetes (E10–E14)	1,887	2.8
9	Unknown primary site cancers (C26,C39,C76–C80)		1,832	2.6	Colorectal cancer (C18–C21)	1,886	2.8
10	Suicide (X60–X84)		1,453	2.1	Unknown primary site cancers (C26,C39,C76–C80)	1,655	2.5
11	Heart failure and complications and ill-defined heart diseases (I50–I51)		1,361	1.9	Influenza and pneumonia (J09–J18)	1,463	2.2
12	Pancreatic cancer (C25)		1,233	1.7	Kidney failure (N17–N19)	1,301	1.9
13	Kidney failure (N17–N19)		1,163	1.6	Hypertensive diseases (I10–I15)	1,075	1.6
14	Influenza and pneumonia (J09–J18)		1,160	1.6	Pancreatic cancer (C25)	1,015	1.5
15	Liver diseases (K70–K77)		977	1.4	Ovarian cancer (C56)	848	1.3
16	Land transport accidents (V01–V89)		948	1.3	Cardiac arrhythmias (I47–I49)	830	1.2
17	Leukaemia (C91–C95)		892	1.3	Diseases of the musculoskeletal system and connective tissue (M00–M99)	751	1.1
18	Melanoma (C43)		864	1.2	Nonrheumatic valve disorders (I34–I38)	705	1.0
19	Oesophageal cancer (C15)		790	1.1	Accidental falls (W00–W19)	621	0.9
20	Lymphomas (C81–C85,C96)		780	1.1	Lymphomas (C81–C85,C96)	615	0.9
	Ill-defined excluding SIDS (R00–R94,R96–R99)		*1,047*	*1.5*	*Ill-defined excluding SIDS (R00–R94,R96–R99)*	*777*	*1.2*
	Event of undetermined intent (Y10–Y34)		*745*	*1.1*	*Event of undetermined intent (Y10–Y34)*	*344*	*0.5*
	Total 20 leading causes		**47,250**	**67.0**	**Total 20 leading causes**	**46,986**	**69.8**
	All deaths		**70,569**	**100.0**	**All deaths**	**67,285**	**100.0**

SIDS   Sudden infant death syndrome.

Note: Codes refer to the International Classification of Diseases, 10th revision (ICD-10).

Source: AIHW National Mortality Database.

Table 2.11: Leading underlying broad causes of death[a], by age group, 2007

Age group	Males Cause of death	Per cent of deaths[b]	Females Cause of death	Per cent of deaths[b]
Infants (less than 1 year)	Conditions originating in the perinatal period	49.2	Conditions originating in the perinatal period	46.0
	Congenital anomalies	23.4	Congenital anomalies	28.6
	Ill-defined conditions	12.5	Ill-defined conditions	11.5
	Respiratory system diseases	2.7	Injury and poisoning	3.5
1–14	Injury and poisoning	37.1	Injury and poisoning	36.3
	Cancer and other tumours	16.3	Cancer and other tumours	17.9
	Nervous system disorders	10.2	Nervous system disorders	9.4
	Congenital anomalies	6.8	Cardiovascular disease	7.1
15–24	Injury and poisoning	72.1	Injury and poisoning	53.8
	Cancer and other tumours	8.2	Cancer and other tumours	14.2
	Ill-defined conditions	5.6	Cardiovascular disease	7.8
	Nervous system disorders	4.4	Ill-defined conditions	5.6
25–44	Injury and poisoning	50.3	Cancer and other tumours	35.0
	Cancer and other tumours	14.5	Injury and poisoning	27.7
	Cardiovascular disease	12.8	Cardiovascular disease	11.5
	Ill-defined conditions	5.9	Ill-defined conditions	4.5
45–64	Cancer and other tumours	42.6	Cancer and other tumours	55.8
	Cardiovascular disease	24.5	Cardiovascular disease	13.9
	Injury and poisoning	10.0	Injury and poisoning	7.1
	Digestive disorders	5.4	Respiratory system diseases	5.9
65–84	Cancer and other tumours	37.5	Cancer and other tumours	33.3
	Cardiovascular disease	31.6	Cardiovascular disease	32.4
	Respiratory system diseases	9.5	Respiratory system diseases	8.8
	Endocrine-related disorders	4.1	Endocrine-related disorders	4.8
85 and over	Cardiovascular disease	42.3	Cardiovascular disease	48.6
	Cancer and other tumours	20.2	Cancer and other tumours	12.1
	Respiratory system diseases	11.6	Respiratory system diseases	8.7
	Mental disorders	5.9	Mental disorders	8.3
All ages	Cancer and other tumours	32.3	Cardiovascular disease	36.5
	Cardiovascular disease	31.3	Cancer and other tumours	26.0
	Respiratory system diseases	8.6	Respiratory system diseases	8.2
	Injury and poisoning	7.3	Mental disorders	5.4

(a) Organised at ICD chapter level.

(b) Per cent of deaths within each age and sex group.

Note: Deaths from ill-defined conditions include those for which a more specific diagnosis could not be made or where signs and symptoms could not be determined. This refers to the ICD-10 chapter 'Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified'. This category includes deaths from sudden infant death syndrome (SIDS).

Source: AIHW National Mortality Database.

Contributing causes of death

A fuller picture of events and circumstances around the time of death may be generated from 'multiple causes of death' data, made available by the ABS since 1997 (Box 2.9). As well as the underlying cause of death, other conditions or diseases that played a part in the death are recorded on the death certificate, and are known as associated causes of death. Considering the contribution that a particular condition or disease makes as either the underlying or an associated cause can provide a fuller picture of its role in leading to deaths in the population. The term 'contributing causes of death' is used here to include both underlying and associated causes of death.

The rankings of the most common contributing causes of death show the significant toll of cardiovascular diseases to the Australian community, producing three of the top four specific causes for both males and females (Table 2.12). Cardiovascular diseases as a group contributed to 54% of all male deaths and 59% of all female deaths.

The rankings also reveal the importance of some chronic conditions that are rarely the underlying cause of death. Hypertensive diseases (high blood pressure and its effects) contributed to more than 17,500 deaths in 2007 but was the underlying cause in only 1,291 deaths. Septicaemia, and pneumonia and influenza also fall into this category.

In contrast, lung cancer was the underlying cause of death in nearly 93% of deaths where it was listed. Ranked second for males and fourth for females as an underlying cause of death, it drops to 12th in the male contributing cause of death rankings, and does not make the top 15 female rankings. Most other cancers, suicide and land transport accidents show similar patterns.

Table 2.12: Contributing causes of death, all ages, 2007

Rank	Cause of death	Deaths[a]	Per cent deaths by sex	Per cent underlying by sex[b]
	Males			
1	Coronary heart disease (I20–I25)	20,343	28.8	52.2
2	Heart failure and complications and ill-defined heart diseases (I50–I51)	9,125	12.9	14.7
3	Pneumonia and influenza (J09–J18)	8,839	12.5	13.0
4	Cerebrovascular disease (I60–I69)	8,779	12.4	48.7
5	Renal failure (N17–N19)	7,970	11.3	13.1
6	Hypertensive diseases (I10–I15)	7,502	10.6	6.0
7	Chronic obstructive pulmonary disease (J40–J44)	7,464	10.6	39.1
8	Diabetes (E10–E14)	6,992	9.9	27.3
9	Dementia and Alzheimer disease (F01,F03,G30)	6,401	9.1	37.0
10	Cardiac arrhythmias (I47–I49)	5,368	7.6	10.5
11	Unknown primary site cancers (C26,C39,C76–C80)	5,183	7.3	31.8
12	Lung cancer (C33,C34)	5,113	7.2	92.2
13	Cardiac arrest (I46)	5,043	7.1	4.2
14	Prostate cancer (C61)	4,390	6.2	66.9
15	Septicaemia (A40–A41)	3,895	5.5	13.7
	Ill-defined excl SIDS (R00–R94,R96–R99)	*8,880*	*12.6*	*11.6*
	All male deaths	**70,569**	**100.0**	
	Females			
1	Coronary heart disease (I20–I25)	16,994	25.3	55.1
2	Cerebrovascular disease (I60–I69)	11,700	17.4	55.7
3	Dementia and Alzheimer disease (F01,F03,G30)	11,409	17.0	42.3
4	Heart failure and complications and ill-defined heart diseases (I50–I51)	10,973	16.3	18.6
5	Hypertensive diseases (I10–I15)	10,173	15.1	8.3

Rank	Cause of death	Deaths[a]	Per cent deaths by sex	Per cent underlying by sex[b]
6	Pneumonia and influenza (J09–J18)	9,154	13.6	15.9
7	Renal failure (N17–N19)	7,362	10.9	16.1
8	Diabetes (E10–E14)	6,109	9.1	30.7
9	Cardiac arrhythmias (I47–I49)	5,975	8.9	13.8
10	Chronic obstructive pulmonary disease (J40–J44)	4,884	7.3	44.1
11	Cardiac arrest (I46)	4,602	6.8	4.0
12	Unknown primary site cancers (C26,C39,C76–C80)	4,312	6.4	35.0
13	Diseases of the musculoskeletal system and connective tissue (M00–M99)	4,009	6.0	16.7
14	Septicaemia (A40–A41)	3,777	5.6	15.1
15	Breast cancer (C50)	3,469	5.2	77.3
	Ill-defined excl SIDS (R00–R94,R96–R99)	*9,196*	*13.7*	*8.2*
	All female deaths	**67,285**	**100.0**	

(a) Deaths where the cause was listed as either the underlying or an associated cause of death.

(b) Underlying cause of death listings as a percentage of all deaths where the cause was listed.

Notes

1. Codes refer to the International Classification of Diseases, 10th revision (ICD-10).

2. Numbers and percentages cannot be added within columns because a single death can have multiple contributing causes.

Source: AIHW National Mortality Database.

Potential years of life lost

The potential years of life lost (PYLL) from a disease or injury is an indicator of premature or untimely death. If dying before the age of 75 years is considered premature, then a person dying at the age of 50 years would have lost 25 potential years of life.

Box 2.9: National Mortality Database

The Australian Institute of Health and Welfare's National Mortality Database contains information about all deaths registered in Australia. Deaths are certified by a medical practitioner or the coroner and registered by the Registrar of Births, Deaths and Marriages in each state or territory. The information is provided to the Australian Bureau of Statistics for coding of the cause of death and compilation into aggregate statistics. The cause of death is coded using the International Classification of Diseases (see Box 2.8). The database includes multiple causes of death, which comprise the underlying and all associated causes of death recorded on the death certificate. Multiple causes are available from 1997 onwards.

In contrast to the basic mortality measures where all deaths are counted equally, PYLL highlights deaths that occur at younger ages. These deaths strongly affect families and society because they occur prematurely and often have economic consequences. Furthermore, many of these premature deaths may be avoidable.

Among the specific causes of death, coronary heart disease is the greatest contributor to premature mortality among males, but breast cancer is the leading cause of PYLL among females (Table 2.13).

Males lose 70% more potential years of life than females. Three of the largest contributors to this gap are coronary heart disease, suicide and land transport accidents.

Table 2.13: Leading causes of potential years of life lost, 2007

	Males			**Females**		
Rank	**Cause of death (code)**	**PYLL**	**% all causes PYLL**	**Cause of death (code)**	**PYLL**	**% all causes PYLL**
1	Coronary heart diseases (I20–I25)	54,908	10.0	Breast cancer (C50)	28,118	8.7
2	Suicide (X60–X84)	46,193	8.4	Lung cancer (C33,C34)	19,509	6.1
3	Land transport accidents (V01–V89)	34,406	6.3	Conditions originating in the perinatal period (P00–P96)	18,846	5.8
4	Lung cancer (C33,C34)	28,949	5.3	Congenital anomalies (Q00–Q99)	14,599	4.5
5	Conditions originating in the perinatal period (P00–P96)	24,137	4.4	Coronary heart diseases (I20–I25)	13,156	4.1
	All causes	**547,325**	**100.0**	**All causes**	**322,272**	**100.0**

PYLL   Potential years of life lost.

Notes

1. Codes refer to the International Classification of Diseases, 10th revision (ICD-10).

2. PYLL is the sum of years between the age of death and 75, for all deaths for selected causes. All deaths occurring under 1 year of age were considered to have lost 74.5 years of life.

Source: AIHW National Mortality Database.

2.7 Burden of disease

The information presented so far in this chapter has been about specific aspects of disease, such as how many people have it, how many people die from it, and what is the level of disability associated with it. But these varied aspects mean that it is difficult to get a clear and simple picture of the extent of the burden of disease and injury in Australia. For example, how can the effects of a common chronic disease that leads to long-term disability, but rarely causes death (for example depression), be compared with the effects of a disease that is less common but often fatal (for example brain cancer)?

Measuring the burden of disease and injury

Allocating health resources in the most effective way requires information about which conditions have the greatest effect on Australians and where the most gains in health can be made. To meet this need, a summary unit of measure called the DALY (pronounced 'dally', a disability-adjusted life year) has been developed to compare the effects of different diseases and injuries on an equal basis. It can also be used to compare the burden between different population groups and for different countries (allowing for different population sizes). The contribution of various risk factors can be assessed in the same way.

One DALY is one year of 'healthy life' lost due to a disease or injury. The more DALYs, the greater the burden, whether applied to an individual or a population. That lost healthy life can be from premature death, prolonged illness or disability, or a combination. To illustrate the basic concepts, a person who has been healthy all his life but who suddenly dies of a heart attack 20 years early has lost 20 years of healthy life—20 DALYs. For a person who lives to a normal old age but has been only 'half-well' for 30 years, there are 15 DALYs. Using information about the duration and severity of diseases and injuries in individuals, and the pattern of these conditions among the community, DALYs can be estimated for each problem and combined to give a grand total. Box 2.10 explains this in more detail.

The main advantage of DALYs is that they give appropriate weight to health problems that cause much illness and disability even if they are not fatal, and also to conditions that may not cause many deaths but, when they do, those deaths are of younger people.

More detailed information on the burden posed by particular diseases is given in Chapter 3.

Total burden of disease and injury

The projected burden of disease and injury in Australia in 2010 is estimated to be more than 2.8 million DALYs. Males account for more of this burden than females (1.47 million compared with 1.38 million). Years lost due to disability (YLD; see Box 2.10) contribute slightly more to the total than do years of life lost due to death (YLL), with YLD responsible for 50% of the DALYs for males and 57% for females.

Box 2.10: Calculating disability-adjusted life years

According to the burden of disease estimates provided here, Australia will amass more than 2.8 million years of lost 'healthy life' due to disease and injury in 2010. How is this estimated?

Let's build this estimate by starting with just one case, Jim. His is a typical case of a person with a serious disease. He is fully healthy until he gets the disease in 2003, aged 50. Evidence about the disease shows he is likely to live with it until he dies aged 60. Based on further evidence, those 10 years suffering his particular disease will be equal to only 3 years of full health. This means he will 'lose' 7 healthy years even though he is alive. (In technical terms, his disease has a 'severity weight'—often known as a 'disability weight'—of 0.7. As other examples, if the severity weight had been 0.55 he would have 'lost' 5.5 of those 10 years; and 1.8 years if it had been 0.18.)

But Jim's 7 lost years are then adjusted using a standard method from economics. Because future gains or losses mean less to us than present ones, each successive year lost is 'discounted' by a small amount (3%). This brings the estimated years lost through disability or illness (known as YLDs) down from 7 to 6.3.

As well as the 6.3 healthy years lost through disability, Jim will lose many years through dying too early. At the age he dies, 60, a male in 2003 would normally go on to live until he is 81. As was done for the years lost through illness or disability, these further 21 lost years (or YLLs) are discounted by 3% per year. This brings them down to 15.6.

Jim's total disability-adjusted life years (DALYs) are therefore 6.3 plus 15.6, making 21.9.

Using this reasoning, we can take all the people getting Jim's disease and start to build towards a grand total. This means drawing on surveys and other research that shows:
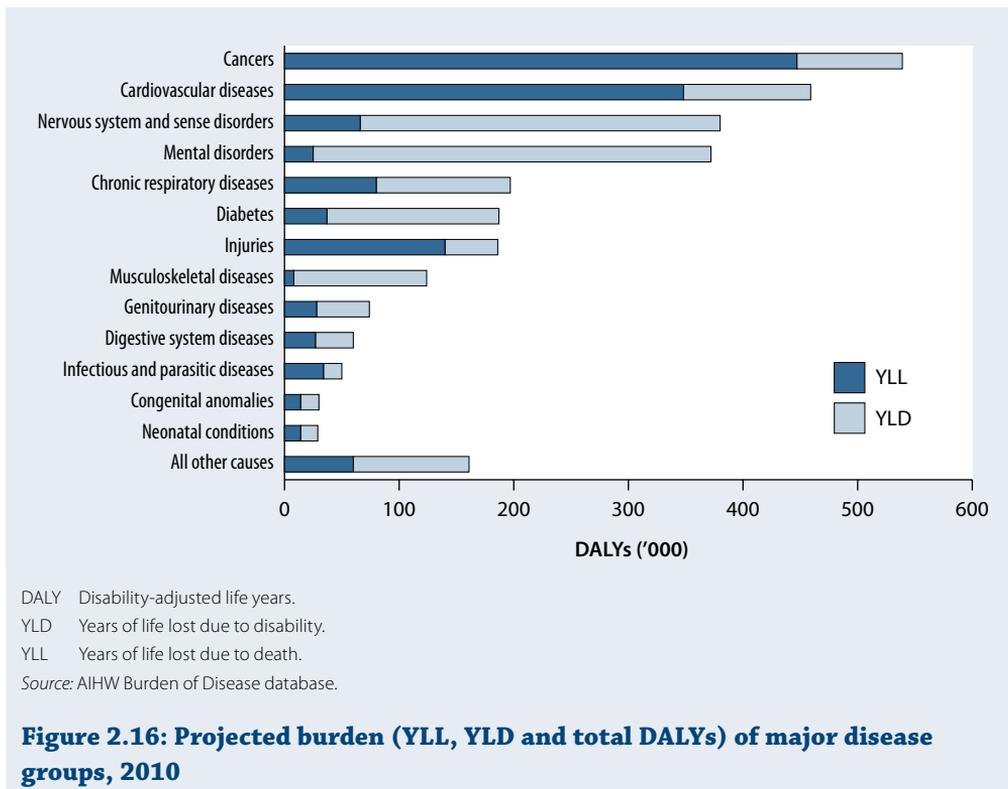
• how many males and females are newly diagnosed with this disease in the year in question (2003)

• what sex and age groups they are in

• how long people of each group will typically have their disease for

• the average age at which the people in each group are likely to die.

Next we can calculate subtotals for each group and then total them to get the disease's DALYs for the Australian population, and the steps taken for this disease can be applied to all other forms of disease and injury that arose in the year of interest.

Finally, the trends in disease patterns and changes in population can be overlaid on the methods described above to estimate the burden in future years. Such projections are presented in this section.

At the broad cause level, cancers are the leading contributor (19% of total DALYs), followed by cardiovascular diseases (16%), nervous system and sense disorders (13%), mental disorders (13%) and chronic respiratory diseases (7%). For cancers and cardiovascular diseases the majority of DALYs were due to deaths (YLL), whereas disability (YLD) was the main component for nervous system and sense disorders, and mental disorders (Figure 2.16).

Note that these DALY estimates represent the overall burden of disease remaining after preventive and treatment interventions have had their effect. Consequently, some important disease groups are low in the DALY rankings because preventive and treatment interventions for these diseases have been very successful. This applies in particular to infectious and parasitic diseases, which are expected to contribute only 1.7% of DALYs in 2010, and oral health conditions, which are responsible for only 1.0%.

DALY   Disability-adjusted life years.
YLD   Years of life lost due to disability.
YLL   Years of life lost due to death.
Source: AIHW Burden of Disease database.

Figure 2.16: Projected burden (YLL, YLD and total DALYs) of major disease groups, 2010

Leading specific causes of burden of disease

Examining the disease burden at a specific disease level provides more detail about the conditions having the greatest effect on Australia's health. Coronary heart disease, anxiety and depression, and Type 2 diabetes are expected to be the largest specific contributors to the overall burden in 2010 (Table 2.14). The ranked list overleaf highlights the substantial contribution to the overall burden made by largely non-fatal conditions, with anxiety and depression, asthma and hearing loss all featuring in the top 10.

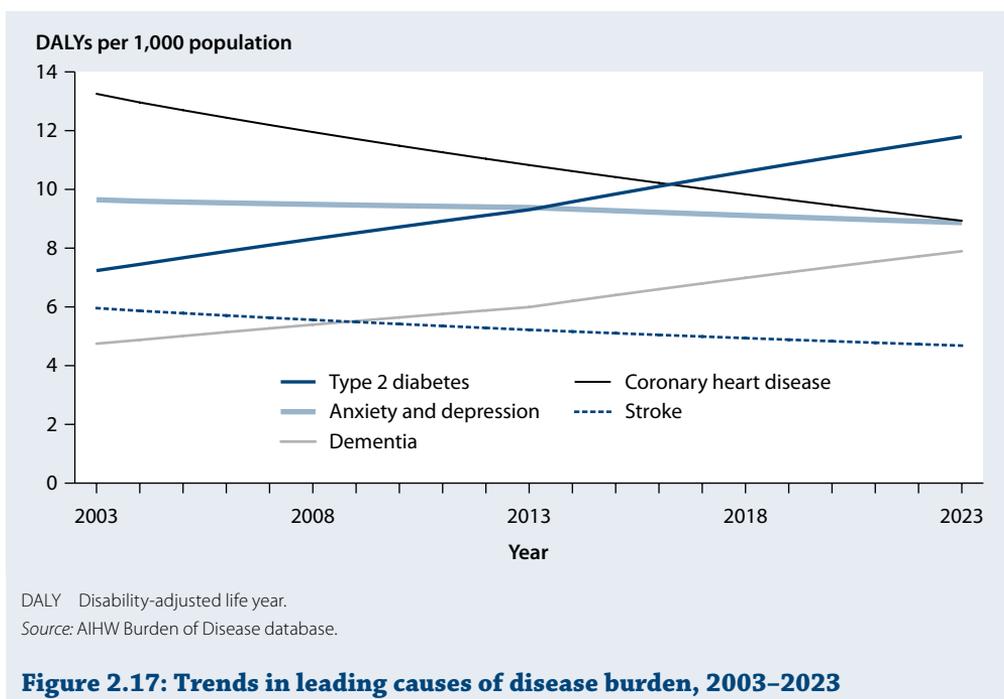**Table 2.14: Projected leading specific causes of burden of disease and injury, 2010**

Rank	Condition	DALYs ('000)			Per cent of total DALYs
		Males	**Females**	**Total**	
1	Coronary heart disease	139	108	247	8.7
2	Anxiety and depression	70	134	203	7.1
3	Type 2 diabetes	94	82	176	6.2
4	Dementia	45	77	122	4.3
5	Stroke	53	63	117	4.1
6	Lung cancer	57	41	98	3.4
7	Chronic obstructive pulmonary disease (COPD)	45	40	85	3.0
8	Adult-onset hearing loss	52	27	79	2.8
9	Colorectal cancer	38	30	68	2.4
10	Asthma	30	36	66	2.3
	All other causes	845	742	1,587	55.7
	All causes	**1,468**	**1,381**	**2,849**	**100.0**

DALY   Disability-adjusted life year.

Source: AIHW Burden of Disease database.

Trends in leading causes of disease burden

As mentioned in Box 2.10, the data presented in this section are derived from projections of the burden of disease as assessed for 2003. The top five specific causes in 2003 (reported in *Australia's health 2008*) are still the top five in 2010, with only dementia and stroke swapping fourth and fifth rank (Figure 2.17). Over the longer term and accounting for population changes, Type 2 diabetes is projected to become the leading cause of disease burden by 2023, partly attributable to the expanding problem of overweight and obesity. Over this same period, the decreasing rate of DALYs per 1,000 population for coronary heart disease is seen to converge with the rate for anxiety and depression. These top five conditions remain the top five for the whole period of the projections.

DALYs per 1,000 population

DALY   Disability-adjusted life year.

Source: AIHW Burden of Disease database.

Figure 2.17: Trends in leading causes of disease burden, 2003–2023

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