

Whose health? How population groups vary

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KEY POINTS

- **Indigenous people** are generally less healthy than other Australians, die at much younger ages, and have more disability and a lower quality of life.
- **People living in rural and remote areas** tend to have higher levels of disease risk factors and illness than those in major cities.
- Compared with those who have social and economic advantages, **disadvantaged Australians** are more likely to have shorter lives.
- **People with disability** are more likely than others to have poor physical and mental health, and higher rates of risk factors such as smoking and overweight.
- Compared with the general community, **prisoners** have significantly worse health, with generally higher levels of diseases, mental illness and illicit drug use than Australians overall.
- Most **migrants** enjoy health that is equal to or better than that of the Australian-born population—often with lower rates of death, mental illness and disease risk factors.
- Compared with those in the general community, **Defence Force members** have better health, although their work can place them at higher risk of injury.
- The **veteran community** is less likely than the general community to report being in very good or excellent health.

Influences on health affect our day-to-day lives. While the nature and impact of these influences vary from person to person, examining the health of population groups reveals distinct patterns within the community. These patterns help us understand how and why health is distributed unevenly, and guide us on how the health of different groups can be improved. Although population groups in Australia are many and diverse, this chapter summarises the health of eight groups. Each of these groups—whether experiencing similar, better or worse health than the general population—brings a unique set of challenges to Australia's health and welfare systems as they aim for greater fairness in society.

One broad pattern is that people with the greatest social and economic disadvantage often have the poorest levels of health. The first five groups in this chapter show various levels of health disadvantage: Indigenous Australians; rural Australians; socioeconomically disadvantaged people, including the unemployed; people with disabilities; and prisoners. Other population groups that experience particular disadvantage, but whose health status is not reported here, include homeless people and refugees.

Just as some groups can have worse health than the general Australian population, so can some have better health. This can be due to social advantages but it can also be because some groups are selected on the very basis of their health. Two examples are people who migrate to Australia and Defence Force members, and they are examined here along with the veteran community. It will be seen, however, that the 'healthier' status of overseas-born people and Defence Force members may not be sustained and specific services may be required to support their health needs.

In December 2007, the Council of Australian Governments (COAG) agreed to a partnership between all levels of government to work with Indigenous communities to achieve the target of closing the large inequality gap between Indigenous and other Australians (Box 5.1). In light of this, a large section of Chapter 5 has been dedicated to the health of Aboriginal and Torres Strait Islander people.

Finally, another perspective on the population is that of age groups. For information on health across the life stages, Chapter 6 provides statistics on mothers, babies and children, as well as working-age and older Australians.

5.1 Aboriginal and Torres Strait Islander people

Aboriginal and Torres Strait Islander people (Indigenous Australians) generally have significantly more ill health than other Australians. They typically die at much younger ages and are more likely to experience disability and reduced quality of life because of ill health (AIHW 2009a).

One of the reasons for this poorer health is that Indigenous Australians are socioeconomically disadvantaged compared with other Australians. On average, they report having lower incomes than other Australians, higher rates of unemployment, lower educational attainment, and more overcrowded households (AIHW 2009a).

This socioeconomic disadvantage also places Aboriginal and Torres Strait Islander people at greater risk of unhealthy factors such as smoking and alcohol misuse, as well as overweight and obesity.

The following section summarises the health status of Indigenous Australians and the health gap between them and other Australians. First, it discusses the quality of data about Indigenous Australians, followed by demographic details such as their age structure and where they live. Key summary measures—disability, life expectancy and mortality—are then used to describe their health, followed by details of the six main conditions that cause Indigenous ill health and mortality. Finally, information is provided on health risk factors among Indigenous Australians, including social factors such as lower educational attainment and unemployment.

Box 5.1: Monitoring the COAG Closing the Gap targets for Indigenous disadvantage

The Council of Australian Governments (COAG) has agreed to six specific targets and timelines to reduce disadvantage among Indigenous Australians. These targets acknowledge the importance of reducing the gap in health levels and of improving the social determinants of health. They include:

- closing the life expectancy gap within a generation (by 2030)
- halving the gap in mortality rates for Indigenous children within a decade (by 2018)
- ensuring that all Indigenous 4 year olds in remote communities have access to early childhood education within 5 years (by 2013)
- halving the gap for Indigenous students in reading, writing and numeracy within a decade (by 2018)
- halving the gap for Indigenous students in Year 12 attainment by 2020
- halving the gap in employment levels within a decade (by 2018).

As annual estimates of life expectancy are not available, substitute measures can be used for this target. They include mortality rates, hospitalisation rates and the prevalence of health risk factors such as smoking, risky alcohol consumption and obesity.

The National Indigenous Reform Agreement has been established to outline the task of closing the gap in Indigenous disadvantage. It sets objectives, outcomes, outputs, performance indicators and performance benchmarks to assess progress against the targets. Also for this purpose, other national agreements and mainstream National Partnership Agreements include reporting arrangements that will see many indicators analysed by Indigenous status.

The Australian Government and states and territories will work in partnership to achieve the agreed COAG targets; develop, progress and review the national objectives and outcomes for Indigenous reform; and ensure that their data are of high quality and available for reporting. Fundamental to this is respectful and collaborative partnership with Indigenous Australians. This approach draws on the strengths of Indigenous cultures and is considered particularly important in creating lasting change in the lives of Indigenous Australians.

Data quality

There has been much progress in collecting information on the health of Aboriginal and Torres Strait Islander people over the last decade, but many practical, analytical and conceptual challenges remain (ABS & AIHW 2008). This is partly due to varying levels of identification of Indigenous people in administrative records and partly to the statistical and practical challenges of surveying a population that is relatively small—2.5% of the total population—and one-quarter of whom (24%) live in remote or very remote areas (ABS 2007a). Improving both the counting of Indigenous Australians in the Census and identifying them in administrative data sets are key strategies towards better quality information about Indigenous health.

A number of administrative data sets provide useful information on specific diseases, risk factors, living conditions, and access to and use of services. These sets include information on birth and death registration; disease registers; consultations with general practitioners (GPs); community-controlled and other Aboriginal health services; and hospital use.

Although data quality is improving, there are various issues with these administrative collections, the main one being that they under-identify Indigenous Australians. For example, Indigenous deaths registrations are not yet complete enough in all states and territories to provide true national estimates. Deaths data from New South Wales, Queensland, Western Australia, South Australia and the Northern Territory are used to provide indicative national information. The Australian Institute of Health and Welfare (AIHW) has recently assessed the extent of under-counting of Indigenous people in hospital records. The results show that the quality of identification in New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory is adequate for reporting on Indigenous hospital use. Only those jurisdictions considered to have the most complete coverage of Indigenous Australians are used in analysis of mortality and hospital data within *Australia's health 2010*.

Further improvement to data quality will result from COAG initiatives (see Box 5.1). The National Indigenous Reform Agreement strongly emphasises the need for closing the data gaps through improvements in data quality for a number of sectors including health, education and employment. COAG has agreed to a number of data quality improvements that Australian Government agencies, including the Australian Bureau of Statistics (ABS) and the AIHW, will undertake along with the states and territories.

Some of these improvements include:

- capturing data in relation to smoking, alcohol and drug use during pregnancy, antenatal care and the Indigenous status of the baby
- improving Indigenous enumeration in the Census
- developing best practice guidelines for data linkage
- implementing a nationally consistent pathology data collection.

For information on the full list of data quality improvement activities, see the National Indigenous Reform Agreement on the COAG website.

The Indigenous population

In 2009, the estimated Indigenous population was about 550,000, constituting 2.5% of the total Australian population. Of all Indigenous Australians, 6% identified themselves as being of Torres Strait Islander origin and 4% as being of both Aboriginal and Torres Strait Islander

origin. Despite the common perception that most Indigenous Australians live in remote areas, the majority (76%) live in major cities and non-remote regional areas (ABS 2007a).

The Indigenous population is much younger than the non-Indigenous population. In 2006, the median age was 20 years for Indigenous people and 37 years for the non-Indigenous population (ABS 2007b). This is largely due to higher fertility rates and to deaths occurring at younger ages in the Indigenous population. For this reason, many of the rates presented in this section are age-standardised to allow for meaningful comparisons with the non-Indigenous population (see Box 2.2 in Chapter 2 for a discussion of age-standardisation methods).

Selected measures of health status

There are various measures of health status that can provide information on both Indigenous health and the gap between Indigenous and non-Indigenous Australians. These are self-assessed health status, the burden of disease and injury, disability, life expectancy, mortality, hospitalisations and general practice consultations. While these measures relate to different aspects of health, and some are indirect, such as health service use, they all show that Indigenous Australians tend to have poorer health than non-Indigenous Australians.

For example, Table 5.1 shows that Indigenous rates of hospitalisation and mortality in recent years were around twice the rate of non-Indigenous Australians. Similarly, the percentage of Indigenous Australians who assessed their health as only fair or poor in the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was nearly twice the rate of other Australians.

Table 5.1: Measures of health status, Indigenous Australians compared with non-Indigenous

Measure of health status	Year	Unit	Indigenous rate ^(a)	Difference between groups ^(b)
Self-assessed health fair/poor	2004–05	%	22	1.9
Burden of disease—males	2003	DALYs per 1,000	212.4	2.4
Burden of disease—females	2003	DALYs per 1,000	191.5	2.5
Disability prevalence	2006	%	4.3	1.8
Life expectancy—males	2005–2007	Age in years	67	-12
Life expectancy—females	2005–2007	Age in years	73	-10
Mortality ^(c)	2003–2007	Per 100,000	454.6	1.8
Hospitalisations ^(d)	2007–08	Per 1,000	549.1	2.5
General practitioner encounters	2003–04 to 2007–08	Per 100 encounters	158.1	1.1

DALYs Disability-adjusted life years. See Section 2.7.

(a) Rates are crude.

(b) The difference for life expectancy is in years, whereas for the other methods it is a rate ratio. Rate ratios are based on age-standardised rates and indicate the relative difference between Indigenous and non-Indigenous Australians.

(c) Data are for NSW, Qld, WA, SA and NT combined.

(d) Data are for NSW, Vic, Qld, WA, SA and NT combined.

Sources: ABS 2009a; AIHW 2009a; AIHW National Hospital Morbidity Database; AIHW National Mortality Database; Bettering the Evaluation and Care of Health survey of general practice, AGPSCC; Vos et al 2007.

For a detailed look at measures covering the health status of Indigenous Australians, see the Aboriginal and Torres Strait Islander Health Performance Framework (AHMAC 2006).

Burden of disease

A single summary measure of population health which takes into account both illness and death is 'disability-adjusted life years' (DALYs), which is the sum of years of life lost due to premature death and the 'healthy years' of life lost due to disability. A study by Vos and others found that Indigenous Australians suffer an overall burden of disease that is 2.5 times that of the total Australian population (Vos et al. 2007). This indicates a very large potential for health gain.

Two-thirds of the Indigenous health gap was due to mortality and one-third was due to disability. Non-communicable diseases—which include chronic illnesses such as cardiovascular disease, diabetes, mental disorders and chronic respiratory diseases—were responsible for 70% of the observed health gap.

Disability

Related to their poorer health status is the higher rate of disability that Aboriginal and Torres Strait Islander Australians experience (ABS & AIHW 2008). In the 2006 Census of Population and Housing, a total of 19,600 Indigenous people (4%) were identified as needing assistance with core activities (self-care, mobility or communication) some or all of the time.

After taking age differences into account between the Indigenous and non-Indigenous populations, the level of need for assistance among Indigenous people overall was almost twice as high as that among non-Indigenous people.

Life expectancy

Available data indicate that the life expectancy at birth for Aboriginal and Torres Strait Islander people is much lower than for non-Indigenous Australians.

Recently, the ABS reviewed their method of compiling the Indigenous life tables (Box 5.2). For the period 2005–2007, the life expectancy at birth was estimated to be 67 years for Indigenous males and 73 years for Indigenous females. In contrast, life expectancy at birth for non-Indigenous Australians for the same period was 79 years for males and 83 years for females. This is a difference of 12 years for males and 10 years for females.

Box 5.2: Estimating life expectancy for Aboriginal and Torres Strait Islander people

Over the years, a number of methods have been used to estimate the life expectancy of Aboriginal and Torres Strait Islander people. Known as 'indirect' methods, they have relied on different assumptions and estimates of the population, births, deaths and migration of Indigenous persons (Bhat 2002; Preston & Hill 1980; Vos et al. 2007).

After critically assessing a range of different methods, the Australian Bureau of Statistics (ABS) has recently concluded that indirect methods are no longer appropriate for estimating Indigenous life expectancy (ABS 2009a). The ABS applied the 'direct' demographic method to derive 2005–2007 life tables for the Indigenous and non-Indigenous populations by adjusting death registrations data on the basis of identification rates obtained from the Census Data Enhancement Indigenous Mortality Quality Study. This study linked Census records with death registration records to examine differences in the reporting of Indigenous status across the two data sets.

The new ABS method suggests a markedly higher Indigenous life expectancy than previous estimates, which had put the mortality gap at about 17 years. Since the new method is significantly different from the earlier one, the revised estimate cannot be used to suggest that there has been a sudden dramatic improvement in Indigenous life expectancy.

5

Mortality

Mortality rates are an important measure of the health status of a population. The overall mortality rates for Indigenous people are around twice those of non-Indigenous people.

All-age mortality

In the period 2003–2007, in the five jurisdictions that are considered to have the most complete coverage of Indigenous deaths (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory), mortality rates for Indigenous males and females were around twice as high (across all age groups) as their non-Indigenous counterparts, except for those aged 75 years and over, where the ratio was only 1.2.

Infant and child mortality

The mortality rate for children aged under 5 years is a key indicator of the general health and wellbeing of a population.

Over the period 2003–2007, there were 692 deaths of Aboriginal and Torres Strait Islander children aged 0–4 years in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined. Indigenous children aged 0–4 years died at around twice the rate of non-Indigenous children during this period. For injury and poisoning, and respiratory diseases, which were common causes of death among children of this age group, Indigenous children died at 3 and 4 times the rate of non-Indigenous children respectively.

As the large majority of deaths of Indigenous children aged 0–4 years were deaths of those aged under 1 year (576 deaths or 83%), progress towards closing the gap in under-5 mortality could be best achieved by reducing mortality among infants. The mortality rate

for Indigenous infants during 2003–2007 was 10.3 per 1,000 live births compared with 4.2 per 1,000 for non-Indigenous infants. The most common cause of death for this Indigenous age group was the set of conditions originating in the perinatal period such as birth trauma, disorders related to fetal growth, and respiratory and cardiovascular disorders specific to the perinatal period. Death from sudden infant death syndrome (SIDS) was around 4 times as common among Indigenous infants as among non-Indigenous infants.

Conditions causing ill health and mortality

Several different health measures—self-reported prevalence, general practice consultations, mortality, and burden of disease and injury—consistently show the main conditions that cause ill health and mortality among Indigenous Australians.

For example, the latest available data show that cardiovascular disease was the leading cause of Indigenous mortality and disease burden, and among the top six causes of hospitalisation, encounters with GPs and self-reported prevalence of disease (Table 5.2). Similarly, injury was the leading cause of hospitalisation, the third most common cause of death and the third most common cause of disease burden among Indigenous Australians. Mental disorders, diabetes and respiratory diseases were also commonly featured as the top conditions across most measures.

Table 5.2: Main conditions that cause ill health and mortality, Indigenous Australians, various measures

Self-reported prevalence 2004–05		Burden of disease and injury (DALYs) 2003		Cause of death data 2003–07 ^(a)		Hospitalisations 2007–08 ^(b)		General practitioner encounters 2003–04 to 2007–08		
Condition	%	Condition	%	Condition	%	Condition	%	Condition	%	
Eye/sight problems	30	Cardiovascular disease	18	Cardiovascular disease	27	Injury and poisoning	13	Respiratory	20	
		Mental disorders	16	Cancer	17	Respiratory	11	Skin problems	16	
Respiratory	27	Injury	13	Injury/other external	15	Digestive	9	Musculoskeletal	14	
		Chronic respiratory	9	Respiratory	8	Mental disorders	7	Diabetes/other metabolic	15	
Musculoskeletal	22	Diabetes	9	Diabetes/other metabolic	8	Cardiovascular diseases	6	Psychological problems	14	
		Cancers	8	Digestive	6	Genitourinary diseases	4	Cardiovascular	13	
Ear/hearing problems										
Cardiovascular problems										
Diabetes/other metabolic										

(a) Data are for NSW, Qld, WA, SA and NT combined.

(b) Data are for NSW, Vic, Qld, WA, SA and NT combined. Proportions exclude hospitalisations for care involving dialysis.

Top conditions listed exclude pregnancy, childbirth & the puerperium; and symptoms, signs and abnormal clinical and laboratory findings.

Sources: 2004–05 NATSIHS; AIHW National Hospital Morbidity Database; AIHW National Mortality Database; BEACH survey of general practice, AGPSCC; Vos et al. 2007.

Many of the main conditions that cause ill health are similar among Indigenous and non-Indigenous people; for example, cardiovascular disease, mental disorders and respiratory diseases were responsible for similar proportions of the total disease burden in both groups (Vos et al. 2007). However, cancer was responsible for a greater disease burden among non-Indigenous people, while the reverse was true for injury and diabetes.

In the following section, more detailed information is presented on the top six conditions contributing to the burden of disease among Aboriginal and Torres Strait Islander people (second column of Table 5.2). This measure was chosen because it takes into account both mortality and disability in determining which conditions are the greatest contributors to the poor health status of the Indigenous population and therefore where the biggest health gains might be made. The sections on specific health conditions draw on self-reported, hospitalisation and mortality data.

Cardiovascular disease

Cardiovascular disease—diseases of the heart and blood vessels—is a serious health problem for Aboriginal and Torres Strait Islander people. Part of this can be attributed to their high prevalence of tobacco smoking, overweight and obesity, poor nutrition and diabetes (see 'Determinants and risk factors' in this section).

In the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), about 12% of Indigenous Australians reported heart or cardiovascular problems, with over half (54%) of those aged 55 years and over reporting heart or cardiovascular problems as a long-term condition (ABS 2006a). Although the self-reported prevalence of cardiovascular disease is only slightly higher for Indigenous Australians than for other Australians, their rate of hospitalisation for it is higher than for other Australians. In 2007–08, coronary heart disease (heart attack and angina) was the most common type of cardiovascular disease responsible for Indigenous hospitalisations, with the rate being 3 times that of non-Indigenous Australians.

Over the period 2003–2007, Indigenous Australians were 3 times as likely as non-Indigenous Australians to die from cardiovascular disease. Box 5.3 discusses a particular problem for Indigenous Australians, acute rheumatic fever and its complication, rheumatic heart disease.

Box 5.3: Acute rheumatic fever and rheumatic heart disease

Both acute rheumatic fever (ARF) and rheumatic heart disease (RHD) are preventable causes of ill health and death. They are associated with environmental factors such as overcrowding and poor sanitation.

Indigenous Australians in the Northern Territory (NT) have some of the highest rates of ARF and RHD in the world, and almost all new cases recorded in the NT are Aboriginal and Torres Strait Islander people (AIHW 2004). The death rates for Indigenous Australian males and females due to rheumatic heart disease are far higher than for other Australians (16 and 22 times as high, respectively, over the period 2000–2004).

Mental health and social and emotional wellbeing

Until recently, most national data on the social and emotional wellbeing of Aboriginal and Torres Strait Islanders centred on the use of mental health services. The 2004–05 NATSIHS included an interim module to collect national data on social and emotional wellbeing for the first time. The module captured eight aspects of social and emotional wellbeing, including psychological distress and its effects, positive wellbeing, feelings of anger, stressors, perceptions of discrimination, cultural identification, and removal from family (ABS 2006a).

The NATSIHS results indicated that 27% of Indigenous adults had high or very high levels of psychological distress, with Indigenous females significantly more likely than Indigenous males to report such levels (32% and 21% respectively) (AIHW 2009b). Compared with non-Indigenous Australians surveyed in the 2004–05 National Health Survey (NHS), and after taking into account differences in the age structure of the two populations, Indigenous Australians were twice as likely to report high or very high levels of psychological distress (AIHW 2009b).

The results also indicate that in the 4 weeks before their interview, 12% of Indigenous Australians had visited a doctor or other health professional due to feelings of psychological distress, and 21% reported that there had been one or more days in which they were unable to work or carry out normal activities due to such feelings. In relation to stressors, 42% of Indigenous adults indicated that they or their family or friends had experienced the death of a family member or close friend in the previous year, 28% reported serious illness or disability and 20% reported alcohol-related problems (AIHW 2009b).

Other data sources also indicate that Aboriginal and Torres Strait Islanders have poorer social and emotional wellbeing than non-Indigenous Australians. For example, in 2006–07 the rate of community mental health service contacts for Indigenous Australians was 2.5 times that for other Australians (AIHW 2009c).

Injury

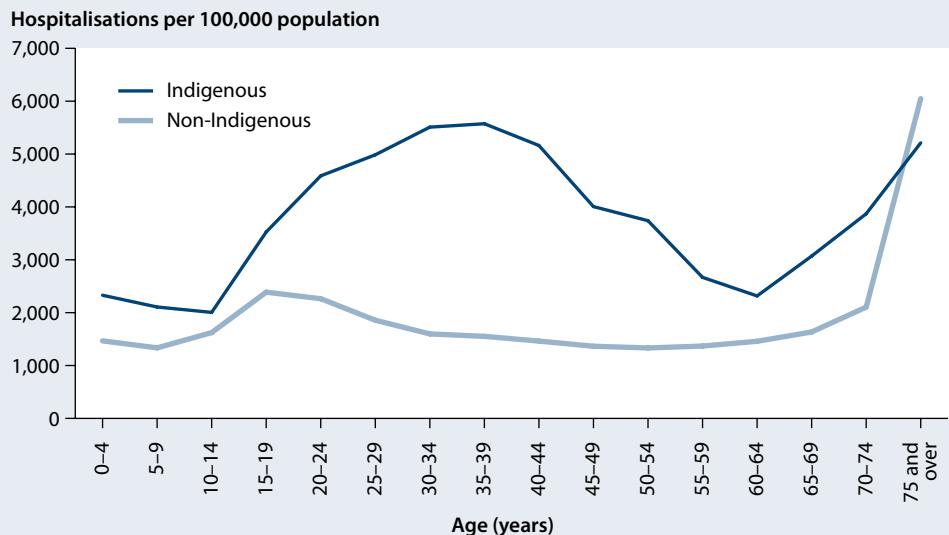
Injury (which here includes poisoning) is the third leading cause of death and the main cause of hospitalisation (excluding dialysis for kidney disease) of Indigenous Australians. This is in stark contrast to non-Indigenous Australians, where injury does not feature as a top cause of death overall (see Table 2.10).

Many Indigenous Australians drink alcohol at levels that increase the risk of injury. Also, it is reported that social and economic disadvantages, as well as feelings of despondency in Indigenous communities, often result in self-harm, making their incidence of intentional injury much more common than among other Australians (AHMAC 2008).

In 2007–08, Indigenous Australians were hospitalised for injury at twice the rate of other Australians. Their most commonly recorded types of injury were those inflicted by another person (29% of all injury hospitalisations) and accidental falls (20%).

The distribution of hospitalised injury by age differs between Indigenous and non-Indigenous Australians (Figure 5.1). By contrast with non-Indigenous Australians, rates of injury in Indigenous Australians continue to rise in younger adulthood, peaking in the 35–39 years age group.

The risk excess (that is, the absolute difference between the two sets of rates) was greatest at ages from about 20 to 50 years. Like cardiovascular disease, injury is one of the causes of mortality that most contribute to the low life expectancy of Indigenous Australians, mainly because of high rates at early and middle adult ages.



(a) Includes cases where the principal diagnosis was coded to ICD-10-AM S00–T75 or T79.

Note: Figure excludes transfers from acute hospitals.

Source: AIHW National Hospital Morbidity Database.

Figure 5.1: Hospitalisations due to injury and poisoning^(a), 2007–08: rates by age for Indigenous and non-Indigenous Australians

In the period 2003–2007, Indigenous Australians died from injury at more than twice the rate of non-Indigenous Australians. Transport accidents were the most common cause of injury death of Indigenous Australians, followed by self-harm. Deaths due to assault were much more common among Indigenous Australians, at 6 times the rate of non-Indigenous Australians.

Respiratory diseases

Respiratory diseases are leading causes of illness, disability and mortality around Australia. Common examples are asthma, chronic obstructive pulmonary disease, influenza and pneumonia. While all these can result in a high use of health services, pneumonia and chronic obstructive pulmonary disease are the leading causes of death among respiratory diseases.

In the 2004–05 NATSIHS, the proportion of Aboriginal and Torres Strait Islander people who reported some form of respiratory disease was 27%. The most common form they reported was asthma (15%). After adjusting for differences in age structure between the Indigenous and non-Indigenous populations, Indigenous people were nearly twice as likely as non-Indigenous people to report having bronchitis, and 1.5 times as likely to report having asthma (ABS 2006a).

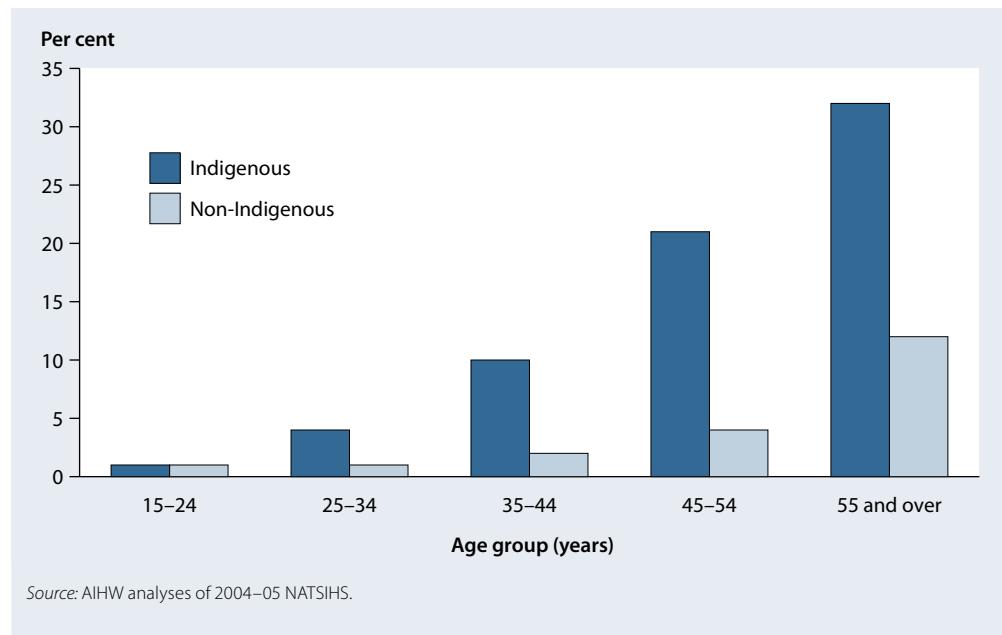
As for Australians generally, Indigenous hospitalisations for respiratory disease were most common among the very young and the very old. Indigenous Australians were hospitalised at higher rates than other Australians for most types of respiratory diseases—for influenza and pneumonia at around 4 times the rate, and 5 times for chronic obstructive pulmonary disease (ABS & AIHW 2008).

Between 2003–2007 there were 863 deaths recorded for Indigenous persons from respiratory diseases in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory, representing 8% of all Indigenous deaths in those areas. Over this period, Indigenous persons died from respiratory diseases at twice the rate of non-Indigenous persons.

Diabetes

Type 1 diabetes (see Chapter 4) is rare in the Indigenous population, but there is a very high prevalence of Type 2 diabetes. Indigenous people tend to develop Type 2 diabetes earlier than other Australians and often die from it at younger ages.

In the 2004–05 NATSIHS, the self-reported prevalence of diabetes among Indigenous Australians was 6%. After adjusting for differences in age structure, Indigenous Australians were 3 times as likely as non-Indigenous Australians to report diabetes as a long-term health condition. However, among those aged 45–54 years, they were 5 times as likely (Figure 5.2).



Source: AIHW analyses of 2004–05 NATSIHS.

Figure 5.2: Proportion of persons reporting diabetes or high sugar levels, by Indigenous status and age group, 2004–05

Hospital and mortality data further show the extent of diabetes among Indigenous Australians. In 2007–08, hospitalisation rates for any diagnosis of diabetes were almost 9 times as high for Aboriginal and Torres Strait Islander people as for other Australians. For the period 2003–2007, Indigenous Australians were 7 times as likely as non-Indigenous Australians to have diabetes recorded on their death certificate.

Chronic kidney disease

Aboriginal and Torres Strait Islander people also have high levels of chronic kidney disease, which is partly due to their high prevalence of diabetes. From self-reports, an estimated 7,500 (3%) Indigenous Australians aged 18 years and over had kidney disease as a long-term condition in 2004–05 (AIHW: Penm 2008). However, one clinical survey suggests that the prevalence may be higher than that, at least in some communities. In a remote community in the Northern Territory, 12% of adults were found to have stage 3, 4, or 5 chronic kidney disease (see Box 4.7 in Chapter 4) and a further 36% had evidence of reduced kidney function (McDonald et al. 2003).

In 2007, 9% (218) of Australians who began kidney replacement therapy—dialysis or transplant—identified as Indigenous. After adjusting for age, the incidence rate of treated end-stage kidney disease is around 6 times as high for Aboriginal and Torres Strait Islander people as for non-Indigenous people.

As at 31 December 2007, of all Indigenous patients registered as receiving treatment for end-stage kidney disease, 88% relied on dialysis and only 12% were living with a functioning kidney transplant. In contrast, the corresponding figures for non-Indigenous Australians were 55% and 45% (Jose et al. 2008).

Kidney dialysis was the most common reason for hospitalisation among Indigenous Australians in 2007–08, representing 43% of all their hospitalisations. Excluding dialysis, Indigenous Australians were hospitalised for chronic kidney disease as a principal or additional diagnosis at 5 times the rate of other Australians.

For the period 2003–2007, Indigenous Australians were 5 times as likely as non-Indigenous Australians to have chronic kidney disease recorded on their death certificate.

Comorbidity of cardiovascular disease, diabetes and chronic kidney disease

Cardiovascular disease, diabetes and chronic kidney disease often occur together in the general population, a situation known as comorbidity. However, this particular comorbidity is even more common among Indigenous Australians. In 2007–08, Indigenous Australians were 12 times as likely as other Australians to be hospitalised with all three conditions (Table 5.3). Similarly, in 2003–2007 they died with all three diseases at 13 times the rate of non-Indigenous Australians and in both periods they also had a much higher comorbidity rate of two of these diseases.

Table 5.3: Deaths and hospitalisations among Indigenous Australians with comorbidities of cardiovascular disease, chronic kidney disease and diabetes, 2003–2007 and 2007–08

	Age-standardised rates			
	Males	Females	Persons	
2003–2007		Deaths (per 100,000)		
CVD, CKD and diabetes	82	106	93	13.2
Two of the above	273	292	278	4.7
2007–08		Hospitalisations (per 1,000)		
CVD, CKD and diabetes	41	46	44	11.8
Two of the above	111	126	118	6.2

CKD Chronic kidney disease.

CVD Cardiovascular disease.

(a) The standardised mortality ratio is calculated by dividing the observed number of deaths by the number that would be expected if the Indigenous population had the same age distribution as the non-Indigenous population.

(b) The standardised morbidity ratio is calculated by dividing the observed number of hospitalisations by the number that would be expected if the Indigenous population had the same age distribution as the rest of the Australian population (non-Indigenous and not stated).

Notes

1. The deaths data are based on data from deaths registered in NSW, Qld, WA, SA and the NT only, and are indirectly age-standardised to the 2004–2006 non-Indigenous Australian population. The data from these five jurisdictions are not necessarily representative of the other jurisdictions or of Australia as a whole. Three years' data are combined due to small numbers of Indigenous deaths.
2. The hospitalisation data are based on data from NSW, Vic, Qld, WA, SA and public hospitals in the NT only, and are indirectly age-standardised to the 2007–08 population for other Australians. The data from these six jurisdictions are not necessarily representative of the other jurisdictions or of Australia as a whole.

Sources: AIHW National Hospital Morbidity Database; AIHW National Mortality Database.

Cancer

Due to the overwhelming dominance of cardiovascular disease and injury among Indigenous Australians, cancer is generally less prominent among them than among other Australians. Across Australia, there were 3,083 cancers diagnosed among Indigenous Australians in the period 2002–2004. The age-standardised incidence rates were higher for Indigenous than non-Indigenous persons for lung cancer, cancer of the mouth and throat, cancer of unknown primary site and cervical cancer. The incidence was lower for Indigenous Australians for colorectal cancer, prostate cancer and lymphomas (ABS & AIHW 2008).

Hospitalisation rates for cancer for both Indigenous and other Australians increased from age 25 years onwards but were considerably lower for Indigenous than other Australians in each age group. The most common cancers for which Indigenous males were hospitalised were lung cancer, skin cancer, leukaemia and prostate cancer. The corresponding cancers for Indigenous females were breast cancer, lung cancer, skin cancer and cervical cancer.

Cancer was the second leading cause of death among Indigenous Australians in the period 2003–2007, and represented 17% of all Indigenous deaths in the five jurisdictions with the most complete coverage of Indigenous deaths. Indigenous Australians died from lung cancer at almost twice the rate of non-Indigenous Australians, and Indigenous females died from cervical cancer at 5 times the rate of non-Indigenous females.

Cancer incidence and survival data come from the state and territory cancer registries. However, Aboriginal and Torres Strait Islander people are not yet identified on pathology forms, and the extent to which Aboriginal and Torres Strait Islander cancer patients are identified in hospital inpatient statistics varies around Australia. Nevertheless, identification of these patients in the registries has been improving.

Determinants and risk factors

There is strong evidence that low socioeconomic status is associated with both poor health and higher levels of risk factors, such as smoking and obesity (see Chapter 3; Carson et al. 2007). It is widely acknowledged that closing the gap in life expectancy will need major improvements in the social determinants of health for Indigenous Australians, such as their education, employment and housing. This section examines those three social determinants along with such risk factors as smoking and alcohol abuse, poor nutrition and obesity. It concludes with an overview of the association between some social determinants and these risk factors.

Education

Education is considered a key factor in improving the health and wellbeing of Indigenous Australians (see Chapter 3 for a more general discussion of education). Results from the 2004–05 NATSIHS indicate that higher levels of schooling are associated with better health among Aboriginal and Torres Strait Islander people. In 2004–05, Indigenous Australians aged 18–34 years with higher levels of schooling were more likely than those with lower levels to report better health and lower levels of psychological distress. They were also less likely to regularly smoke, drink alcohol at risky or high-risk levels and be physically inactive (ABS & AIHW 2008). Results from the 2006 Census show that one-quarter (23%) of Indigenous adults completed Year 12 as their highest year of school completed, compared with one-half (49%) of non-Indigenous adults (ABS & AIHW 2008).

Not only does education affect health but the reverse can also be true. For example, the common middle ear condition otitis media is twice as common among Indigenous children as non-Indigenous children and the hearing loss it causes has been linked to learning difficulties.

Employment

As with education, employment status is also strongly related to health status and this is true of both Indigenous and non-Indigenous Australians (see later section in this chapter).

Labour force participation by Aboriginal and Torres Strait Islander people remains considerably lower than for other Australians. In 2006, the labour force participation rate for Indigenous persons aged 15–64 years was 54%, compared with 75% for non-Indigenous persons in the same age range. Of Indigenous Australians who were in the labour force (which includes persons who are employed or looking for work), 16% were unemployed, over 3 times the rate for other Australians (5%) (ABS & AIHW 2008).

Generally, poor health status and disability have been associated with unemployment among Indigenous Australians (Ross 2006). For example, findings from the 2004–05 NATSIHS show that those who were unemployed were more likely than those who were employed to be current smokers (76% versus 42%), drink at short-term risky or high-risk levels in the last 12 months (67% versus 61%), report heart or circulatory problems (28% versus 23%), and to be obese (35% versus 30%) (AIHW 2009a).

Housing conditions

Overcrowded dwellings and poor-quality housing have also been associated with poor physical and mental health among the occupants (Waters 2001). Many Indigenous people live in houses that are overcrowded and that do not satisfy the basic Australian standards for shelter, safe drinking water and adequate waste disposal.

In 2006, an estimated 14% of Indigenous households (nearly 21,000) in Australia were overcrowded compared with 5% of other households. This equates to around 102,400 Indigenous Australians (27% of the total Indigenous population) living in overcrowded accommodation (AIHW 2009a). Overcrowding varied significantly by tenure type, with the highest rates being in rented Indigenous community housing (40%); and by remoteness, where Indigenous community housing is most common (ABS & AIHW 2008). There was a slight decrease in the proportion of Indigenous households that were overcrowded between 2001 and 2006, from 16% to 14%.

The 2006 Community Housing and Infrastructure Needs Survey collected data on dwelling condition and main source of water, sewerage and electricity for 17,177 permanent dwellings in 1,187 Indigenous communities. Across Australia, an estimated 6,674 Indigenous community housing dwellings (31%) required major repair or replacement. Dwellings located in remote and very remote areas tended to be in the poorest condition (ABS & AIHW 2008).

Poor nutrition, physical inactivity, and overweight or obesity

Over a long period, the traditional fibre-rich, high-protein, low saturated fat diet of many Indigenous communities has changed to one which is high in refined carbohydrates and saturated fats. The 2004–05 NATSIHS indicates that less than half (41%) of Indigenous Australians living in non-remote areas have the recommended daily intake of fruit (two or more serves daily) and only 10% have the recommended daily intake of vegetables (five or more serves daily) (NHMRC 2003a,b). In comparison, over half of non-Indigenous Australians have the recommended daily fruit intake and 14% of non-Indigenous Australians have the recommended daily vegetable intake (AIHW 2009a).

For Indigenous Australians living in remote areas, access to a range of food items, including fruit and vegetables, is limited. This is due to the higher costs for handling and transporting goods to remote communities, the lack of appropriate storage facilities within communities and the lack of suitable local produce to purchase (NHMRC 2000). The 2004–05 NATSIHS showed that in remote areas 20% of Indigenous Australians aged 12 years and over reported no usual daily fruit intake compared with 12% in non-remote areas. The disparity was even greater for vegetables, where 15% of Indigenous Australians in remote areas reported no usual daily vegetable intake compared with 2% in non-remote areas.

According to the 2004–05 NATSIHS, three-quarters of Indigenous respondents aged 15 years and over living in non-remote areas had sedentary or low levels of physical activity in the 2 weeks before the survey. A higher proportion of Indigenous females than males reported a sedentary level of physical activity. When age differences were taken into account, Indigenous people were 1.5 times as likely as non-Indigenous people to report being sedentary (AIHW 2009a). Also, Indigenous persons who had low or sedentary levels of physical activity were more likely to report having heart or circulatory problems (28%) and diabetes (14%) than those who had high levels of physical activity (each 11%).

In the same survey, of those who reported their height and weight, 36% of Indigenous people aged 15 years and over had a healthy weight, 29% were overweight and 31% were obese. After adjusting for age differences, Indigenous females were around 1.5 times as likely to be overweight or obese as non-Indigenous females, whereas the rates were similar among Indigenous and non-Indigenous males. Indigenous persons who were overweight or obese were more likely to report having diabetes (18%) and heart or circulatory problems (29%) than those who were not overweight or obese (9% and 21% respectively) (AIHW 2009a).

Smoking and alcohol consumption

The 2004–05 NATSIHS found that around half of the Indigenous population aged 18 years or over were daily smokers. After adjusting for age differences, Indigenous adults were more than twice as likely to be current daily smokers as other Australians (Table 5.4).

Smoking during pregnancy is a risk factor for complications such as spontaneous miscarriage and is associated with poor outcomes such as fetal growth restriction, pre-term birth, low birthweight, perinatal death and congenital abnormalities (AIHW 2004). In 2006, Indigenous mothers were more than 3 times as likely to report smoking during pregnancy as non-Indigenous mothers (52% compared with 16%). Indigenous children (0–14 years) are also much more likely (28%) than non-Indigenous children (9%) to be exposed to tobacco smoke in the home (AIHW 2009a). Passive smoking is associated with increased risk of respiratory diseases, lung cancer and coronary heart disease (NHMRC 1997).

Table 5.4: Smoking and alcohol use of persons aged 18 years and over, by Indigenous status, 2004–05 (per cent)

	Males		Females		Total	
	Non- Indigenous	Indigenous	Non- Indigenous	Indigenous	Non- Indigenous	Indigenous
Current daily smoker	48	24	45	18	46	21
Long-term risky or high-risk alcohol consumption ^(a)	18	15	13	12	15	14
Short-term risky or high-risk alcohol consumption ^(b)	21	12	14	5	17	8

(a) Long-term risk level based on respondent's alcohol consumption in week before interview.

(b) Persons who consumed alcohol at short-term risky or high-risk levels at least once every week in the 12 months before interview.

Note: Proportions are directly age-standardised to the 2001 Australian Standard Population.

Source: AIHW 2009a.

Overall, Indigenous Australians are considerably less likely to drink alcohol than non-Indigenous Australians. However, among those who drink, a higher proportion of Indigenous Australians drink at risky or high-risk levels. Among those Australian adults who drank in 2004–05, after adjusting for differences in age structure between the two populations, the rate of long-term risky or high-risk drinking of Indigenous Australians was 34% compared with 22% of non-Indigenous Australians. Indigenous Australians were also twice as likely as non-Indigenous Australians to drink at short-term risky or high-risk levels.

The 2004–05 NATSIHS found that Indigenous adults were more likely to report being a current smoker if they drank at short-term or long-term risky or high-risk levels, had low levels of exercise and reported a self-assessed health status of fair or poor than if they drank at safe levels, were physically active and had excellent or very good self-assessed health status (AIHW 2009a).

Socioeconomic status

As with other Australians, the worse the socioeconomic status of Indigenous Australians the more they are likely to have health risk factors. A strong socioeconomic gradient exists for risk factors among Indigenous people, as it does for other Australians (see Section 5.3). This section uses data from the 2004–05 NATSIHS to show the relationship between health risk factors and education, labour force status and income.

Indigenous people with low levels of educational attainment were more likely than those who had completed Year 12 to regularly smoke, consume alcohol at risky or high-risk levels and engage in low levels of exercise, and were also less likely to eat fruit or vegetables daily (Table 5.5). Indigenous people who were unemployed were more likely to be current daily smokers than those who were employed, and those with lower incomes were more likely than those with average or higher incomes to smoke and less likely to eat fruit or vegetables daily.

Table 5.5: Health risk factors by selected socioeconomic characteristics, Indigenous persons, 2004–05 (per cent)

Selected risk factor	Highest year of school completed		Labour force status		Equivalised household income	
	Year 12	Year 9 or below	Employed	Unemployed	Average and above	Lowest
Current daily smoker	34.3	54.9	45.2	66.3	39.7	55.4
Risky or high-risk alcohol consumption	12.2	17.2	19.1	20.4	18.4	15.5
Has used illicit substances in last 12 months	27.6	35.4	26.0	27.9	28.4	29.3
Sedentary or low level of exercise	70.5	81.9	73.7	69.4	75.2	74.5
Overweight or obese	56.2	61.9	58.7	51.4	57.0	56.7
Does not eat fruit daily	9.4	16.9	14.3	14.4	10.4	16.6
Does not eat vegetables daily	3.8	7.7	5.0	4.0	1.0	7.4

Source: ABS & AIHW 2008.

The high level of health risk factors among Indigenous Australians suggest that policies need to deal with the risk factors in their own right, as well as tackling the social conditions that promote them and cause ill health and premature death. The COAG targets (Box 5.1) provide a means of monitoring progress in improving both the social determinants of health and the overall health status of Aboriginal and Torres Strait Islander people.

5.2 Rural Australians

While the characteristics of Australia's rural areas are quite diverse, rural Australians share several common features. In particular, they live large distances away from major cities and services, and are generally not as healthy as their city counterparts. There can be many reasons for their generally poorer health, including the lower economic advantages of many rural communities (lower levels of education, income and employment), occupational risks from farm or mining work, greater levels of smoking and alcohol abuse, less access to health services and staff, and the hazards of driving over long road distances (AIHW 2008a,b).

Also, Indigenous Australians are known to suffer many health disadvantages and they make up a considerably larger part of some rural populations, especially the more remote communities (26%), than they do in the cities (1%). However, it should be noted that the health disadvantages of rural Australia, on average, are by no means as marked as those of Aboriginal and Torres Strait Islander people as a whole (see Section 5.1).

Despite this general health picture, many people live in rural areas because of the areas' unique and enjoyable lifestyle. Compared with urban areas, personal safety, community connection and general wellbeing are higher in some rural areas (Cummins et al. 2005). All these factors—positive and negative—affect health in various ways.

This section examines the differences in health between those living in rural and urban areas, and concludes with information on access to health services in rural areas.

The geography and classification of rural areas

Geographically, rural areas vary greatly in character, from sparsely populated outback and tropical rainforest areas to 'sea change' communities, regional centres and mining towns. Generally, however, rural areas are more likely to have a harsher environment than urban areas. Drought is one example; it can impose a mental health burden as well as an economic burden on people in rural communities (Morrissey & Reser 2007). Other natural disasters, such as bushfires, can cause widespread death and damage, and can have long-term psychosocial effects on those affected. Furthermore, it is predicted that climate change will increase the frequency and severity of events such as flooding, heatwaves, droughts, bushfires and outbreaks of plant disease. All of these factors disproportionately affect rural communities, and in many cases their health and their local health services (Bi & Parton 2008).

The great diversity of rural areas and the diverse populations they contain mean that putting them into categories is difficult. This section uses the ABS Australian Standard Geographical Classification Remoteness Areas classification to describe an area's relative remoteness (see Box 5.4).

Box 5.4: Defining rural areas

This section mostly uses the Australian Bureau of Statistics (ABS) Australian Standard Geographical Classification Remoteness Area classification (ABS 2006b). The classification allocates one of five remoteness categories to areas depending on their distance from different-sized urban centres, where the population size of the urban centre is considered to govern the range and type of services available.

Areas are classified as *Major cities*, *Inner regional*, *Outer regional*, *Remote* or *Very remote*. The category *Major cities* includes Australia's capital cities, with the exceptions of Hobart and Darwin, which are classified as *Inner regional*. It should be noted that these categories are broad and that health status may vary within them. For example, there is evidence that death rates can be lower in coastal *Inner regional* areas compared with inland *Inner regional* areas (AIHW 2007).

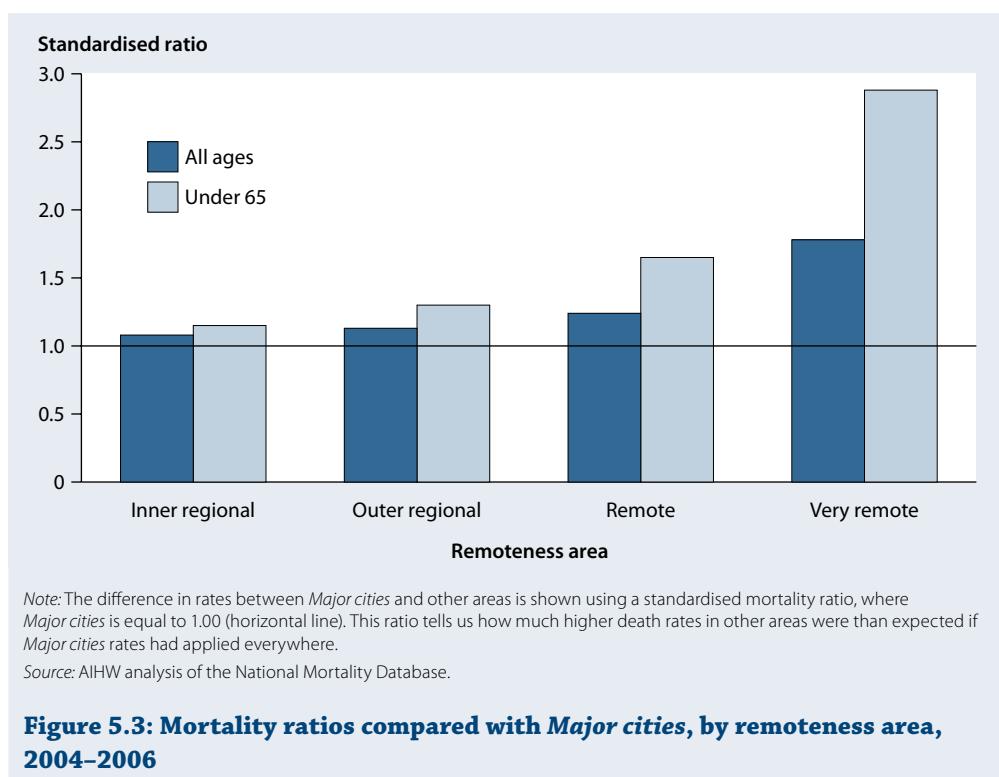
Because of the small sample sizes involved in population surveys covering *Remote* and *Very remote* areas, these surveys are not always able to produce reliable estimates for these areas. For this reason, data for these areas are combined or included with data from *Outer regional* areas in some of the analyses presented here. Additionally, results from the National Survey of Adult Oral Health use a 'capital city/non-capital city' comparison. When referring to the oral health data here, the term *Major cities* is used for 'capital cities'.

Health status

Mortality

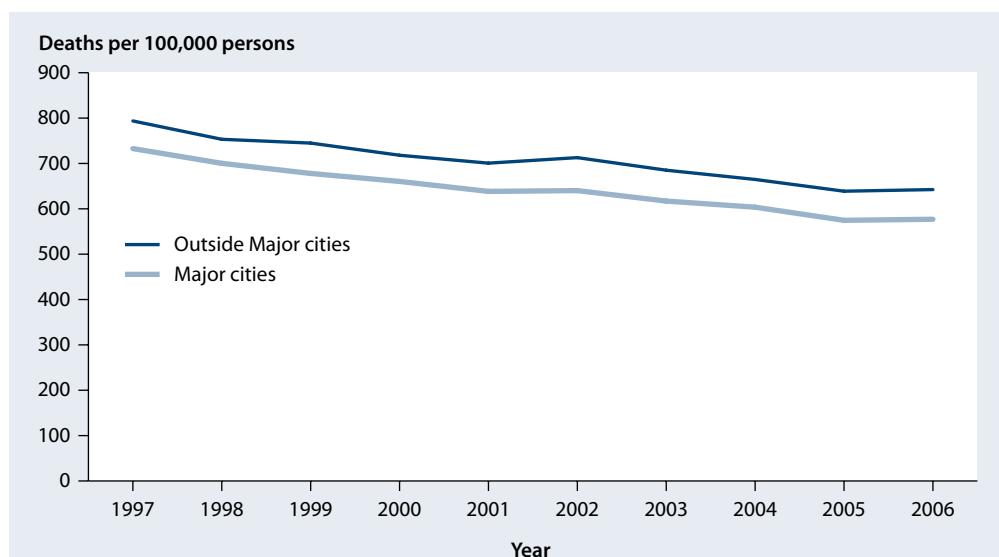
Overall mortality rates increase with remoteness (Figure 5.3). For example, in 2004–2006, *Inner and outer regional* areas had death rates 1.1 times as high as *Major cities*, while death rates in *Very remote* areas were 1.8 times as high. Some of this difference in mortality can be explained by the high proportion of Indigenous people who live in more remote areas, and who tend to have higher death rates than non-Indigenous people (Hayes et al. 2005).

In the same period, mortality within specific age groups also varied by remoteness. Compared with *Major cities*, death rates for those aged less than 65 years ranged from 1.1 times as high in *Inner regional* areas to 2.9 times as high in *Very remote* areas (Figure 5.3). These were mostly influenced by comparatively high death rates among those aged 15–44 years outside *Major cities*. So-called 'external causes' (such as motor vehicle accidents and suicide) accounted for much of the higher death rates among young adults living outside *Major cities*. In contrast, mortality differences were less among those aged 65 years and over. Compared with *Major cities*, death rates among this older age group in other areas were only 1.1 times as high.



In 2004–2006, there were about 4,600 excess deaths annually outside *Major cities*—that is, deaths above the number expected if these areas had the same death rates as *Major cities*. The causes of death that contributed most to this excess were coronary heart disease (20% of excess deaths), ‘other’ circulatory disease (17%), chronic obstructive pulmonary disease (9%) and motor vehicle accidents (8%). Suicide, which is more common outside *Major cities*, contributed 4% of the excess, amounting to about 184 deaths. Injuries contributed 80% of excess deaths among 15–24 year olds outside *Major cities*, and 55% of excess deaths among 25–44 year olds. These findings highlight the potential benefits in reducing preventable causes of death, such as motor vehicle accidents, among young people in rural areas.

It is important to note that mortality rates across all regions fell steadily in the period 1997–2006, not just those in *Major cities* (Figure 5.4). However, the mortality gap between the *Major cities* and other areas has remained fairly constant during this time, with death rates being about 10% higher each year in those other areas.



Note: Age-standardised to the 2001 Australian population.

Source: AIHW analysis of the National Mortality Database.

Figure 5.4: Deaths from all causes by area, 1997–2006

Health conditions

In the 2007–08 National Health Survey (NHS), people living outside *Major cities* were more likely to report certain chronic diseases such as arthritis, bronchitis and osteoporosis than residents of *Major cities* (Table 5.6). Moreover, people living outside *Major cities* were much less likely than their city counterparts to report their health status as being excellent or very good.

Table 5.6: Selected health status indicators, by remoteness area, 2007–08

Health status	Major cities	Inner	Outer regional/ Remote ^(a)	Outside Major cities
		regional	Standardised ratio ^(b)	
Reported excellent or very good health	1.00	*0.96	0.90	*0.94
Incidence of cancer (2003–05)	1.00	*0.96	*0.93	*0.95
Reported osteoporosis	1.00	*1.27	*0.70	*1.07
Reported bronchitis	1.00	*1.24	0.99	*1.16
Reported injury	1.00	*1.26	*1.48	*1.33
Reported arthritis	1.00	*1.37	1.13	*1.29
Lifetime mental disorder (2007)	1.00	1.07	1.11	*1.08
Lifetime substance use disorder (2007)	1.00	*1.20	*1.33	*1.25

* Statistically significant (see Glossary) difference from *Major cities*.

(a) With the exception of cancer incidence, no data are available for *Very remote* areas.

(b) The difference in rates between *Major cities* and regional and remote areas is shown using a standardised ratio, where *Major cities* is equal to 1.00. This ratio tells us how much higher rates in regional and remote areas were than expected if *Major cities* rates had applied everywhere.

Sources: AIHW analysis of National Cancer Statistics Clearinghouse data; AIHW analysis of NHS 2007–08; AIHW analysis of National Survey of Mental Health and Wellbeing 2007 data.

Cancer

The National Cancer Statistics Clearinghouse shows that in 2003–2005 the incidence of cancer decreased slightly with remoteness, with combined rates in *Outer regional*, *Remote* and *Very remote* areas 7% lower than *Major cities*. Accordingly, the incidence of most types of cancer was lower outside *Major cities*, the exceptions being head and neck cancer (5% higher than *Major cities*), melanoma (8% higher) and lip cancer (60% higher). The cancers showing higher incidence outside *Major cities* are generally preventable and occur either through smoking and alcohol consumption (lip, head and neck cancers) or sun exposure (melanoma). Melanoma had a particularly high incidence among females in *Inner* and *Outer regional* areas. Overall, this pattern is similar to that for previous years.

Mental health

In 2007, people living outside *Major cities* were 1.1 times as likely as their city counterparts to have had a mental disorder at some point in their life (lifetime mental disorder) (Table 5.6). Rates of substance use disorders were higher outside *Major cities*, due mainly to the higher rates of risky alcohol consumption in these areas (Table 5.7). Overall there were no significant regional differences in the prevalence of anxiety and affective disorders (including depression) in *Outer regional* and *Remote* areas. However, affective and anxiety disorders were higher among females in these areas than males. Among people living outside *Major cities*, substance use disorders were much more common among males.

There is evidence to suggest that the higher prevalence of mental health problems in rural communities is due to socioeconomic disadvantage, a harsher natural and social environment, loneliness and isolation, and fewer available health services (Morrissey & Reser 2007). In 2004–2006, suicide deaths were 1.3 times as common in areas outside *Major cities* as in *Major cities*. In particular, suicide rates among male farmers and farm workers are higher than those among the general male population (Fragar et al. 2007).

Dental health

Adults living outside *Major cities* were also more likely to have poorer dental health, such as more tooth loss and untreated decay. They were also less likely to have visited the dentist in the previous 12 months than those in *Major cities* (AIHW 2009d). Among persons aged 55–74 years, those living outside *Major cities* were nearly twice as likely to have no teeth as their city counterparts.

Health determinants

Some of the difference in health status between urban and rural areas can be attributed to risk factors such as smoking, heavy alcohol use and other harmful behaviours. In 2007–08, people living outside *Major cities* were 1.2 times as likely as their city counterparts to smoke daily. This gap was slightly higher for females (1.5 times as likely) than for males (1.1).

In addition to smoking, there are some other notable differences in health-related behaviours. For example, based on self-reports, males living outside *Major cities* were 1.4 times as likely and females 1.3 times as likely as their city counterparts to drink at risky or high-risk levels. Males were also 1.2 times as likely as their city counterparts to be sedentary, while there were no significant regional differences in this behaviour for females. However, the measure of sedentary behaviour does not take into account work activity. People living outside *Major cities* may be more active during working hours, given that many of them work in primary production and mining jobs (AIHW 2008a).

People living outside *Major cities* were also 1.3 times as likely as their city counterparts to report high blood pressure and 1.1 times as likely to report high cholesterol. They were also more likely to be classified as overweight or obese (based on measured height and weight data).

Although several risk factors are more prevalent outside *Major cities* (Table 5.7), there may be some exceptions. For example, in 2007–08, based on self-reported information, people living outside *Major cities* were less likely to eat too few vegetables, and males were less likely to use illicit drugs. In 2006 there were also only modest regional differences in health literacy. For example, 42% of those in *Major cities* had adequate or better health literacy, compared with 39% of those in *Remote* areas (ABS 2008).

Table 5.7: Selected health risk factors by remoteness area, self-reported, 2007–08

Risk factor	Major cities	Inner regional	Outer regional/ Remote ^(a)	Outside Major cities
Standardised ratio ^(b)				
Smoking	1.00	*1.13	*1.46	*1.24
Risky or high-risk alcohol consumption	1.00	*1.25	*1.44	*1.32
Sedentary levels of physical activity	1.00	*1.05	*1.16	*1.09
Insufficient fruit intake ^(c)	1.00	1.01	1.10	*1.04
Insufficient recommended vegetable intake ^(c)	1.00	*0.93	0.97	*0.94
Overweight/obese ^(d)	1.00	*1.16	1.13	*1.15

* Statistically significant (see Glossary) difference from *Major cities*.

(a) No data are available for *Very remote* areas.

(b) The difference in rates between *Major cities* and regional and remote areas is shown using a standardised ratio, where *Major cities* is equal to 1.00. This ratio tells us how much higher rates in regional and remote areas were than expected if *Major cities* rates had applied everywhere.

(c) Dietary guidelines recommend at least two serves of fruit and five serves of vegetables per day.

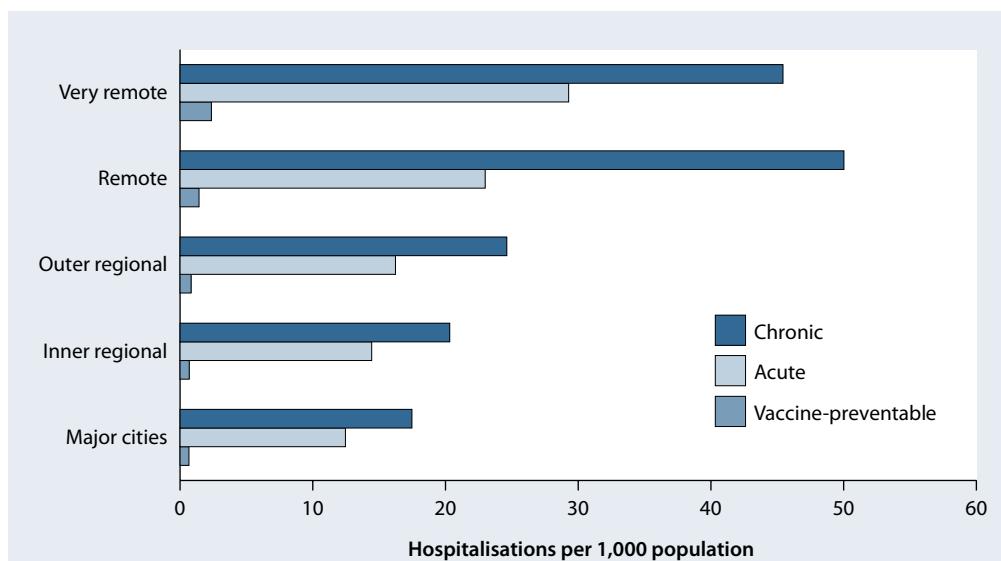
(d) Based on measured height and weight.

Source: AIHW analysis of NHS 2007–08.

Health care in rural and remote areas

The health-care system in rural and remote areas can be influenced by common factors such as larger client capture areas, smaller populations, fewer general and specialist medical professionals, and fewer health services overall. People in rural and remote areas also have different patterns of service use. For example, they may make greater use of hospital emergency departments as a source of primary care than people in *Major cities*. This can complicate the interpretation of data on health resource use and access to services in regional and remote areas.

Overall, hospitalisation rates differed across geographical areas. In 2007–08, hospitalisation rates were highest in *Very remote* and lowest in *Inner regional* areas (AIHW 2009e). This is consistent with the generally lower availability of health professionals in these areas (see tables S38–42). People living outside *Major cities* were also more likely to be admitted to hospital for conditions that could have potentially been prevented through the provision of non-hospital services and care—events known as potentially preventable hospitalisations. Rates for potentially preventable hospitalisations in 2007–08 were highest in *Very remote* areas (Figure 5.5). Hospitalisation rates for diseases that are preventable with proper vaccination, such as whooping cough, were over 3 times as high in *Very remote* areas as in *Major cities*.



Notes

1. Hospitalisations for which the care type was reported as *Newborn* with no qualified days and records for *Hospital boarders* and *Posthumous organ procurement* have been excluded.
2. Hospitalisations per 1,000 population were age-standardised to the June 2001 Australian population.
3. Potentially preventable vaccine-preventable conditions include influenza, bacterial pneumonia, tetanus, measles, mumps, rubella, pertussis and polio. Potentially preventable acute conditions include dental conditions; dehydration/gastroenteritis; ear, nose and throat infections; convulsions and epilepsy; cellulitis; kidney infections; pelvic inflammatory disease; and appendicitis. Potentially preventable chronic conditions include diabetes complications, chronic obstructive pulmonary disease, angina, congestive heart failure, asthma and iron deficiency anaemia.

Source: AIHW 2009e.

Figure 5.5: Rates of potentially preventable hospitalisations by broad categories, by remoteness area of usual residence, 2007–08

National debate about Australia's health workforce often focuses on the supply of health workers in rural Australia. In 2007, the supply of primary care practitioners ranged from 95 full time equivalent (FTE) per 100,000 population in *Major cities* to 84 in *Outer regional* areas (AIHW 2009f). For more information on the supply of primary care practitioners, specialists, nurses and dentists in remote areas, see Chapter 8.

Bulk billing—where the bill for the health service is sent directly to Medicare—can provide people with access to health services regardless of their financial situation. However, in 2008, people aged 15–64 years outside *Major cities* were 10% less likely to be bulk-billed for GP consultations than their counterparts in *Major cities*. The exception to this general picture is that those living in *Very remote* areas were slightly more likely to be bulk-billed than those in *Major cities* (AIHW unpublished analysis of data from the Australian Government Department of Health and Ageing).

5.3 Socioeconomically disadvantaged people

Health and wellbeing is influenced by broad but closely related socioeconomic factors, such as education, occupation and income. These factors help to explain many of the health inequalities in Australia today. In general, relatively disadvantaged members of the community live shorter lives and have higher rates of illness, disability and death than those relatively advantaged. This pattern occurs consistently within countries across the world, despite vast differences between countries in their overall wealth.

Furthermore, this variation in health status is not only evident at the extreme ends of the socioeconomic spectrum but follows a gradient, with overall health tending to improve with each step up the socioeconomic ladder (Marmot et al. 1984). This is commonly known as the 'socioeconomic gradient of health', with those at higher rungs of the ladder tending to be healthier than those in the middle who, in turn, are healthier than those below them. So it is not only a matter of disadvantage but also of less advantage. This gradient exists within many population groups (for example, Indigenous Australians; see Section 5.1).

Disadvantaged people tend to come from disadvantaged families. Family factors and personal experience of lower income, and fewer opportunities for education and employment can all affect a person's health in many ways. This may mean less satisfactory early development before and after birth, less opportunity for health literacy, and a greater influence of family and friends towards unhealthy behaviours such as smoking, heavy alcohol use and a poor diet.

Despite the complexity of their causes and effects the key point is that socioeconomic inequalities should be largely avoidable. A society that can reduce these inequalities is likely to achieve strong health gains.

Measuring socioeconomic status

Education, employment and income are the most commonly used measures of socioeconomic status. However, many other factors can be used, such as housing, family structure and occupation as well as access to resources. Some measures can be used on a single characteristic and others may be composite. While similar patterns between health and socioeconomic status are found regardless of the measure, estimates of the effects of socioeconomic status on health will vary (Adler & Ostrove 1999; Krieger et al. 2005). This section first presents a composite measure known as the Index of Relative Socio-Economic

Disadvantage (Box 5.5). The section then uses a single measure, employment status, to explore variations between the health of the employed and unemployed.

Box 5.5: Socioeconomic status and the Index of Relative Socio-Economic Disadvantage

The Index of Relative Socio-Economic Disadvantage (IRSD) is one of four Socio-Economic Indexes for Areas (SEIFA) compiled by the Australian Bureau of Statistics (ABS) after each Census of Population and Housing. The SEIFA aims to represent the socioeconomic status (SES) of Australian communities and identify areas of advantage and disadvantage. The IRSD scores each area by summarising attributes of the population such as low income, low educational attainment, high unemployment and jobs in relatively unskilled occupations.

Typically, the IRSD areas used are the 38,700 ABS Collection Districts. They are ranked by their IRSD score, and can then be divided in two ways. The first produces groups that represent equal proportions of the total Australian population, and the second produces groups representing equal proportions of the total area. Usually the grouping is in fifths but there can be others, such as fourths or tenths. The groups can then be compared for matters of interest—for example, according to their rates of smoking, obesity, deaths and so on.

In this report, the population living in the 20% of areas with the greatest overall level of disadvantage is described as the 'lowest SES fifth'. The 20% at the other end of the scale—the top fifth—is described as the 'highest SES fifth'.

It is important to note that the IRSD reflects the overall or average level of disadvantage of the population of an area; it does not show how individuals living in the same area differ from each other in their socioeconomic status (Krieger et al. 1997). Being an average, the score is also likely to reduce the apparent differences between areas (Glover et al. 2004).

Socioeconomic status and health

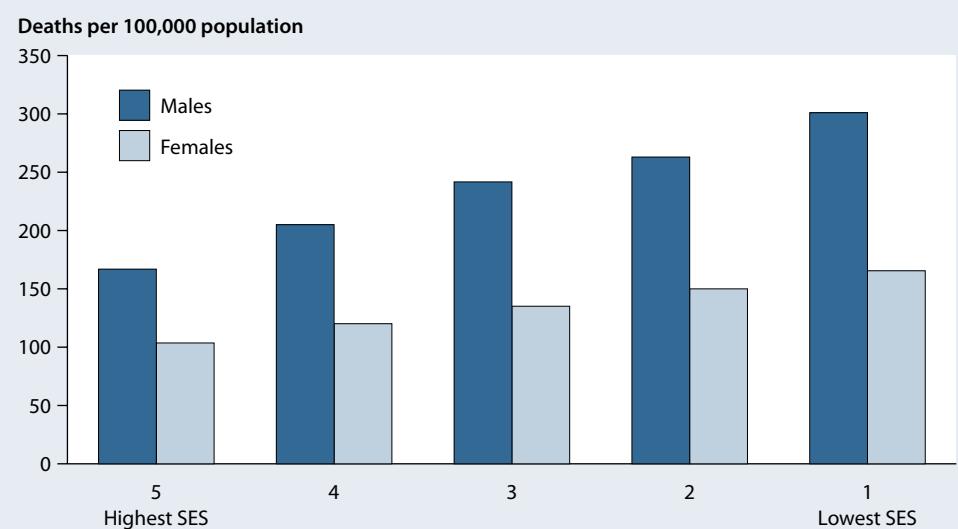
A study of people living in areas of relatively low socioeconomic status (SES) in 2003 reported that they experienced a 32% greater burden of disease than people living in high SES areas (Begg et. al 2007). This burden is a summary measure that takes into account premature mortality and years lived with disability (see Section 2.7). For this reason, this section examines these health components individually, as well as others.

Death and disability

Studies of death rates in Australia reveal substantial socioeconomic inequality. The most recent study of SES and overall mortality (for 1998–2000) found that for all age groups and both males and females, there was a graded relationship between death rates and levels of SES (Draper et al. 2005). The same study found a life expectancy gap between the highest and lowest SES groups of 4 years for males and 2 years for females.

In more recent times, studies considering death from specific health conditions confirmed similar socioeconomic gradients for cardiovascular disease (AIHW: Moon & Waters 2006), diabetes (AIHW 2008c), non-melanoma skin cancer (AIHW & CA 2008) and injuries among young Australians (AIHW: Eldridge 2008).

Moreover, rates of premature death decrease with improving socioeconomic status (Figure 5.6). In 2002–2006, death rates among 15–64 year olds in the lowest SES group were 70% higher than those in the highest SES group.



SES Socioeconomic status.

Note: See Box 5.5 for an explanation of the SES measure used here.

Source: Public Health Information Development Unit 2009.

Figure 5.6 Premature deaths at ages 15–64 years, by sex and socioeconomic status, 2002–2006

Lower socioeconomic status is also correlated with disability. Analysis of the 2006 Australian Census for capital cities found severe disability was more common in those suburban areas where residents had relatively few economic resources than in areas whose residents had more: 3.1% of people living in the lowest of these SES areas had severe disability, compared with 1.3% in the highest areas (AIHW 2009g).

Selected health conditions and risk factors

Much of Australia's burden of disease can be attributed to lifestyle risk factors such as smoking, physical inactivity and being overweight or obese (Begg et al. 2007). Results from the 2007–08 NHS indicate that these factors are generally more common as socioeconomic status declines—risky alcohol use is the exception (Table 5.8). In particular, the prevalence of daily smoking in the lowest SES group was over twice that of the highest group. These SES patterns were also evident among Indigenous Australians (see Section 5.1).

Table 5.8: Prevalence of selected health measures by socioeconomic status, 2007–08 (per cent)

Characteristics	Highest SES:5	4	3	2	Lowest SES:1
Health risk factors					
Daily smoking	11.1	15.1	18.8	21.1	28.6
Sedentary exercise level	24.9	31.0	38.1	38.8	45.4
Risky or high-risk alcohol consumption	12.7	12.6	13.3	13.6	10.1
Overweight or obese	37.9	41.2	42.7	42.2	42.5
Health condition					
Depression	3.5	3.3	3.5	4.0	4.4
Diabetes (Type 2)	2.9	3.7	4.1	4.3	6.2
Chronic respiratory disease	2.2	2.7	2.8	3.1	3.3
Cardiovascular disease	17.3	17.1	21.0	22.2	23.8
Severe/profound disability	2.9	4.1	4.6	5.3	6.1

Notes

1. Data are based on persons aged 15 years and over, except smoking and alcohol consumption (18 years and over).
2. Data are age-standardised to the 2001 Australian population.

Source: AIHW analysis of NHS 2007–08.

People living in the lowest SES areas were also more likely to report depression, Type 2 diabetes, chronic respiratory disease and cardiovascular disease. Again, the likelihood of reporting any of these conditions increased in a graded fashion as socioeconomic status decreased. In the case of Type 2 diabetes and severe or profound disability, rates in the lowest SES areas were over double those in the highest.

Consistent with these findings, people in the lowest SES group were much less likely (48%) than those in the highest (64%) to report being in very good or excellent health.

Unemployed people

Employment is an important contributor to a person's socioeconomic status. Participation in work instils self-esteem and a positive sense of identity, while also providing the opportunity for social interaction and personal development. Although Australia has low unemployment rates compared with similar countries, the average number of unemployed Australians at any given time—around 562,000 in 2008–09—is still very significant (ABS 2009b).

As well as the direct financial and social effects, unemployment is also associated with greater mortality, worse health (particularly mental health) and more disability (Jin et al. 1995; Mathers 1994; Mathers & Schofield 1998). There is also evidence to suggest that, in general, the associations are greater for males than females, and particularly for males aged 25–44 years (for example, see Andersen 2007).

Although long-term studies suggest that people are more likely to develop poor health and disability following unemployment rather than the reverse, it can be difficult to separate cause and effect (Bartley et al. 1999). For example, characteristics related to poor health, such as low levels of education, may not only increase a person's risk of unemployment but also influence how unemployment affects their emotional and physical health.

Measuring unemployment

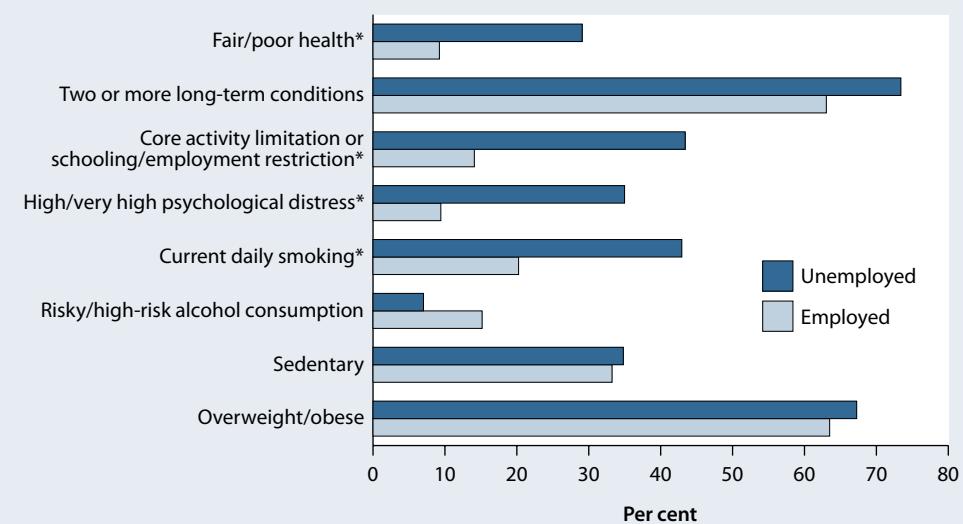
There are some major difficulties in exploring the effect of unemployment on health. First there is the direction of the effect, with poor health being able to cause unemployment as well as vice versa. Second, poor health may be due to factors associated with unemployment, rather than to unemployment itself. Third, there are various kinds and degrees of unemployment. And fourth, the small samples of unemployed people in surveys make it harder to confidently determine real differences between the employed and unemployed. In an effort to account for some of this variation, analysis here is restricted to those who are aged 25–64 years and who have been unemployed for 6 months or more.

For most household social surveys, Australian agencies use a definition of unemployment that is consistent with the definition they use in gathering labour force statistics—those aged 15 years and over who were not employed in the reference week of the survey, who actively looked for work sometime during the previous 4 weeks, and were available to start within the following 4 weeks (ABS 2007c). Together, unemployed and employed people constitute Australia's labour force.

Unemployment and health

Despite the difficulties in assessing the effects of unemployment, the data strongly suggest an effect on health. Results from the 2007–08 NHS indicate that unemployed Australians aged 25–64 years were 3 times as likely as their counterparts in current employment to describe their health as only poor or fair, and 4 times as likely to experience high or very high psychological distress (Figure 5.7). This is consistent with evidence of higher rates of mental health conditions, particularly anxiety and depression, among people unemployed (Comino et al. 2003; Slade et al. 2009). As expected, people with a core activity limitation, or a schooling or employment restriction, were much more likely to be unemployed (43% compared with 14%). Daily smoking was also over twice as likely among the unemployed. (No data can be provided here on the possible relationship between unemployment and mortality, however. This is because death certificates do not include information on employment status.)

People who are unemployed are not the only population group that may be disadvantaged in their employment opportunities as a consequence of their health. There may be people who report that they are not actively looking for work (not in the labour force) because they believe there is no work available, or there may be those who are classified as employed but in reality are working for very few hours per week or are in an insecure employment arrangement. Also, there may be informal carers who cannot actively pursue paid employment due to their caring responsibilities, and people with disability who may wish to work but feel there is not adequate support to do so.



* Indicates statistically significant difference between groups.

Notes

1. Data are for people unemployed 6 months or more.
2. See Box 5.6 for definitions of core activity limitation and schooling/employment restriction.

Source: AIHW analysis of NHS 2007–08.

Figure 5.7: Prevalence of health-related factors by employment status, people aged 25–64 years, 2007–08 (per cent)

5.4 People with disability

There are an estimated 3.9 million Australians with disability. Although many enjoy good health many others may have poor health, either as a result of the underlying cause of their disability or for reasons unrelated to that cause. This has important implications for their needs as a group, particularly if their health conditions affect their participation in the community.

This section aims to describe the health of the population of people with disability. The data show that, overall, people with disability are more likely than others to have poor physical and mental health and higher rates of health risk factors, such as smoking and overweight. Among other things, the data help to confirm that the more severe a person's disability—that is, the greater their limitation or restriction (see Box 5.6)—the poorer their health.

For the first time, Australia's NHS in 2007–08 included information on people with disability along with standard questions relating to health. This survey, along with other population surveys such as the 2007 National Survey of Mental Health and Wellbeing (SMHWB) and the 2003 Survey of Disability Ageing and Carers, provides new opportunities to explore the health status of people with disability and their use of health services. However, in using the NHS data there is an important limitation in exploring the possible effects of disability on health. The NHS data do not identify health disorders that are responsible for a person's disability, so their particular influence cannot be adjusted for in any analysis.

Caring for people with disability can also affect the health and wellbeing of the carers. For further information on the wellbeing of carers, see AIHW 2009h.

Box 5.6: Gaining a profile of people with disability

Three different population measures of disability are used in Australia: the Survey of Disability Ageing and Carers (SDAC), the Australian Bureau of Statistics' (ABS) Short Disability Module (see Section 2.4), and the disability questions of the 2006 Census. Whereas the prevalence of disability can only be obtained from the SDAC, the ABS Short Disability Module, used in both the National Health Survey and the Survey of Mental Health and Wellbeing, provides a basis for comparing the health of people with and without disability. This module identifies people with disability by assessing their severity of limitation on the basic (core) activities of everyday life, such as self-care and communication, or any restrictions they may have in participating in schooling or employment. In this section the following disability status categories are used:

- severe or profound core activity limitation—where the individual sometimes or always needs help with at least one core activity: self-care, communication or mobility
- moderate or mild core activity limitation, or schooling or employment restriction—where the individual does not need assistance but has difficulty performing a core activity (moderate); or has no difficulty performing a core activity but uses aids or equipment because of disability (mild), or has restriction in schooling or employment participation only
- no specific core activity limitation, or schooling or employment restriction—where the individual is identified by the ABS Short Disability Module as having disability but without having specific limitations or restrictions
- no disability.

For disability prevalence estimates from the SDAC, see Section 2.4.

Health status

Results from the 2007–08 NHS show that people with disability are more likely than those without ('other Australians') to have poor health. Rates for all health conditions selected for analysis (asthma, cancer, cardiovascular disease, diabetes, arthritis, osteoporosis and injuries) were higher among this group (Table S13 ). Looking specifically at people aged under 65 years, the rate of arthritis among those with disability was over 5 times as high as for other Australians, and rates of diabetes and osteoporosis over 4 times as high. In addition, the likelihood of having 3 or more of these health conditions at the same time was much greater among people with disability than those without (Figure 5.8). For example, people with a severe or profound core activity limitation were much more likely (around 80 times) than other Australians to experience this.

Also, rates of disease and comorbidity (having 2 or more conditions at the same time) increased with the severity of the disability. For example, 8% of people with a moderate or mild core activity limitation or specific restriction had 3 or more health conditions, while the corresponding figure for people with a severe or profound core activity limitation was 24%.

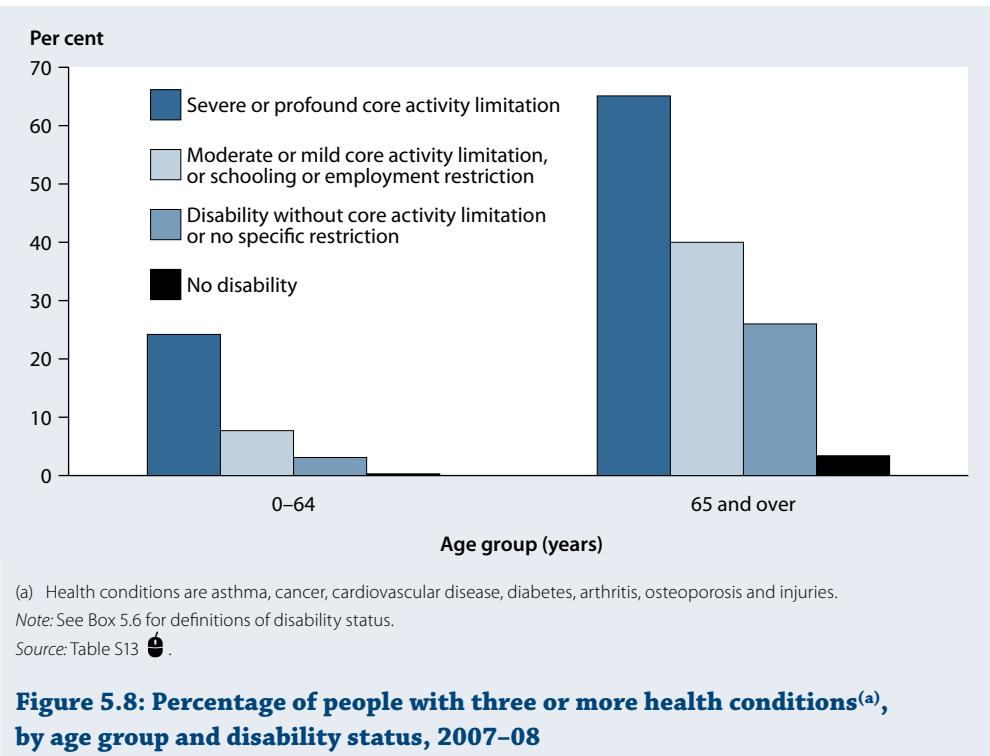


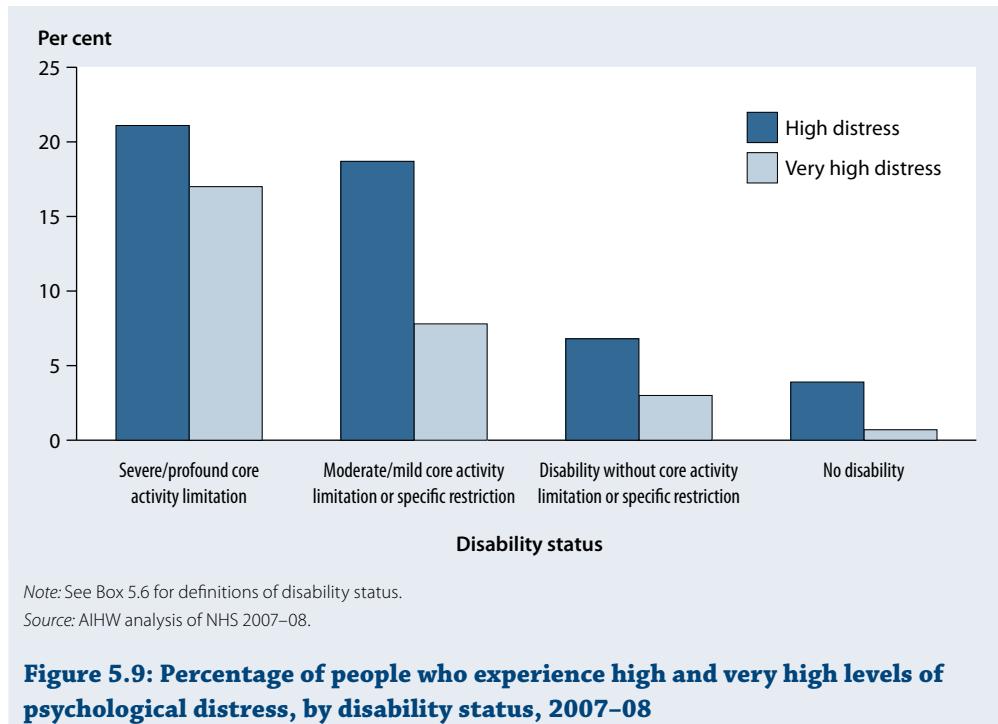
Figure 5.8: Percentage of people with three or more health conditions^(a), by age group and disability status, 2007–08

In addition, people with disability were 4 times as likely as others to report severe or very severe levels of pain, the rates increasing with the severity of limitations (Table S13). Nearly 40% of people aged 15–64 years with a severe or profound core activity limitation had such pain compared with just 4% of other Australians.

Mental health

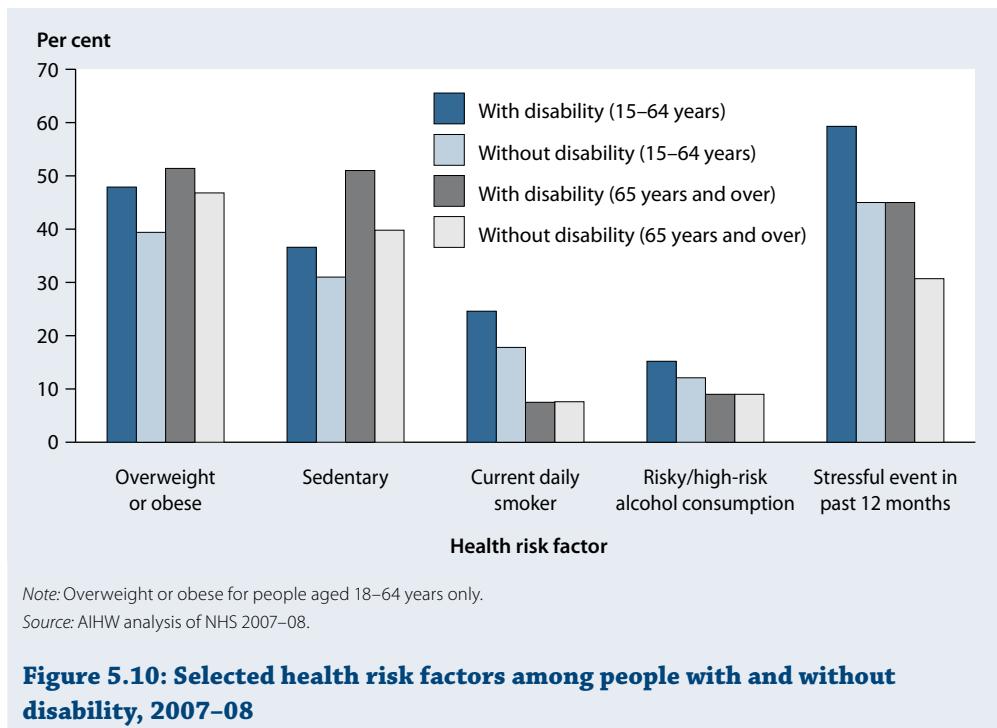
High and very high levels of distress can be indicators of mental illness. According to data from the 2007 SMHWB, people with a severe or profound core activity limitation were far more likely (around 8 times) than those without disability to experience high or very high levels of distress (Figure 5.9). Similarly, in 2007, over two-thirds of people with a severe or profound limitation had a recent mental disorder, compared with just over a third of people without disability.

Anxiety and mood disorders such as depression and bipolar affective disorder are also common among people with disability. Those with severe or profound core activity limitation were twice as likely as other Australians to have an anxiety disorder and 6 times as likely to have a mood disorder.



5 Health determinants

Based on the 2007–08 NHS, people with disability are also more likely than other Australians to have behavioural risk factors such as smoking and experiencing stressful life events. In particular, 15–64 year olds with disability were more likely to be overweight or obese (48% compared with 39%) and to smoke daily (Figure 5.10). They were also more likely to have experienced a stressful event in the 12 months before their interview (60% compared with 45%). In contrast, 15–64 year olds with disability were only slightly more likely than others to drink alcohol at risky or high-risk levels, and the rates were the same among people aged 65 years and over.



Health services

The use of health services by people with disability helps to maximise their participation in community life, along with maintaining their health. There are many factors that influence participation in health services, such as location, finance, and social and cultural barriers, as well as a person's awareness of services and their own personal needs.

As would be expected, data from the 2007–08 NHS show that people aged 15–64 years with a disability were much more likely than other Australians to have visited a specialist in the 12 months before their interview (Table 5.9). A higher proportion of people with a severe or profound core activity limitation reported doing this (56%) compared with those with a disability but no limitation or specific restriction (28%) and those without disability (16%).

The proportion of people with disability who reported visiting a specialist was similar regardless of their household income (around 6–7% from each of the 5 income groups). However, of the people with a severe or profound core activity limitation who reported visiting a specialist, a much higher proportion (16%) was in the lowest income group compared with the highest (3%).

Table 5.9: People aged 15–64 years who visited a specialist in a 12-month period, by disability status and household income, 2007–08 (per cent)

Household income quintile ^(a)	Disability status				Total with disability	No disability
	Severe/profound core activity limitation	Moderate/mild core activity limitation or specific restriction	Disability without core activity limitation or specific restriction	Total with disability		
Lowest	15.9	7.6	2.5	5.8	0.8	
Second	12.9	6.8	3.2	5.6	2.1	
Third	8.8	8.0	5.3	6.6	2.8	
Fourth	7.4	6.5	6.8	6.7	3.1	
Highest	3.1	6.0	6.6	6.0	4.5	
Unknown	7.9	5.3	3.7	4.7	2.6	
Total	55.9	40.5	28.0	35.4	15.9	

(a) These quintiles represent five equal groupings of households ranked by income, with 'lowest' representing households with relatively low income and 'highest' representing those with relatively high income.

Note: See Box 5.6 for definitions of disability status.

Source: AIHW analysis of NHS 2007–08.

While data from the NHS are not able to identify the extent to which the health needs of people with disability are met, previous AIHW analysis has shown that higher levels of disability are associated with lower levels of health care need being met (AIHW 2009i). There has been substantial research on why this may be the case, particularly in the field of intellectual disability. Some factors include lack of adequate training of health professionals to work effectively with people with disability (Torr et al. 2008) and the greater possibility for health conditions to be misdiagnosed or untreated (Wallace & Beange 2008).

It is also possible that disability-specific health resources may be under-used by the people who need them. Recently, the Australian Government funded, under Medicare, health assessments for people with intellectual disability. These GP-conducted assessments are a systematic annual review of physical, mental and social function. They provide an opportunity to diagnose chronic conditions as well as to intervene early for other health problems and health risk factors. Across Australia, around 5,600 assessments were conducted in 2007–08 and around 7,100 in 2008–09 (AIHW analysis of Medicare data). NHS statistics, however, suggest that far more Australians may be eligible for these checks, given there are an estimated 640,000 people with an intellectual disability or restrictive long-term health condition (AIHW analysis of NHS 2007–08).

5.5 Prisoners

Although the number of prisoners in Australia is small compared with other disadvantaged groups, they have a high level of need. Prisoners often come from disadvantaged backgrounds, with low levels of education and employment, and they have some of the worst health in the community, with generally higher levels of chronic and communicable diseases and mental illness than Australians overall. Prisoners also have far greater levels of smoking, and alcohol and illicit drug use.

Limited information existed on the health of prisoners until recently. Established in 2009, the National Prisoner Health Data Collection provides an opportunity to examine the health of Australia's prisoners comprehensively for the first time (Box 5.7). Drawing mostly on these data, this section provides a brief outline of the prison population, followed by a profile of the health of people entering prison compared with the general population, with a focus on certain chronic conditions, mental health, and alcohol and other drug use. It concludes with a summary of the health of Indigenous prisoners, who are greatly over-represented in Australia's prisons.

Box 5.7: National Prisoner Health Data Collection

Responsibility for providing health services to prisoners rests with state and territory governments, whose current health policy and practices vary greatly. Between 2008–09, the AIHW, in conjunction with state and territory representatives and experts in the field, developed the National Prisoner Health Data Collection (NPHDC).

The NPHDC gathered most of its data from the first National Prisoner Health Census conducted over 1 week during 2009. During this census week, data were collected on all prisoners entering prison (either on remand or a sentence), as well as on visits to the prison health clinics and on prisoners' medications. All jurisdictions provided some data for this collection, although the scope and coverage of data varied (see AIHW 2010).

This new collection allows the reporting of key prisoner health indicators (AIHW 2009j). These indicators, structured on the National Health Performance Framework (see chapters 1 and 9), will help in monitoring the health of prisoners, and planning and evaluating services for them.

The National Prisoner Health Indicators cover a broad range of topics including chronic health conditions, communicable diseases, head injury, mental health, self-harm and mortality; health behaviours such as alcohol and other drug use; and the effectiveness, responsiveness, accessibility and efficiency of the services provided by prison health clinics (AIHW 2009j).

Who are Australia's prisoners?

Australia's prison population is increasing, both in terms of overall numbers and imprisonment rates. At 30 June 2009 there were around 27,300 adults in prison. This includes those who were sentenced and those on remand (awaiting trial or sentencing), but excludes those on periodic detention, in immigration detention centres, or in police or court cells (ABS 2009c).

In 2009, most adult prisoners were male (93%) and born in Australia (81%). The median age of prisoners was 33 years. One-quarter of the prison population was Indigenous (25%), despite Indigenous people representing only 2% of the adult Australian population.

The median time spent on remand was 2.9 months, and the median sentence length was 3 years. This means that, each year, thousands of prisoners are released back into the community. Therefore the health problems of prisoners are also important for health planning and service delivery at a population level.

People entering prison

The profile of the 549 prison entrants during the 2009 prisoner health census week was broadly similar to the general prisoner population described above. In the census there was a lower proportion of males (89%), and a slightly higher proportion of Indigenous prisoners (26%) than among the general prison population. This probably reflects the different profiles of entrants and prisoners who are already in custody. Prisoners on remand or shorter sentences are more common among prison entrants. The majority of prisoners at a single point in time are those on longer sentences.

The median age of prison entrants was 29 years, with a slightly higher proportion of Indigenous entrants aged 18–24 years (36%) compared with non-Indigenous entrants (30%). A higher proportion of non-Indigenous entrants (24%) was aged 35 years or over compared with 14% of Indigenous entrants.

Entrants generally had low levels of education compared with the general community, with Year 10 schooling or less being the highest completed level of education for almost three-quarters (74%). For over two-thirds of entrants (68%) this was not their first time in prison, and almost one-quarter (24%) had been in juvenile detention at some time.

Health conditions

The prisoner health census asked prison entrants whether they currently had certain chronic conditions: asthma, arthritis, cardiovascular disease, diabetes and cancer. The results are presented here in Table 5.10 alongside results from the 2007–08 NHS, which similarly estimated the proportions of the general Australian population with these same conditions based on self-reports (ABS 2009d).

Younger prison entrants (25–34 years) were more likely than their counterparts in the Australian population to have asthma (15% compared with 10%) and diabetes (2% compared with 1%). The latter finding reflects the large proportion of Indigenous Australians among prison entrants and the higher prevalence of diabetes in this group compared with non-Indigenous Australians. Rates of arthritis, cancer and cardiovascular disease were similar among prisoners and the general population. This is not surprising considering these conditions are not common in this age group.

A similar picture emerged for those aged 35–44 years, but these entrants were twice as likely as their counterparts in the general population to have cardiovascular disease.

Table 5.10: Prevalence of selected chronic conditions, prison entrants and all Australians (per cent)

Chronic condition	Prison entrants (2009)		All Australians (2007–08)	
	25–34 years	35–44 years	25–34 years	35–44 years
Asthma	15	20	10	10
Arthritis	5	9	5	9
Cardiovascular disease	1	4	0.7	2
Diabetes	2	5	0.5	2
Cancer	1	1	0.3	1

Sources: ABS 2009d; National Prisoner Health Census 2009.

Mental health

The 2007 SMHWB collected information on the prevalence of mental disorders in people who had been imprisoned. In the 12 months preceding the survey interview, the incidence of any mental disorders among individuals who had at some time been imprisoned was greater than among those who had not. Of the 100 people who reported they had ever been imprisoned, 41% had had a mental disorder at some time in the 12 months before the interview, which was more than twice the prevalence of people who reported they had never been imprisoned (19%).

Findings from the prisoner health census similarly suggest a higher prevalence of mental health problems among prison entrants than the general population, particularly among females. Almost one-third of prison entrants were referred to prison mental health services as a result of their initial health assessment, and over one-third of the 549 entrants (205 or 37%) reported ever being told by a doctor, psychiatrist, psychologist or nurse that they had a mental disorder. A history of mental health problems was more common among females; with almost three-fifths (57%) reporting ever having a mental disorder, compared with just over one-third (35%) of males.

A total of 98 prison entrants (18%) reported being currently on medication for a mental disorder. This represents 48% of those who reported ever having such a disorder. A greater proportion of female entrants (28%) than male entrants (17%) was currently on medication.

Non-Indigenous prison entrants were more likely (41%) than Indigenous prison entrants (26%) to report having ever been told (as above) they had a mental disorder, and were more than twice as likely to be currently taking medication for a mental health condition (20% and 9% respectively).

Levels of psychological distress in the 4 weeks immediately preceding imprisonment were measured for prison entrants, and the results compared with the general Australian population. Prison entrants in this census, particularly females, reported consistently higher levels of psychological distress than the general Australian population (Figure 5.11). Half of the female prison entrants reported high or very high levels of distress, compared with 14% of the general female adult population. For males, this applied to over one-quarter (27%) compared with 10%. A far higher proportion of the general population experienced only low levels of distress than did prison entrants, with the difference most striking in females (63% of the general population, compared with 16% of prison entrants).

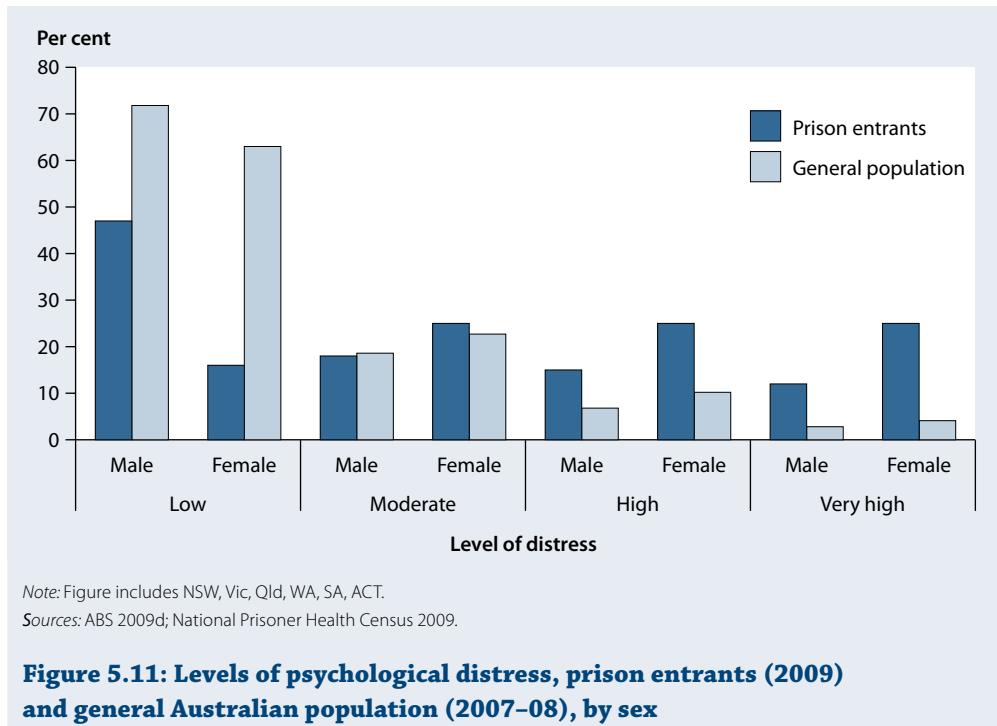


Figure 5.11: Levels of psychological distress, prison entrants (2009) and general Australian population (2007–08), by sex

5

Alcohol and other drug use

Tobacco smoking

Prison entrants were over 3 times as likely as those in the general population to be daily tobacco smokers (74% compared with 20%), while a higher proportion of the general population were either ex-smokers or had never smoked (Figure 5.12). Prison entrants also started smoking at an early age (at around 14 years of age, on average), with 6% smoking their first cigarette when aged under 10 years. The 2007 National Drug Strategy Household Survey found that, nationally, smokers began at an average age of 15 years for males and 16 years for females.

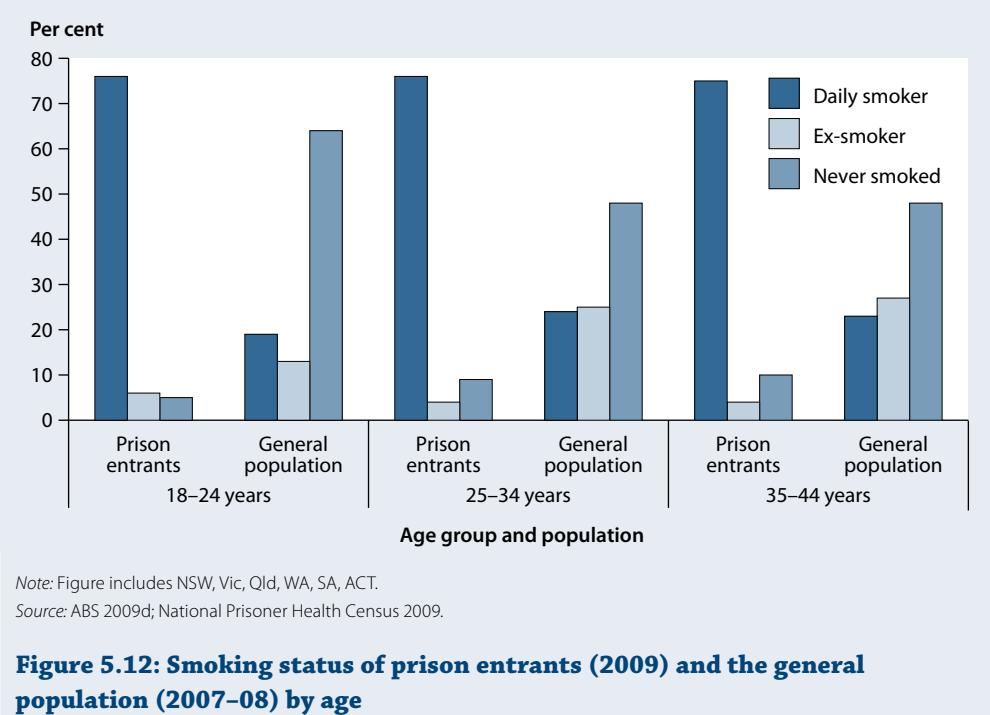


Figure 5.12: Smoking status of prison entrants (2009) and the general population (2007–08) by age

Risky alcohol use

The prisoner health census uses a subset of questions from the Alcohol Use Disorders Identification Test (AUDIT) to assess alcohol consumption and its potential effects on the health of prisoners. The AUDIT was developed by the World Health Organization and provides an accurate measure of risk across different world populations. A score of 6 or more on the three consumption questions was used as indicating a risk of alcohol-related harm. Just over half (51%) of prison entrants drank alcohol at levels that placed them at risk of alcohol-related harm. Alcohol consumption at this level was found in almost two-thirds of Indigenous entrants (65%) compared with less than half of non-Indigenous entrants (47%). However, these figures may be underestimated, given that for 15% of entrants the measure of alcohol-related harm was unknown or invalid.

Illicit drug use

The great majority of prison entrants (71%) had used illicit drugs in the 12 months before the census. As in the general community, recent illicit drug use was found most frequently in the younger age groups of prison entrants. The highest proportion of illicit drug use was by entrants aged 25–34 years (77%) and the lowest by entrants aged 45 years or over (43%).

The most frequently used illicit substances by prison entrants were cannabis/marijuana (52% of all prison entrants), followed by meth/amphetamine (30%), heroin (19%) and analgesics/pain killers (18%) (see Table S14 ❾).

Prison entrants were over 5 times as likely as those in the community to have used illicit drugs in the preceding 12 months (71% compared with 13%). In each age group and for each type of illicit drug, a far greater proportion of prison entrants had used the drug during the last 12 months, compared with the general population (Table 5.11). The differences were

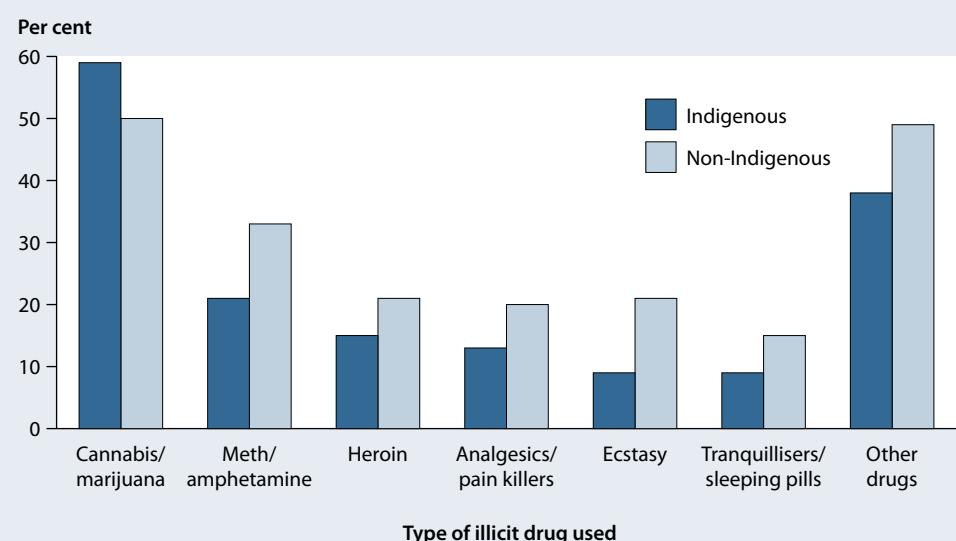
most marked in the older age groups. The use of heroin was also markedly higher among prison entrants (between 12 and 27%) than in the general community (1% or less). Around 59% of prison entrants had used more than one type of illicit drug during the last 12 months, and 12% had used at least six different types of drugs.

Table 5.11: Use of illicit drugs during the last 12 months, prison entrants and all Australians, latest year available (per cent)

Illicit drug used	Prison entrants (2009)			All Australians (2007)		
	18–24 years	25–34 years	35–44 years	18–24 years	25–34 years	35–44 years
Cannabis/marijuana	60	54	45	21	17	9
Meth/amphetamine	28	35	30	5	7	2
Heroin	12	27	20	0	1	0
Analgesics/pain killers	15	22	19	3	3	3
Ecstasy	24	17	13	11	9	2
Tranquillisers/sleeping pills	8	21	12	3	3	1

Sources: AIHW 2007 National Drug Strategy Household Survey; National Prisoner Health Census 2009.

The illicit drugs of choice differed for Indigenous and non-Indigenous prison entrants (Figure 5.13). Cannabis/marijuana was the only illicit drug used by a greater proportion of Indigenous (59%) than non-Indigenous (50%) entrants. The differences were most notable for synthetic drugs such as meth/amphetamines (33% of non-Indigenous entrants, compared with 21% of Indigenous) and ecstasy (20% compared with 9%). The use of heroin, analgesics or pain killers and tranquillisers or sleeping pills was also reported more commonly by non-Indigenous than Indigenous prison entrants.



Notes

1. Percentages do not add to 100% as prisoners may have used more than one type of drug.
2. Figure includes NSW, Vic, Qld, WA, SA, ACT.

Source: National Prisoner Health Census 2009.

Figure 5.13: Prison entrants, illicit drug use by Indigenous status, 2009

Prescribed medication

The prisoner health census collected data on prescribed medications administered to any prisoners in custody during the census week, not just entrants. These data were collected in Queensland, Western Australia, South Australia, Tasmania and the Australian Capital Territory (12,538 prisoners in total). Over two-fifths (41%) of prisoners were taking prescribed medications during the census week, with this being more common among females (56%) than males (39%). Three-fifths (60%) of males taking medication and 69% of such females took more than one type of medication. At least five different medications were taken by 10% of prisoners, up to a maximum of 15 medications.

Two out of the three most common types of medication were for mental health problems. The most common type of medication administered was for depression or mood stabilisation (16% of all medications), followed by antipsychotics, pain medication and antiinflammatories or arthritis medication, each at 9% of medications prescribed (Table S15 ).

The health of Indigenous prisoners

Indigenous prisoners are greatly over-represented in the prison population (making up around one-quarter of the prison population compared with 2% of the Australian population of the same age). As Section 5.1 outlines, Indigenous Australians have poorer health than non-Indigenous Australians. However, results from the prisoner health census were not always consistent with this general pattern—there was less difference between Indigenous and non-Indigenous prisoners than may have been expected. For example, smoking and illicit drug taking were found at similar levels for Indigenous and non-Indigenous prisoners. For mental health, the pattern was reversed, with lower levels of mental health problems among Indigenous than non-Indigenous prisoners. One-quarter (26%) of Indigenous prison entrants reported experiencing high or very high levels of psychological distress in the 4 weeks immediately preceding imprisonment, as measured by the Kessler-10 scale (K10), compared with 31% of non-Indigenous entrants. This is in direct contrast to the finding that, in the general community, Indigenous people (27%) were twice as likely as non-Indigenous people (13%) to report high or very high levels of distress, as measured by the K5 subscale of the K10 (AIHW 2009b). Interestingly, the rates of high or very high distress among both Indigenous prison entrants and Indigenous people in the general community were the same, whereas the levels for non-Indigenous people were far higher among prison entrants than their counterparts in the general community.

In relation to health conditions, 3 in 10 prison entrants, both Indigenous (30%) and non-Indigenous (29%), reported ever having been told they have asthma. However, for some health conditions, such as diabetes, higher rates were found among Indigenous (5%) than non-Indigenous prisoners (2%), which is consistent with the pattern among the general community.

These mixed results for the health of Indigenous prisoners may be due to the generally poorer health of prisoners than the general population. Prisoners may be a somewhat self-selected group as certain health matters found in prison entrants, such as mental health problems and use of illicit drugs, are also matters that may increase the likelihood of someone being sent to prison.

5.6 Overseas-born people

Australia is an ethnically diverse nation. The estimated number of overseas-born Australians is about 5.5 million, representing a quarter of the total Australian population (ABS 2009e). Migrants come from over 200 different countries, although people born in the United Kingdom continue to be the largest group of overseas-born residents (23%). Over the past 60 years the overseas-born population has increased from about 1.3 to 5.5 million.

Migrants bring to Australia their unique health profiles. Research has found that most migrants enjoy health that is as good as, if not better than, that of the Australian-born population. This is known as the 'healthy migrant effect'. Immigrant populations often have lower death and hospitalisation rates, as well as lower rates of disability and lifestyle-related risk factors (AIHW: Singh & de Looper 2002). To some extent, this can be explained by the fact that most migrants are partly selected on the basis of their health and, in some cases, their relatively high socioeconomic status. They may also be less exposed to risk factors for cardiovascular and other non-communicable diseases before their relocation to Australia (Razum 2006). However, it has been observed that the migrant health advantage often diminishes with length of stay (Young 1992). Also, the healthy migrant effect does not apply to all overseas-born people. For example, vulnerable new arrivals such as refugees are hidden within these trends due to small sample sizes and the difficulty of collecting adequate data about their health status.

Despite these general advantages among those born overseas, certain health risk factors and diseases are more common among migrants from some countries, reflecting diverse socioeconomic, cultural and genetic influences. Moreover, some migrants can experience barriers in their access to the best health care, for example in understanding health information or navigating pathways of care. This is particularly the case for those born in countries where English is not the main language. Language is one of the primary barriers to participation, and religious beliefs, cultural practices and lack of access to culturally specific care can also contribute (AIHW: Thow & Waters 2005).

This section summarises the health of overseas-born people, with a focus on mortality, mental health and health risk factors. The participation of people from non-English-speaking backgrounds in health services is also considered briefly in relation to breast screening and mental-health-related services.

Health status

Mortality

Table 5.12 shows how death rates for overseas-born people compare with those of Australian-born people. (If a number in the columns is less than 1 and is marked with an asterisk, it means that the overseas-born death rate for that cause of death is significantly lower than the Australian-born rate; and correspondingly the rate is significantly higher if the number is more than 1 and has an asterisk.)

In the 3-year period from 2005–2007, the overall death rate for people born overseas was 7% below that for people born in Australia. But rates varied markedly by country, and they were particularly low for Asian-born people. For example, compared with Australian-born death rates they were up to 41% lower for Vietnam, 40% lower for the Philippines, 35% lower for China and 33% lower for Malaysia. While death rates for people born in New Zealand and Poland were similar to those for people born in Australia, the rates were slightly higher for people born in the United Kingdom and Ireland.

For most of the causes in Table 5.12, the rates for overseas-born people were lower than for the Australian-born, lending support to the 'healthy migrant effect'. However, this was not always the case and, compared with the relevant death rate among Australian-born people, death rates for overseas-born people were higher for:

- lung cancer among those born in the Netherlands, and the United Kingdom and Ireland
- diabetes among those born in Germany, Greece, India, Italy, Lebanon and Poland
- coronary heart disease among those born in Poland
- influenza and pneumonia among those born in the United Kingdom and Ireland.

Table 5.12: Standardised mortality ratios^(a) by selected causes of death and countries of birth, people aged 15 years and over, 2005–2007

Country of birth	Colorectal cancer	Lung cancer	Diabetes	Coronary heart disease	Cerebrovascular disease	Influenza & pneumonia	All causes of death ^(b)
China	*0.74	1.00	*0.79	*0.49	*0.86	*0.57	*0.65
Croatia	0.96	0.83	1.25	*0.77	0.89	0.75	*0.81
Germany	0.86	1.09	*1.38	0.99	0.95	*0.60	*0.94
Greece	*0.83	*0.72	*1.28	*0.76	*0.69	*0.75	*0.77
India	*0.51	*0.67	*1.78	0.96	*0.77	0.77	*0.75
Italy	0.92	*0.91	*1.67	*0.84	*0.76	*0.82	*0.87
Lebanon	*0.65	0.83	*2.18	0.99	0.91	0.84	*0.86
Malaysia	*0.55	*0.56	1.09	*0.58	*0.76	0.75	*0.67
Netherlands	*0.79	*1.32	1.09	*0.93	*0.88	0.93	*0.93
New Zealand	1.06	0.95	*0.78	1.03	1.02	1.08	0.98
Philippines	*0.68	*0.72	0.96	*0.48	0.95	0.60	*0.60
Poland	0.99	1.15	*1.36	*1.16	0.97	1.02	1.01
South Africa	0.72	0.73	0.67	*0.74	0.85	0.90	*0.81
UK & Ireland	*0.88	*1.30	*0.92	1.01	*0.94	*1.13	*1.01
Vietnam	*0.43	*0.69	1.28	*0.36	*0.82	*0.40	*0.59
All overseas	*0.87	*1.07	*1.24	*0.96	0.91	*0.96	*0.93

* Statistically significant difference (see Glossary) from Australian-born population.

(a) The standardised mortality ratio is a measure of death from a specific condition in the overseas-born population relative to the Australian-born population. If the ratio is 1.00 this means the overseas-born would have the same mortality rate as the Australian-born. Ratios greater than 1.00 indicate a greater mortality rate in the overseas-born population, and those below 1.00 indicate a lower mortality rate. Data are age-standardised to the Australian population as at 30 June 2001.

(b) Also includes all other causes of death.

Source: AIHW National Mortality Database.

Mental health

Results from the 2007 SMHWB show that people born in other countries were much less likely to report ever having a mental disorder (lifetime mental disorder) (28.9 per 100,000 population) than those born in Australia and other mainly English-speaking countries (48.7 and 50.2 respectively) (Table 5.13).

Similar patterns were found when mental disorders with recent symptoms (in the last 12 months) were considered. The prevalence of 12-month mental disorders was similar for those born in Australia and mainly English-speaking countries (21.8 and 21.0 per 100,000 population respectively) and much lower (12.3) for those born in other countries.

Table 5.13: Mental disorder (lifetime and symptoms in the last 12 months) by country of birth, people aged 16–85 years, 2007

Country of birth	Per 100,000 population^(a)
Lifetime^(b)	
Australia	48.7
Mainly English-speaking countries ^(c)	50.2
Other countries	28.9
12-month^(d)	
Australia	21.8
Mainly English-speaking countries ^(c)	21.0
Other countries	12.3

(a) Age-standardised to the Australian population at 30 June 2001.

(b) Diagnosis of mental disorder at some point in life.

(c) Mainly English-speaking countries include Canada, Ireland, NZ, South Africa, UK and USA.

(d) Diagnosis of lifetime mental disorder with symptoms of that disorder in the 12 months before survey interview.

Source: AIHW analysis of 2007 SMHWB.

Health risk factors

The prevalence of risk factors varies by country of birth (Table 5.14). For example, in 2007–08 people from South-East Asia were less likely than Australian-born people to smoke, drink alcohol at risky or high-risk levels and be overweight or obese. In contrast, those born in Southern and Eastern Europe had a higher prevalence of risk factors, with the exception of daily smoking and risky or high-risk alcohol consumption. People from Other Oceania, United Kingdom and Southern and Eastern Europe were more likely to be overweight or obese than those born in Australia.

Table 5.14: Selected health risk factors by country of birth group, people aged 15 years and over, 2007–08 (per cent)

Country of birth group	Current daily smoker	Risky/high-risk alcohol consumption	Sedentary/low exercise level	Overweight/obese^{(a)(b)}	Inadequate fruit and vegetable consumption^{(b)(c)(d)}
Australia	19.9	14.1	71.3	63.1	93.4
Other Oceania	22.2	16.0	69.5	67.4	93.0
United Kingdom	14.4	14.8	68.3	66.0	92.8
Other North-West Europe	16.9	14.3	70.6	62.9	91.4
Southern & Eastern Europe	14.6	*5.9	74.9	67.1	95.7
North Africa & the Middle East	23.2	**	91.0	64.6	96.7
South-East Asia	6.6	*1.2	79.1	38.8	97.4
All other countries	11.4	5.3	76.4	45.0	96.4

* Estimate has a relative standard error of 25% to 50% and should be used with caution.

** Estimate has a relative standard error greater than 50% and is considered too unreliable for general use.

(a) Based on measured body mass index (BMI). BMI cut-off points for overweight and obese may not be appropriate for all ethnic groups due to differences in body type, size and composition.

(b) Persons aged 15–17 years are excluded.

(c) Includes those who do not eat fruit or vegetables at all.

(d) Usual daily intake of fruit or vegetables refers to the number of serves (excluding drinks and beverages) usually consumed each day.

Source: ABS 2009d.

Health services participation

There is evidence to suggest that people who speak a language other than English at home participate less in health services than those who speak English at home (for example, see Weber et al. 2009). This section focuses briefly on participation in breast screening and mental health-related services.

In 2005–2006, females in the target breast-screening population (50–69 years) who spoke a language other than English at home were less likely than English-speaking females to participate in breast screening: 45% and 59% respectively (AIHW 2009k).

Similarly, analysis of the 2007 SMHWB showed that people who mainly speak a language other than English were less likely than those who mainly speak English to use health services in the 12 months before the survey for a lifetime mental disorder (26 per 100,000 population compared with 48) (AIHW unpublished analysis of 2007 SMHWB).

5.7 Defence Force members

Australian Defence Force (ADF) members are a special population group in Australia for many reasons. They are of particular interest from a health perspective because they tend to have better health than those in the general community, they have access to special health services and they are exposed to a wide range of occupational hazards.

Military populations reflect a strong 'healthy worker effect'. This occurs because people who are in work are fit enough to work, whereas the general population is composed of both those who are fit enough to work and those who are unable to work because of illness or disability. In addition, members of the ADF are selected partly because of their better health and are then required to maintain that health at a level that is higher than the rest of the community.

However, ADF personnel can work in challenging environments, including remote areas of the world that may have low levels of physical safety and restricted access to the necessities of life, such as shelter, food and water. Therefore, the very nature of their work may sometimes place members at higher risk of injury or disease than the general population. (For further information on current ADF deployments see <www.defence.gov.au>.)

This section provides a brief profile of permanent ADF members, followed by an overview of their health compared with the general population of similar age (20–50 years). Data from a number of sources are used (Box 5.8).

Characteristics of Defence Force members

At 30 June 2009, the ADF comprised around 55,000 permanent members (Department of Defence 2009). Members serve in the Australian Army (51%), the Royal Australian Air Force (26%) or the Royal Australian Navy (23%). The great majority of ADF members are male (87%), with females making up around 18% of the Navy and Air Force, and 10% of the Army.

Overall, ADF members are younger (median age 30 years) than the Australian workforce (39 years) (ABS 2009f) and the great majority (92%) of members were aged under 50 years (unpublished Department of Defence data). However, the average age of ADF personnel has risen slightly following a recent increase of the retirement age from 55 to 60 years.

Box 5.8: Australian Defence Force health data systems

The health of Australian Defence Force (ADF) personnel is assessed regularly through medical, dental and physical fitness assessments. All members have access to specialised health care services (see Section 7.4). Data are collected during these routine health assessments and when a member makes additional visits to a health service or is involved in a work-related incident. While a number of electronic databases support the storage and use of ADF health data, data presented in this section are from the following:

- the EpiTrack health surveillance system, which monitors members' attendance at primary health centres, hospital admissions and referrals to other health services, as well as days of restricted duty and days off all duty because of disease or injury. About a third of ADF health facilities routinely use EpiTrack
- HealthKEYS, an electronic health record system used in primary health care clinics. About 40% of all ADF members have an electronic health record, but the quality and scope of each record varies
- the NOTICAS (Notification of Casualty) reporting system, which provides the initial reports on work-related injuries and incidents, including fatalities that occur within Australia and overseas. Because reports are preliminary, data drawn from this system may be incomplete. Other incidents (including workplace accidents, near misses and deaths) are also reported in accordance with occupational health and safety legislation.

5

Health status

Mortality

Overall, the leading causes of death are similar for ADF personnel and the general Australian population of similar age—*injuries, cancer and cardiovascular disease feature prominently in both groups*. Of the 190 deaths among ADF members between 2003–04 and 2008–09, land transport crashes accounted for about 28%, cancer for 16%, suicide for 15% and cardiovascular disease for 9%. The corresponding figures for the general population aged 20–50 years were 9%, 27%, 13% and 15%. However, after taking into account age and sex differences in the two populations, death rates for members of the ADF were significantly lower overall, as well as in particular for cancer, cardiovascular disease and suicide (Table 5.15). This is likely to be partly due to the strong ‘healthy worker effect’.

The two causes of death that were significantly elevated for ADF personnel related to air and land transport. Based on 12 deaths over the 6-year period, ADF members were more than 12 times as likely as the general Australian population to die from air transport accidents. This elevated death rate was largely a result of several air accidents in recent years, including a helicopter crash on the Indonesian island of Nias in 2005, in which nine ADF personnel died, and a single death from each of a helicopter crash in 2006, a light aircraft crash in 2007 and a glider crash in 2008.

Deaths from land transport are about 1.5 times as high as in the general Australian population. ADF personnel are highly mobile, often posted far from their families and, anecdotally, spend more of their time driving (at work and during leisure hours). In recognition of members' mobility, the ADF has a wide range of policies to reduce deaths from land transport crashes.

Table 5.15: Standardised mortality rates (SMRs)^(a) and 95% confidence intervals (CIs)^(b) for all full-time ADF members for selected causes of death, 2003–04 to 2008–09

Causes of death	SMR	Lower 95% CI	Upper 95% CI
All causes	0.63	0.55	0.73
Air transport	12.36	6.35	20.34
All neoplasms (including cancer)	0.42	0.29	0.59
Cardiovascular disease	0.42	0.24	0.64
Land transport	1.50	1.13	1.93
Suicide	0.62	0.41	0.87

(a) SMRs are the actual number of deaths divided by the expected number of deaths (if the ADF population had the same rates as the Australian population), controlling for age, sex and year of death.

(b) Confidence intervals describe a range (interval) of values within which we can be 'confident' that the true value lies, usually because it has a 95% or higher chance of doing so. For example, in this table, there is a 95% or higher chance of the SMR for cardiovascular diseases falling between 0.24 (lower 95% CI) and 0.64 (upper 95% CI).

Notes

1. Figures include all deaths, both within and outside Australia, which occurred in the ADF from 1 July 2003 to 30 June 2009, compared with rates of death in Australia (2003–04 to 2005–06).

2. Data are based on initial reports recorded in NOTICAS (see Box 5.8) and may be incomplete.

Source: AIHW analysis of unpublished data from the Australian Defence Force.

Morbidity

Based on EpiTrack data for 2007–08 and 2008–09, the top five reasons for health service attendance by ADF personnel were injuries and musculoskeletal disorders; respiratory tract conditions; skin conditions; symptoms, signs and ill-defined conditions; and diseases of the ear, nose and throat. These groups of conditions were also the five most common reasons for restricted duty. By comparison, the five most common groups of conditions responsible for lost work days (sick leave) were injuries and musculoskeletal disorders; respiratory tract conditions; mental health disorders, stress reaction, symptoms, signs and ill-defined conditions; and intestinal infectious diseases.

Although the data sources are not directly comparable, it is interesting to note that the top reasons for primary health care attendance for ADF personnel seem to differ somewhat from the general population of similar age. Excluding check-ups, the top three problems managed by GPs for Australians aged 20–50 years in 2008–09 were depression, upper respiratory tract infection and preventive vaccination (AIHW analysis of data from the Bettering the Evaluation and Care of Health survey: BEACH). For males of this age in particular, upper respiratory tract infections, depression, hypertension and back complaints were the most commonly managed conditions.

Injuries

The total number of occupational health and safety incidents among ADF personnel decreased over the 3-year period 2006–07 to 2008–09 (Table 5.16). In particular, the number of incidents that resulted in a person being unable to work for 30 consecutive days or more (incapacity) was down by more than 50%. In contrast, there was a rise in deaths in 2008–09 that were reported to Comcare. This was mostly attributed to deaths from natural causes, such as heart attacks, that occurred at the workplace and were therefore reportable to Comcare. Deaths that occur on operational service or during off-duty hours are not reportable through the same process. There was also a rise in reports for serious personal

injury and dangerous occurrences, although this is thought to be due to an improvement in reporting rather than a true increase. More detailed analysis of these reports over the next year, when more incidents have been coded, will enable more accurate interpretation of the data.

**Table 5.16: Reported incidents among ADF members^(a), by casualty type,
2006–07 to 2008–09**

	2006–07	2007–08	2008–09 ^(b)
Total incident reports ^(c)	18,474	16,389	14,207
Comcare notifiable^(d)			
Deaths ^(e)	3	3	9
Serious personal injury ^(f)	897	1,119	1,214
Incapacity ^(g)	241	166	104
Dangerous occurrence ^(h)	1,249	1,337	1,358
<i>Total Comcare</i>	<i>2,390</i>	<i>2,625</i>	<i>2,685</i>

(a) Includes all people working for, or affected by, Defence undertakings; that is, ADF, Australian Public Service, Reserves, contractors and members of the public.

(b) Data are preliminary as a large number of Comcare reportable incidents are still to be coded.

(c) An incident report records an event that causes, or has potential to cause, injury or illness to Defence employees or other people, as a result of a Defence undertaking. These data are not static but are annually adjusted to reflect incident reports received after the end of the financial year. This includes minor injuries.

(d) Comcare reportable incidents are those for which a compensation claim has been made or may be made under the relevant legislation.

(e) Comcare reportable deaths (these do not include deaths on operational service or during off-duty hours).

(f) Serious personal injury is defined as an injury or disease in a person caused by work-related employment for which the person needs to be given emergency treatment by a registered medical practitioner, treated in a hospital as a casualty without being admitted to hospital, or admitted to hospital.

(g) Incapacity is when an employee is unable to perform work for 30 or more consecutive days or shifts.

(h) A dangerous occurrence is a near miss event that could have, but did not, result in fatality, serious personal injury or incapacity.

Source: Australian Government Department of Defence.

Risk factors

Obesity

Obesity is a serious health concern in Australia due to its association with a number of chronic diseases (see Table 3.1).

Analysis of 2007–09 HealthKEYS data—based on measured height and weight—found that about 14% of the ADF population is obese (body mass index (BMI) 30 or above) and 48% overweight (BMI 25 to less than 30) (see Box 3.10 for a description of BMI). Data from the 2007–08 NHS showed the corresponding figures for the general population aged 20–50 years were 21% and 35%. In the ADF more males were overweight or obese (65%) than females (38%), a pattern consistent with the general population of similar age (64% and 49% respectively).

From March 2005, applicants have been able to enter the ADF with a BMI up to 33, subject to passing a physical fitness test and the absence of any factors such as high blood pressure, high blood cholesterol and any evidence of cardiovascular or other metabolic disease. However, while BMI is a useful tool to assess and monitor changes in body mass at the population level, it may not be the most appropriate measure for ADF personnel, who are often required to have high muscle mass to perform the physical tasks of their job.

Alcohol

Like obesity, excessive drinking is responsible for a significant burden of disease and injury. The ADF routinely uses the AUDIT (see Section 5.5) to assess the alcohol consumption of its members and its potential effects on their health. The AUDIT is administered to all ADF personnel at periodic health assessments, to those on return from operational service and to individuals when clinically required. From the records drawn from routine health assessments during 2007–09, the great majority (84%) drank at levels of low risk to their health, 15% drank at levels of moderate risk and a very small proportion (0.2%) drank at high-risk levels.

5.8 The veteran community

Veterans are a distinct population within the Australian community because of their unique service to the country. In more recent years, the profile of Australia's veteran population has changed as the number of World War II veterans declines. Furthermore, recent deployments to East Timor, Iraq, Afghanistan, Bougainville and the Solomon Islands have created new groups of younger veterans.

It is difficult to obtain a complete picture of the health of Australian veterans because data are only available for those current and former defence personnel who have applied for and receive benefits or services from the Australian Government Department of Veterans' Affairs (DVA). A number of those who are serving or have served in the ADF are potentially eligible but have not applied for government assistance.

Current information about the health and wellbeing of Australian veterans relies mostly on data relating to DVA clients, known as the 'veteran community'. Existing health studies of DVA clients generally focus on a single deployment or occupational group that may have distinctive experiences as a result of their service. Examples include Korean, Vietnam and Gulf War veterans, and ADF personnel involved in the F-111 Deseal/Reseal Program (for example, see <http://www.dva.gov.au/adf/health/adf_health_studies.htm>).

It is important to note, however, that the veteran community is not limited to those who have had operational service. It also includes serving and former Defence Force members who have not had operational experience, eligible Australian Federal Police members with overseas service, war widows and widowers, dependants and carers. At March 2009, there were over 400,000 active DVA clients receiving benefits (DVA 2009). They may receive compensation, age and service pensions, health care and other benefits.

This section provides a profile of the veteran community and a summary of their health compared with the general Australian population of similar age.

Box 5.9: Department of Veterans' Affairs entitlements

Department of Veterans' Affairs (DVA) clients may be eligible for a range of services and support provided by DVA. In addition to being considered for income support and compensation payments, eligible veterans, war widows and widowers, and dependants may be issued with Repatriation Health Cards that reflect their level of health care coverage—gold, white or orange.

Holders of a gold card are entitled to the full range of health-care services at DVA's expense. This includes medical and allied health care, assistance in the home, and support services through arrangements with registered health care providers and hospitals, both public and private.

Holders of a white card are entitled to the full range of health-care services at DVA's expense but generally only for those disabilities or illnesses accepted as service-related.

The Repatriation Pharmaceutical Benefits Scheme (RPBS) provides a comprehensive range of pharmaceuticals and wound dressings to eligible members. It includes all items available to the general public under the Pharmaceutical Benefits Scheme, as well as a list of items exclusive to the veteran community. Access to unlisted items is also available on a case-by-case basis under the RPBS Prior Approval arrangements.

An orange card provides pharmaceutical benefits under the RBPS to British Commonwealth and Allied veterans who have World War II qualifying service, are aged 70 years or over and have lived in Australia for 10 years or more.

A profile of the veteran community

DVA clients may be eligible for support under one or more of three legislative Acts: the *Veterans' Entitlements Act 1986* (VEA), the *Safety, Rehabilitation and Compensation Act 1988* (SRCA) and the *Military Rehabilitation and Compensation Act 2004* (MRCA).

The demographic profile of clients varies depending on the support they receive. The majority of VEA clients are aged 80 years and over, while the majority of SRCA and MRCA clients are younger (aged under 55 years). In addition, MRCA and SRCA clients are more likely to be male, while there are slightly more female clients under the VEA due to the large proportion of war widows aged 80 years and over. Nevertheless, this profile is expected to change over time because the SRCA and VEA Acts were superseded by the MRCA Act on 1 July 2004.

This varied profile should be borne in mind for parts of the following discussion that are about the veteran community overall.

Health status

In 2006, a study was conducted into the health and wellbeing of members of the DVA veteran community. The Your Lives, Your Needs survey evaluated two specific client groups: VEA clients (of whom almost 80% of those surveyed were aged 65 years or older) and SRCA clients (of whom almost 60% of those surveyed were aged under 45 years). Data from this survey and administrative client data are presented in this section.

VEA (the older) clients were less likely than the general Australian community aged 65 years and over to rate their health as very good or excellent (21% compared with 36%) (ABS 2009d; DVA 2008). For SRCA (the younger) clients, this pattern was more pronounced, with only 10% reporting their health as very good or excellent compared with over 60% of the general population aged less than 45 years.

Health conditions and medicine use

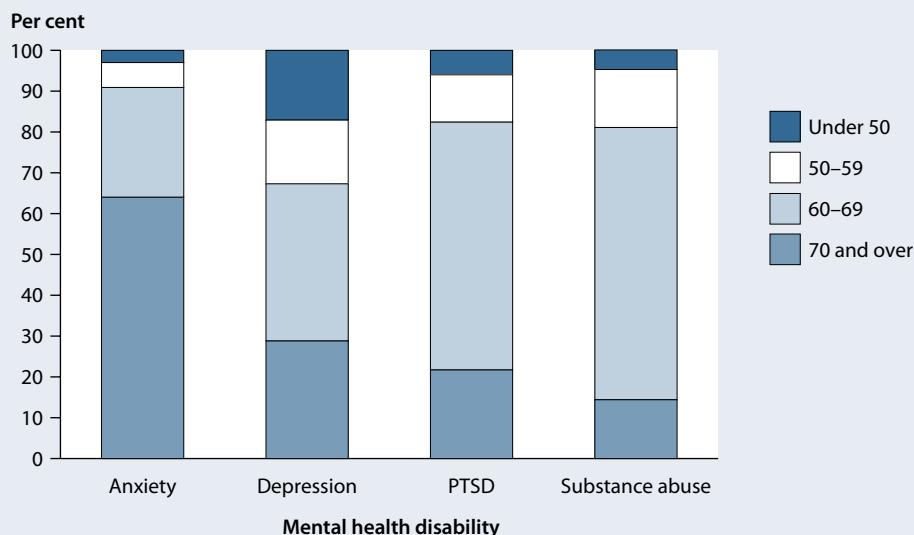
In general, older clients reported similar health conditions to the general Australian population aged 65 years and over. The most common health conditions reported by older clients were vision problems that are corrected by glasses or contact lenses (90%), followed by deafness, mobility problems and osteoarthritis or rheumatoid arthritis (affecting just over half of those surveyed), and back trouble or high blood pressure (both 47%). Around 40% of respondents reported sunspots, mild memory loss or sleep disturbances or insomnia. This is consistent with the most common self-reported health conditions in the general population aged 65 years and over: vision problems, arthritis, high blood pressure and deafness (ABS 2009d).

In contrast, younger clients reported quite different health conditions from their counterparts in the general population. Mobility problems were most commonly reported (76%), followed by back trouble (70%) and falls or loss of balance (64%). This is in comparison to the vision problems, respiratory disease and musculoskeletal problems that were most commonly reported by the general population aged under 45 years (ABS 2009d).

Data on medicine use can complement information on health status. Eligible veterans, war widows and widowers and their dependants are also entitled to access subsidised medicines under the Repatriation Pharmaceutical Benefits Scheme (RPBS) (see Box 5.9). In 2007–08, the average number of prescriptions was 50.5 per RPBS patient per year. The top three categories of medicines prescribed (categorised according to body systems) were for the cardiovascular system (for example, blood pressure), the nervous system (for example, for pain and sedation), and the alimentary tract and metabolism (for example, for indigestion and ulceration of the gastrointestinal tract).

Mental health

At May 2009, close to 50,000 DVA clients (18% of all such clients receiving health care treatment) had one or more accepted mental health disability claims—that is, a mental health disability assessed as being caused by war or service. Most of these clients (83%) were aged 60 years or over. Their most common disabilities were disorders of post-traumatic stress, anxiety, substance abuse (including alcohol dependence) and depression (Figure 5.14). Clients with anxiety were more likely to be older (64% were aged over 70 years) while around two-thirds of those with post-traumatic stress disorder or a substance use disorder were aged 60–69 years.



PTSD Post-traumatic stress disorder.

(a) These figures include disability claims accepted under the VEA, MRCA or SRCA.

Note: A client may have more than one accepted mental health disability. The number of clients is: anxiety (14,521), depression (8,790), post-traumatic stress disorder (27,964), substance abuse (12,339) and any mental health disorder (48,651).

Source: Australian Government DVA.

Figure 5.14: DVA clients with an accepted mental health disability claim^(a) by age group, May 2009

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