Part 2:
Health status and outcomes

The health status and outcomes of young people are discussed in terms of how young people perceived their own health, their levels of disability, various health conditions affecting them (mental health, injuries, chronic diseases, communicable diseases, oral health) and mortality.

The health of young Australians is continually improving as demonstrated by reductions in morbidity and mortality from communicable diseases, chronic diseases, suicide, motor vehicle accidents and other injury. Apart from children aged 0–4 years, young people aged 15–24 years reported the lowest prevalence of disability in 2003 (ABS 2004c).

Despite these improvements, significant gains in health remain to be made. Rising hospital separation rates have been observed for diabetes, Crohn's disease and cerebral palsy. Notifications for some conditions (meningitis, chlamydia, hepatitis C) are still high among young people. The mental health status of young people is also an area of concern. All of these health conditions substantially affect young people's quality of life, long-term health and wellbeing and their successful participation in society, education and employment. These health conditions may disproportionately affect particular population groups. For example, life expectancy, which is determined by the mortality experience of a population, is not uniform across populations within Australia. Aboriginal and Torres Strait Islander people have a much lower life expectancy than the general Australian population. Indigenous Australians born in the period 1996–2001 are projected to live nearly 20 years less than the rest of the population (ABS 2005b).

It is important to understand the specific health problems affecting the population of young people as a whole, as well as specific groups such as Indigenous young people, and those from different socioeconomic groups and geographic regions.

The aim of this part of the report is to bring together all key indicators of health status and health outcomes for young people, using the most recent available data. It presents a comprehensive picture of how well young people are faring in terms of their health and highlights areas of concern. Data are presented in the areas of:

- physical, mental and social wellbeing
- disability and activity limitation
- health conditions (overall burden of disease and injury, mental health, injury and poisoning, chronic disease, communicable disease and oral health)
- deaths

2.1 Life expectancy and wellbeing

Life expectancy reflects the current levels of mortality experienced by a population and is often used as an objective summary measure of a population's health.

Over the last century, the mortality rate among young people declined by around 80%. There has been an improvement in life expectancy at birth over the last 20 years: a gain of 5.6 years for males and 4 years for females. Based on the latest age-specific mortality rates, a boy born in 2002–2004 would be expected to live to 78.1 years, on average, while a girl would be expected to live to 83.0 years, on average. If the age-specific mortality remained unchanged, a boy and a girl aged 15 years in 2004 would be expected to live to ages 78.7 and 83.5 years, respectively (ABS 2005b).

The life expectancy and wellbeing dimension in this report includes broad measures of physical, mental and social wellbeing of young Australians. These are often difficult to measure using more objective measures such as mortality, morbidity and disability or activity limitations as health is not just the presence or absence of disease or disability. Therefore, in order to capture the status of health more broadly—that is the state of social, mental and spiritual health and wellbeing—it is important to include a subjective assessment of health by young people. Self-assessed health is often a good indicator of actual health and wellbeing of a person. A number of studies have also shown that people's perception of their own health status to be a powerful, independent predictor of their future health and survival (Idler & Benyamini 1997; Miilunpalo et al. 1997).

Physical, mental and social wellbeing

This indicator presents information from the ABS National Health Surveys (NHS) on 'self-assessed health status' which is the respondent's perception of their general health. The ABS surveys asked respondents to assess their own health against a five-point scale: excellent, very good, good, fair and poor.

INDICATOR:

Proportion of young people aged 15–24 years rating their health as 'excellent', 'very good' or 'good' (per cent)

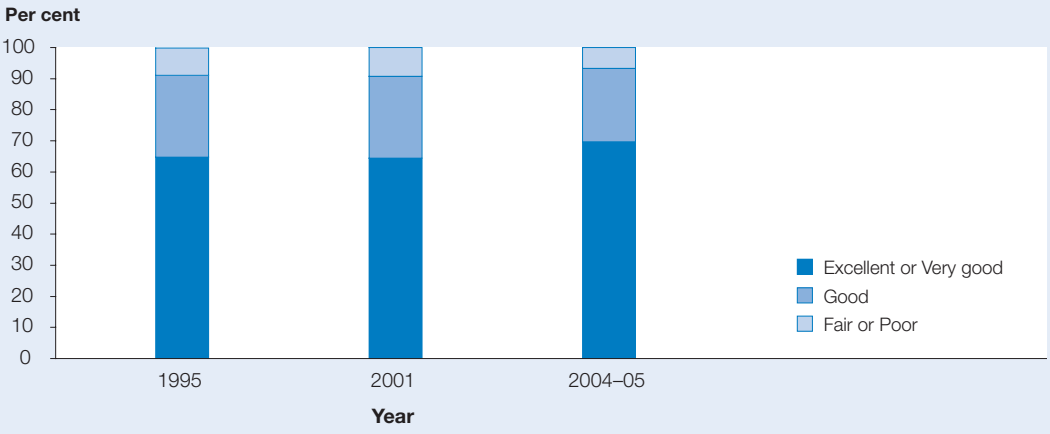
Table 2.1: Self-assessed health status of young people aged 15–24 years, sex and age group, 2004–05 (per cent)

	15–17 years		18–24 years		15–24 years		
Health status	**Males**	**Females**	**Males**	**Females**	**Males**	**Females**	**Persons**
Excellent or Very good	85.1	79.3	64.7	64.1	70.9	68.5	69.7
Good	11.3	15.7	28.0	27.9	22.9	24.4	23.6
Fair or Poor	3.6	5.0	7.3	8.0	6.2	7.1	6.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Parents responded for young people aged 15–17 years.

Source: AIHW analysis of the ABS 2004–05 National Health Survey confidentialised unit record file.

- In 2004–05, 70% of young Australians aged 15–24 years assessed themselves to be in either excellent or very good health, while a further 24% rated their health as good. Only 7% reported their health to be either fair or poor.
- More young males than females aged 15–17 years were in either excellent or very good health (85% of males compared with 80% of females). This pattern was consistent over time, as reported in the 1995, 2001 and 2004–05 National Health Surveys.
- There was a slight increase in the proportion of young people stating their health to be excellent or very good over time from 65% in 1995 to 70% in 2004–05. Similarly, the proportion of young people who assessed their health as fair or poor declined from 9% in 1995 to 7% in 2004–05.



Note: Parents responded on behalf of the young people aged 15–17 years.
Source: ABS 2006o; AIHW 2003a.

Figure 2.1: Self-assessed health status of young people aged 15–24 years: 1995, 2001 and 2004–05

Self-assessed health, long-term health conditions and education

The ABS 2004–05 NHS also confirmed that the existence of a long-term condition—a condition that has lasted or is expected to last for 6 months or more—influenced the self-reported health status of young people. Young people aged 15–24 years with a long-term condition were nearly 3 times as likely to rate their health as fair or poor (8.5%) compared to those without a long-term condition (3%) (AIHW analysis of ABS 2004–05 NHS confidentialised unit record file).

According to the 2004–05 NHS, educational achievement was related to self-assessed health: 95% and 88% of young people who completed Year 12 and Years 10 and 11 respectively reported their health status to be excellent, very good or good. In contrast, only 76% of those who completed Years 9 or less reported their health to be excellent, very good or good.

Population groups

Aboriginal and Torres Strait Islander young people

Table 2.2: Self-assessed health status of Indigenous Australians and non-Indigenous Australians aged 15–24 years, 2004–05 (per cent)

	2001		2004–05	
Health status	**Indigenous**	**Non-Indigenous**	**Indigenous**	**Non-Indigenous**
Excellent or Very Good	54.0	64.0	59.0	70.0
Good	33.0	26.0	32.0	24.0
Fair or Poor	13.0	9.0	9.0	7.0

Note: Parents responded for young people aged 15–17 years.
Source: ABS 2006l.

- In 2004–05, young Indigenous Australians aged 15–24 years were less likely to rate their health as excellent or very good, compared to young non-Indigenous Australians (59% compared to 70% respectively). Similarly, young Indigenous people were more likely than non-Indigenous young people to rate their health as fair or poor (9% compared to 7%).
- Between 2001 and 2004–05, the proportion of Indigenous young people rating their health as excellent or very good increased from 54% to 59%. Over the same period, the proportion stating that their health was fair or poor decreased from 13% to 9% (ABS 2006l).

Socioeconomic status

The self-assessed health status of young people varied significantly by their socioeconomic status as measured by the Socio-economic Index for Areas (SEIFA). In 2004–05, young people from the most disadvantaged areas were less likely than those from the least disadvantaged areas to rate their health as excellent or very good (66% compared to 75%). The gap between the most and the least disadvantaged areas was greatest for young people who reported their health as fair or poor (2.5 times as high in the most disadvantaged areas) (ABS 2004–05 NHS, unpublished data).

Regional status

Slightly more young people living in Major Cities and Inner Regional areas than in other areas rated their health as excellent or very good (around 70% in Major Cities and Inner Regional areas compared to 67% in Outer Regional and Remote areas).

A similar proportion of young males and females in Major Cities reported their health as excellent or very good (71% and 69% respectively), whereas in Inner Regional areas, the proportion was higher for males compared to females (76% compared to 67% respectively). A slightly higher proportion of females than males reported their health as excellent or very good in Outer Regional and Remote areas (68% compared to 65% respectively) (ABS 2004–05 NHS, unpublished data).

2.2 Human function

Disability and activity limitation

Disability is a multidimensional concept that involves an interaction between health conditions, personal factors and the environment. Combinations of these different factors determine a person's ability to function and participate in society (AIHW 2004d). For some, disability can be a life-changing event or experience, while for others it may have only a small effect on their daily lives. Even people with 'severe' disabilities may be in good health—particularly in the sense that they do not require medical services—but may have long-term limitations on daily activities and their ability to participate.

Disability is increasingly recognised as affecting many people in society, to a varying degree and at different times in their lives. For adolescents and young people with a disability, full participation in society can be difficult, with limited educational and recreational/leisure opportunities (AIHW 2004a, 2004d, 2005b).

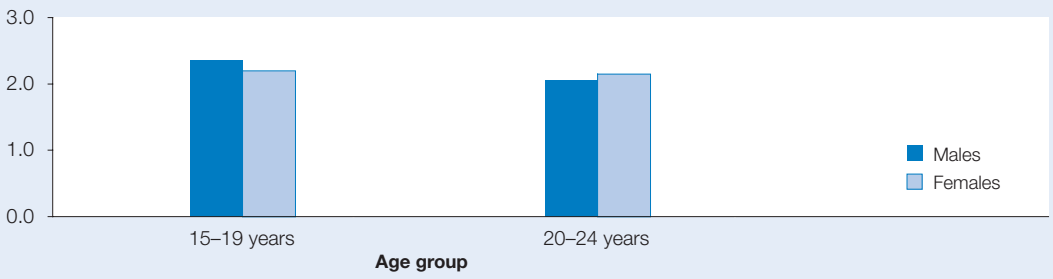
It is not only people with disabilities who may be disadvantaged; their families may also face a significant social and financial burden. Parents of young people with disabilities may find full-time employment difficult due to the intensive care needs of their child. This could potentially lead to financial stress as well as relationship strain. Financial pressure may also compound a family's ability to cope with a young person's disability through lack of resources to acquire essential services and aids that may help the person attain a better quality of life (AIHW 2004a).

The disability data presented in this report come from the ABS 2003 Survey of Disability, Ageing and Carers (SDAC)—the main data source on disability in the Australian population. This survey defines 'disability' as the presence of one or more of 17 limitations, restrictions or impairments that have lasted, or are likely to last, for at least six months and restrict everyday activities (for example, loss of sight, incomplete use of arms or fingers, difficulty learning or understanding, etc.) (ABS 2004c).

In 2003, there were approximately 249,300 young people aged 12–24 years (8.9%) with a disability in Australia, a figure similar to that reported for young people in 1998 (8.6%). The proportions of young males and females with a disability in 2003 were very similar (9.0% and 8.9% respectively).

Core activity limitation

Core activity limitation includes limitations on the ability to perform tasks in relation to self-care, mobility and communication. There are four levels of core activity limitation: profound, severe, moderate and mild. Those with a profound limitation are not able to do, or always need help with, a core activity. Those with a severe limitation may sometimes need help with a core activity, may have difficulty understanding or being understood by others, or may use sign language more easily than spoken communication (ABS 2004c).



Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carer's confidentialised unit record file.

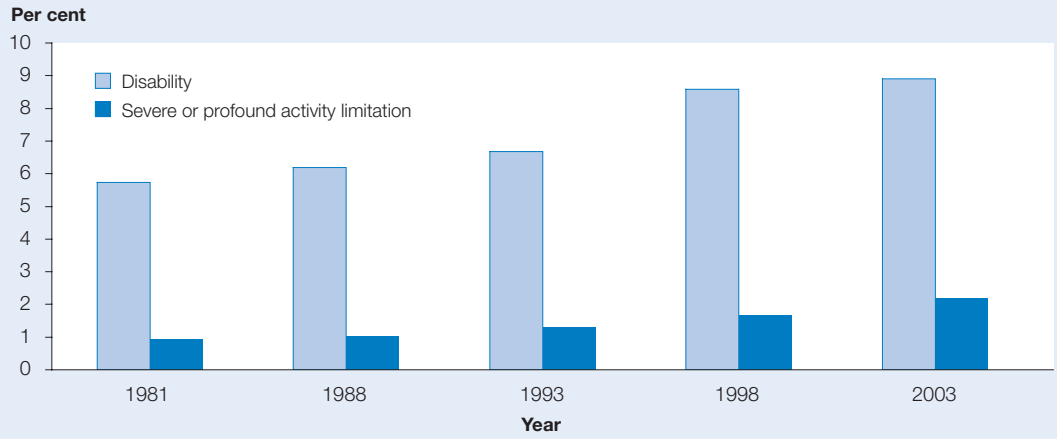
Figure 2.2: Age-specific prevalence of severe or profound core activity limitation by sex, 2003

INDICATOR:

Proportion of young people aged 15–24 years with severe or profound core activity limitation

- In 2003, approximately 24% or 1 in 4 young people with a disability had a severe or profound core activity limitation, indicating they sometimes or always needed assistance with activities of daily living. This proportion equates to approximately 2% (or 61,000) of all young Australians.
- The age and sex distribution of young people with a severe or profound core activity limitation was very similar. Among young males, 2.4% of those aged 15–19 years and 2.1% of those aged 20–24 years had a severe or profound core activity limitation. For females, this proportion was 2.2% among both age groups.
- The prevalence of severe or profound core activity limitation was lower among young people aged 15–24 years (2.2%) than for other age groups (8% for 5–14 year olds and the rate ranged from 2.3% for those aged 25–34 years to 34% for those aged 75+ years).

Disability trends



Source: AIHW 2003b; AIHW analysis of the ABS 2003 Survey of Disability, Ageing and Carer's confidentialised unit record file.

Figure 2.3: Proportions of young people aged 15–24 years with a disability and with a severe or profound core activity limitation, 1981–2003

- Between 1981 and 2003, the estimated proportion of young people with a disability increased from 5.7% to 8.9%. However, part of this increase may be due to changing definitions of disability and survey methods over time, in particular, between the two latest surveys (1998 and 2003) and previous surveys.
- The proportion of young people with severe or profound core activity limitations also increased over time. In 1981, 0.9% of young people reported a severe or profound core activity restriction but in 2003, this proportion had risen to 2.2%. Again, this increase may be due to changing definitions of disability and survey methods over time.

Effect of disability on education and employment

According to the ABS 2003 SDAC, an estimated 14,000 (12%) young people aged 15–19 years with a disability stated that they needed at least one day a week off school or could not attend school because of their disability. Of those aged 15–19 years with a disability, 35% said they had difficulty at school, while 17% said that they had no educational restrictions at school.

Young people aged 20–24 years with a disability were less likely than those without a disability to have completed Year 12 (67% and 83% respectively) or to have studied beyond Year 12 (AIHW analysis of the ABS 2003 SDAC confidentialised unit record file).

Table 2.3: Types of employment restrictions faced by young people aged 15–24 years with disability, 2003

	15–19 years		20–24 years		15–24 years	
Employment restrictions	**('000)**	**Per cent**	**('000)**	**Per cent**	**('000)**	**Per cent**
Restricted in type of job	54.3	45.8	51.7	39.5	106.0	42.5
Restricted in number of hours	20.5	17.3	30.5	23.3	51.0	20.5
Difficulty changing jobs or getting a preferred job	42.6	36.0	39.7	30.3	82.3	33.0
Need for time off from work (at least one day per week)	12.0	10.1	16.4	12.5	28.4	11.4
Need for employer provided equipment and/or special arrangements	10.9	9.2	*8.3	6.3	19.1	7.7
Need for support person at work or is receiving assistance from a disability job placement program or agency	*2.4	2.1	*3.7	2.8	*6.2	2.5
Need for ongoing supervision or assistance	14.1	11.9	14.3	11.0	28.4	11.4
Permanently unable to work	*8.9	7.5	11.0	8.4	19.9	8.0
No employment restrictions	46.1	38.9	50.8	38.8	96.9	38.9
Persons with disability[(a)]	**118.4**	**100.0**	**130.9**	**100.0**	**249.3**	**100.0**

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

(a) Question allowed multiple responses therefore percentages do not add up to 100.

Source: AIHW analysis of the ABS 2003 Survey of Disability, Ageing and Carer's confidentialised unit record file.

- In 2003, approximately 20,000 (8%) young people with a disability reported that they were permanently unable to work because of their disability.
- Around 43% said that they were restricted in the type of job they could do and 33% reported that they had difficulty changing jobs or getting their preferred job.
- Approximately 21% could only work a restricted number of hours, and 11% needed at least one day a week off work due to their disability.
- Nearly 40% of young people with a disability did not have any employment restrictions.

Main disabling conditions

Table 2.4: Main disabling condition of young people aged 15–24 years with a disability, 2003

	Number ('000)			Per cent		
Main disabling condition	**Males**	**Females**	**Persons**	**Males**	**Females**	**Persons**
Intellectual and other mental disorder	33.2	15.8	49.0	26.1	12.9	19.7
Psychiatric	21.9	22.8	44.7	17.2	18.7	17.9
Other musculoskeletal disorder	17.3	16.4	33.7	13.6	13.5	13.5
Respiratory diseases	*10.4	11.5	21.9	*8.2	9.4	8.8
Neurological	*8.4	13.2	21.6	*6.6	10.9	8.7
Vision	*6.1	*2.8	*8.9	*4.8	*2.3	*3.6
Acquired brain injury	*5.5	**1.5	*6.9	*4.3	**1.2	*2.8
Hearing	*3.7	*2.9	*6.6	*2.9	*2.4	*2.7
Other circulatory	**1.3	*5.2	*6.6	**1.1	*4.3	*2.6
Speech	*3.1	*2.7	*5.8	*2.5	*2.2	*2.3
Other physical	*3.4	**0.8	*4.2	*2.7	**0.7	*1.7
All other diseases and conditions	12.9	26.1	39.1	10.2	21.5	15.7
Total with a disability	**127.4**	**121.8**	**249.2**	**100.0**	**100.0**	**100.0**

* 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.

Source: AIHW analysis of the ABS 2003 Survey of Disability, Ageing and Carer's confidentialised unit record file.

INDICATOR:

Proportion of young people aged 15–24 years with specific disabling conditions

- Among young people with a disability, the main disabling condition reported was intellectual and other mental disorders which accounted for 20% of all disabling conditions. This is a decrease from the prevalence of these disorders among young people in 1998 (25%).
- A higher proportion of young males (26%) compared with females (13%) reported intellectual and other mental disorders as the main disabling condition in 2003. This category includes ADHD, autism and other learning disabilities.
- Psychiatric disorders (18%) were the second most common disabling condition reported by young people (17% of males and 19% of females).
- Other frequently reported conditions include other musculoskeletal disorders (14%), respiratory diseases and neurological condition (each 9%).

A number of other specific conditions including cerebral palsy, Crohn's disease, cystic fibrosis and epilepsy, that impose various restrictions on the lives of young people are discussed under *Chronic disease* in Part 2 of this report.

2.3 Health conditions

Burden of disease and injury

A set of measures, called disability-adjusted life years (DALYs), has been developed to summarise the burden of disease and injury at a population level. This provides a different picture of the health of young Australians when compared to looking only at mortality and hospitalisation statistics. DALYs combines information on the impact of premature death as well as non-fatal health outcomes. Premature death is measured by the years of life lost (YLL) due to disease or injury and non-fatal health outcomes are measured by years of 'healthy' life lost (YLD) due to disease, disability or injury. To combine these two health measures into a summary health measure, the DALY uses time as a common 'currency'. It is a measure of the years of healthy life lost due to illness or injury —one DALY is one lost year of 'healthy' life.

YLL are calculated for each death as the average life expectancy of a person of the same age as the person who died. Thus, unlike most measures of potential years of life lost, YLLs do not exclude deaths above a specified age or years of life lost above that age. YLD are calculated for a given condition by estimating the number of new cases of that condition in a specified time. For each new case, the YLD is obtained by multiplying the average duration of the condition (to remission or death) by a severity weight that quantifies the equivalent loss of healthy years of life due to living with the condition. DALYs are calculated as the sum of YLL and YLD. Detailed information on burden of disease methodology and results is available in Begg et al. 2007.

This section provides information on the burden of disease and injury in Australia in 2003 for those aged 15–24 years.

Table 2.5: Burden (YLL, YLD and DALYs) of major disease groups for 15–24 year olds, 2003

	Fatal component		Non-fatal component		Total	
Disease group	**YLL**	**Per cent of total YLL**	**YLD**	**Per cent of total YLD**	**DALYs**	**Per cent of total DALYs**
Mental disorders	1,717	4.2	94,354	60.7	96,071	48.9
Injuries	27,683	67.5	8,369	5.4	36,052	18.3
Neurological and sense disorders	2,018	4.9	14,891	9.6	16,909	8.6
Genitourinary diseases	143	0.3	9,353	6.0	9,497	4.8
Chronic respiratory diseases	530	1.3	8,331	5.4	8,861	4.5
Cancers	3,499	8.5	957	0.6	4,456	2.3
Cardiovascular diseases	2,146	5.2	1,592	1.0	3,738	1.9
Musculoskeletal conditions	119	0.3	2,808	1.8	2,928	1.5
Digestive disorders	199	0.5	2,216	1.4	2,415	1.2
Oral conditions	0	0.0	2,163	1.4	2,163	1.1
Infectious and parasitic diseases	566	1.4	1,434	0.9	2,000	1.0
Diabetes	150	0.4	1,334	0.9	1,484	0.8
Congenital anomalies	923	2.2	230	0.1	1,153	0.6
Other[(a)]	1,338	3.3	7,494	4.8	8,831	4.5
Total	**41,032**	**100.0**	**155,525**	**100.0**	**196,557**	**100.0**

(a) Includes acute respiratory diseases, maternal conditions, nutritional deficiencies, endocrine and metabolic disorders, other neoplasms, skin diseases and ill-defined conditions.

Notes

1. Disease groups in this table are ordered by DALYs.
2. Numbers may not add to totals due to rounding.

Source: Begg et al. 2007.

INDICATOR:

Burden of disease and injury among young people aged 15–24 years

Premature mortality—YLL

- Premature mortality was responsible for 41,032 YLL among young Australians aged 15–24 years in 2003. Injuries were the leading cause of premature mortality, accounting for two-thirds of the total YLL among young people. Within the injury category, road traffic accidents were responsible for 29% of the YLL while suicide and self-inflicted injuries accounted for 21%.
- After injury, cancer (9%) and cardiovascular disease (5%) were the highest contributors to YLL. These three disease groups accounted for over 80% of the total YLL among young people in 2003.

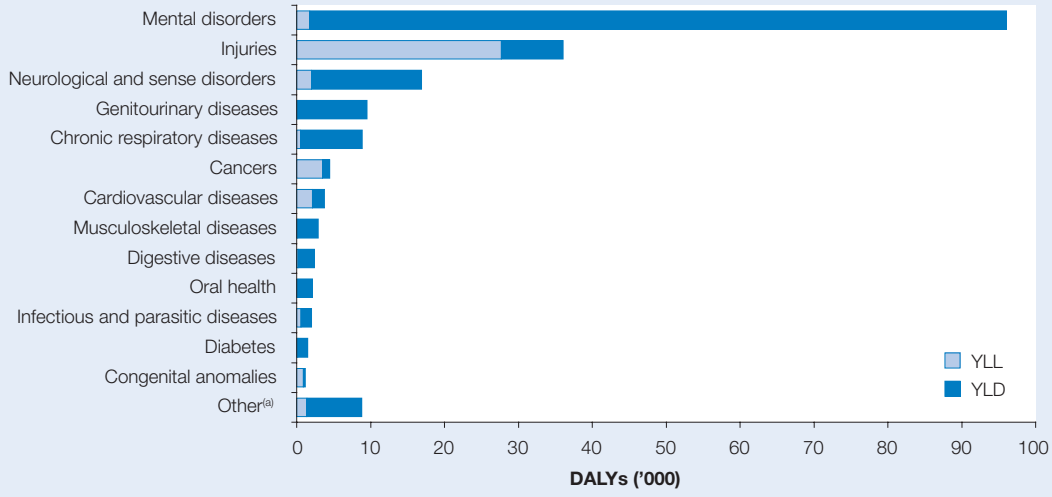
The YLL for young males was almost 3 times that for young females in 2003 (29,757 compared to 11,275 YLL). This large sex differential is primarily due to injuries, where males lost 21,717 years of life due to premature mortality compared to 5,966 for females.

Non-fatal disease outcomes—YLD

- The non-fatal component of the disease burden, assessed using YLD, presents a substantially different picture than that provided by premature mortality statistics. There was a loss of just over 155,500 years of 'healthy' life due to disability consequent on disease among young Australians in 2003.
- Mental disorders were the leading contributor to YLD, accounting for 61% of the non-fatal burden of disease for young people. Neurological and sense disorders were responsible for a further 10% of the disability burden, which was dominated by migraine. Genitourinary diseases were responsible for 6% of YLD, which was due to infertility and other genitourinary diseases. Injuries and chronic respiratory diseases each accounted for a further 5% of YLD. The YLD for injury was largely due to road traffic accidents and falls, while for chronic respiratory diseases it was due to asthma.

In contrast to YLL, overall YLD was slightly higher for females compared to males. YLD for neurological diseases and sense disorders, genitourinary diseases and chronic respiratory diseases were all higher for females than for males. On the other hand, YLD for injuries and cardiovascular disease were higher among males compared to females.

Total burden of disease and injury—DALYs



(a) Includes acute respiratory diseases, maternal conditions, nutritional deficiencies, endocrine and metabolic disorders, other neoplasms, skin diseases and ill-defined conditions.

Source: Begg et al. 2007.

Figure 2.4: Burden (YLL, YLD and total DALYs) of major disease groups for 15–24 year olds, 2003

- The total burden of disease and injury among young Australians was estimated to be 196,557 DALYs in 2003. The male and female burden (in total DALYs) was similar. Non-fatal outcomes were responsible for 71% of the male burden and 88% of the female burden.
- The burden for young Australians comprises 8% of the total burden of disease and injury for all ages and equates to a rate of 71 DALYs per 1,000 young people. This is about half the rate for persons of all ages (132 DALYs per 1,000 population).
- Mental disorders were the leading contributor to the overall burden (49%) among young Australians, followed by injuries (18%) and neurological and sense disorders (9%). Chronic respiratory disease, which includes asthma, accounted for 5% of the total disease and injury burden.
- It should be noted that these DALY estimates represent the overall burden of disease and injury remaining after preventive and treatment interventions have had their effect. As a result, oral health conditions (1%) and infectious and parasitic diseases (1%) are low in the burden of disease ranking due to highly successful preventive or treatment interventions.

Leading specific causes of burden of disease

DALYs have so far been discussed at the broadest level of disease groupings. The rankings presented in Table 2.6 show the disease burden of the 10 leading specific diseases and injuries by sex for young Australians. The majority of the causes are non-fatal or low-fatality rate conditions and their significant contribution to the burden of disease is due to lost years of 'healthy' life.

Patterns of disease and injury burden among young Australians are distinct from other age groups. For example, the leading causes of burden of disease and injury for all ages are dominated by circulatory diseases (specifically ischaemic heart disease and stroke) and cancers (for example, lung and breast cancer), while for young people aged 12–24 years, mental disorders (for example, anxiety and depression and schizophrenia) and injury and poisoning (for example, road traffic accidents) are the leading causes. The exception to this is anxiety and depression, which ranks highly among young people and people of all ages as a cause of disease and injury burden.

Table 2.6: Leading causes of burden of disease and injury (DALYs) for 15–24 year olds, by sex, 2003

Rank	Males	DALYs ('000)	Per cent of DALYs	Females	DALYs ('000)	Per cent of DALYs
1	Anxiety and depression	17,868	17.4	Anxiety and depression	29,946	31.8
2	Road traffic accidents	10,380	10.1	Asthma	6,641	7.1
3	Schizophrenia	9,795	9.6	Migraine	6,217	6.6
4	Suicide and self-inflicted injuries	7,320	7.1	Other genitourinary diseases	5,676	6.0
5	Heroin or polydrug dependence and harmful use	5,657	5.5	Schizophrenia	3,754	4.0
6	Alcohol dependence and harmful use	4,848	4.7	Road traffic accidents	3,572	3.8
7	Migraine	3,539	3.5	Personality disorders	2,622	2.8
8	Cannabis dependence and harmful use	3,520	3.4	Bulimia nervosa	2,576	2.7
9	Personality disorders	3,130	3.1	Bipolar disorder	2,450	2.6
10	Bipolar disorder	2,672	2.6	Anorexia nervosa	2,063	2.2
	All causes	**102,476**	**100.0**	**All causes**	**93,985**	**100.0**

Source: Begg et al. 2007.

- Anxiety and depression is the leading cause of burden of disease for young Australians, accounting for 17% of the male burden and 32% of the female burden. After anxiety and depression, the leading causes of disease and injury burden are markedly different for males and females. For young males, road traffic accidents (10%), schizophrenia (10%) and suicide and self-inflicted injuries (7%) followed anxiety and depression as the leading causes of disease and injury burden. For females, asthma was the second highest cause of disease burden (7%), followed by migraine (7%), and other genitourinary diseases (6%).

Burden attributable to risk factors

The 2003 burden of disease and injury study looked at 14 selected risks to health. These risk factors combined explain 22% of the total burden of disease and injury among young people aged 15–24 years in Australia in 2003.

Individually, risk factors contributing the most to the burden of disease and injury among this age group were illicit drugs, alcohol, intimate partner violence, child sexual abuse and occupational exposures. From these risks, the predominant health outcomes were mental disorders and injuries, except for occupational exposures for which the main health outcome was chronic respiratory disease and asthma in particular.

Table 2.7: Individual burden (DALYs) attributable to selected[(a)] risk factors for 15–24 year olds, by sex, 2003

	Males		Females		Persons	
Risk factor	DALYs	Per cent of DALYs	DALYs	Per cent of DALYs	DALYs	Per cent of DALYs
Illicit drugs	11,892	11.6	4,246	4.5	16,137	8.2
Alcohol	11,649	11.4	1,518	1.6	13,166	6.7
Intimate partner violence	—	0.0	5,464	5.8	5,464	2.8
Child sexual abuse	738	0.7	4,267	4.5	5,005	2.5
Occupational exposures	2,853	2.8	1,387	1.5	4,240	2.2
14 risk factors combined[(b)]	**27,564**	**26.9**	**15,712**	**16.7**	**43,276**	**22.0**

(a) The risk factors not included in this table (high body mass, tobacco, high blood pressure, physical inactivity, high blood cholesterol, low fruit and vegetable intake, urban air pollution, unsafe sex, osteoporosis) contributed less than 1% each to the total burden of disease and injury for 15–24 year olds.

(b) This is not the sum of the contribution of the 14 risk factors but their joint effect taking into account: the mediation of distal risk factors through proximal risk factors; that the hazard due to a risk factor may depend on the presence of other risk factors and; the correlation between exposure to risk factors. See Begg et al. 2007 for more information.

— Nil or rounded to zero.

Source: Begg et al. 2007.

- Illicit drugs accounted for the greatest amount of burden among young Australians in 2003 (8%), followed by alcohol (7%).
- Intimate partner violence accounted for the greatest burden among young females (6%), while for young males, illicit drugs (12%) and alcohol (11%) were the largest contributors to disease burden.
- Overall, the 14 risk factors combined were responsible for 27% of the male burden and 17% of the female burden.

Mental health

Mental health is a state of wellbeing in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her own community (WHO 2001a).

'Mental illness' is a general term that refers to a group of disorders that affect the way a person, thinks, feels and acts. Mental disorders are characterised by a clinically recognisable set of symptoms or behaviours that interfere with social, academic or occupational functioning (APA 1994; Sawyer et al. 2000). There are different types of mental disorders; each consists of a different combination of symptoms that may differ in severity.

A number of mental disorders are first manifested in childhood and adolescence, and many disorders that are diagnosed in adulthood have their origins in childhood. Common mental disorders found in children and young people include developmental disorders such as dyslexia

or autism; behavioural disorders such as attention deficit/hyperactivity disorders (ADHD) and conduct disorders; anxiety disorders; depression; and schizophrenia (U.S. Department of Health and Human Services 1999).

Mental disorders were the leading contributor to the burden of disease and injury (49%) among young Australians aged 15–24 years in 2003, with anxiety and depression being the leading specific cause for both males and females (see *Burden of disease and injury* in Part 2 of this report).

Experiencing a mental disorder is associated with lower educational attainment, joblessness and poorer physical health (DHAC 2004). According to the 1997 National Survey of Mental Health and Wellbeing (SMHWB), young people who had not completed secondary education had a higher prevalence of mental disorders (35%) than those who had post-school qualifications or who had completed secondary school (just under 25%). The survey results also indicated that unemployed young people and those not in the labour force were more likely to suffer from a mental disorder than other young people. It is not possible to determine causality from these data. While mental illness may lead to lower educational attainment or unemployment, it is also possible that these circumstances may contribute to the development of a mental disorder.

Determinants of mental health

The causes of mental illness are not clear, but a range of risk and protective factors are thought to influence mental health. These factors can be individual (particular to the person), contextual (a product of the environment), or the result of the interaction between the person and the environment.

Risk factors that increase the likelihood that mental health problems will develop include: individual factors (such as prenatal brain damage, genetic factors), family or social factors (such as marital discord between parents and social isolation), school context (such as bullying, failure to achieve academically), life events and situations (such as physical, sexual and emotional abuse and neglect), and community and cultural factors (such as socioeconomic disadvantage) (DHAC 2000).

Protective factors reduce the likelihood of mental health problems and mitigate the potentially negative effects of risk factors. Protective factors include: individual factors (such as adequate nutrition, problem-solving skills), family or social factors (such as family harmony, social support), school context (such as a positive school environment), life events and situations (such as economic security, good physical health), and community and cultural factors (such as social networks, involvement in community groups) (DHAC 2000).

Psychological distress

Psychological distress refers to an individual's overall level of psychological strain or pain, evidenced by psychological states such as depression, anxiety and anger. Psychological distress may be fairly transient, for example, experiencing high anxiety over an upcoming exam, or sadness because of the break-up of a relationship, but may also be a continuing problem, particularly among those experiencing mental health problems and clinical disorders.

Psychological distress according to Kessler 10 scale

Psychological distress can be measured using the Kessler 10 (K10) distress scale which is a 10 item questionnaire asking about feelings such as nervousness, hopelessness, restlessness, depression and worthlessness. For each item, the respondents are asked how often they experienced these feelings in the past 4 weeks, with responses ranging from 'none of the time' to 'all of the time' (scoring 1 to 5). The maximum score is 50 (indicating severe distress) and the minimum score is 10 (no distress). Andrew & Slade (2001) showed a strong association between the K10 scale and current diagnoses of anxiety and affective disorders. They also showed a lesser, but significant, association with other mental disorder categories.

The K10 scores for young people aged 18–24 years were obtained from the ABS 1997 SMHWB and the ABS 2001 and 2004–05 National Health Surveys (NHS).

INDICATOR:

Proportion of young people aged 18–24 years having high or very high levels of psychological distress as measured by the K10 scale (per cent)

Table 2.8: Prevalence of psychological distress among young people aged 18–24 years by sex, 1997–2005 (per cent)

Level of psychological distress[a]	1997		2001		2004–05	
	Males	Females	Males	Females	Males	Females
Low (10–15)	71.8	59.3	60.4	46.2	60.4	49.4
Moderate (16–21)	21.4	28.2	28.8	31.7	27.1	31.8
High or Very High (22–50)	6.8	12.5	10.8	22.1	12.4	18.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Based on the Kessler 10 scale of psychological distress.

Source: AIHW analysis of ABS 1997 National Survey of Mental Health and Wellbeing confidentialised unit record file; ABS 2002c, 2006m.

- In 2004–05, the proportions of young males and females aged 18–24 years reporting high or very high levels of distress were 12% and 19% respectively, an increase from 1997 when the corresponding proportions were 7% and 13% respectively.
- Across all three periods (1997, 2001 and 2004–05), young females were more likely than young males to experience moderate to very high levels of psychological distress. In 2004–05, 51% of young females, compared to 40% of young males, reported moderate to very high levels of psychological distress.

According to the ABS 2004–05 NHS, very high levels of psychological distress were slightly less common in young people aged 18–24 years (3.4%) compared with adults aged 25 years and over (3.9%). Very high levels of psychological distress were most prevalent among adults aged 45 to 54 years (4.8%) (ABS 2006).

Physical and mental health are interdependent—changes in the status of one are likely to affect the other (DHAC 2006b). The ABS 2004–05 NHS collected self-assessed health status, which is a proxy measure of physical health.

Table 2.9: Self-assessed health status by level of psychological distress (measured by K10 scale), young people aged 18–24 years, 2004–05

Self-assessed health status	Level of psychological distress			
	Low	Moderate	High	Very high
Excellent	32.6	16.5	13.0	9.3
Very good	41.4	40.8	34.1	23.3
Good	22.3	34.5	36.3	32.0
Fair	3.6	6.6	14.9	26.2
Poor	0.2	1.5	1.8	9.2

Source: AIHW analysis of the ABS 2004–05 National Health Survey confidentialised unit record file.

- In 2004–05, young people aged 18–24 years with moderate to very high levels of psychological distress were much less likely than those with low psychological distress to rate their health status as excellent.
- A larger proportion of young people with very high levels of psychological distress assessed their health as fair or poor (26% and 9% respectively) compared to those reporting low psychological distress (4% rated their health as fair and less than 1% as poor).

ADHD and conduct disorder

Behavioural disorders such as ADHD and conduct disorder are typically diagnosed during childhood, but may persist into adulthood. If not treated early, these disorders can have profound implications for adult health outcomes such as poorer quality of life, physical health problems,

lowered academic and vocational attainment, substance use, suicidal behaviour, and family discord (Raphael 2000).

People with ADHD display developmentally inappropriate levels of inattention, hyperactivity and impulsivity, causing impairment in areas of life such as school performance, social skills, driving and work performance (Biederman & Faraone 2005). Conduct disorder is one of a number of related disorders that is characterised by persistent disruptive, antagonising or aggressive behaviour, sometimes involving criminal acts (Karnik et al. 2006). Similar to young people with ADHD, the behaviour of young people with conduct disorder is often considered inappropriate for their age (Karnik et al. 2006).

The prevalence of ADHD and conduct disorder among young people aged 12–17 years was examined in the 1998 Child and Adolescent Component of the SMHWB. This survey used the Diagnostic Interview Schedule for Children (Version IV) which uses the criteria described in the Diagnostic and Statistical Manual for Mental Disorders, 4th edition, (APA 1994) to identify these disorders.

INDICATOR:

Prevalence rates for selected mental health disorders (namely, ADHD and conduct disorder) among young people aged 12–17 years

In 1998, 8% of young people aged 12–17 years had ADHD and 3% had conduct disorder. Prevalence rates for ADHD and conduct disorder among young males (12% and 4% respectively) were 3 to 4 times the rates for young females (4% and 1% respectively). Around 16% of those young people with ADHD or conduct disorder had both disorders.

Depression, anxiety and substance use disorders

Depression, anxiety and substance use disorders are the most common mental disorders, accounting for 75% of the burden generated by all mental disorders (Andrews & Wilkinson 2002). Onset of these disorders typically occurs during adolescence and early adulthood (Andrews & Wilkinson 2002). A high proportion of young people who experience a major depressive disorder also have another mental disorder—commonly an anxiety disorder, substance use disorder, or behavioural disorder (Bhatia & Bhatia 2007).

The ABS 1997 SMHWB collected information on a range of mental disorders, including depression, anxiety and substance use disorders, among adults aged 18 years or over. This survey used the Composite International Diagnostic Interview to diagnose mental disorders.

Table 2.10: Prevalence of selected mental disorders among young people aged 18–24 years, 1997

	Males		Females		Persons	
	Number ('000)	Per cent	Number ('000)	Per cent	Number ('000)	Per cent
Total anxiety disorders	**76.5**	**8.3**	**123.8**	**13.8**	**200.3**	**11.0**
Panic disorder	1.9	0.2	11.3	1.3	13.2	0.7
Agoraphobia	7.3	0.8	15.0	1.7	22.3	1.2
Social phobia	37.8	4.1	42.6	4.7	80.3	4.4
Generalised anxiety disorder	11.3	1.2	18.6	2.1	29.9	1.6
Obsessive–compulsive disorder	3.5	0.4	6.1	0.7	9.6	0.5
Post-traumatic stress disorder	30.9	3.4	61.0	6.8	91.9	5.1
Total affective disorders	**26.4**	**2.9**	**97.1**	**10.8**	**123.5**	**6.8**
Depression	24.6	2.7	91.6	10.2	116.2	6.4
Dysthymia	2.5	0.3	7.4	0.8	9.9	0.5
Total substance use disorders	**194.8**	**21.2**	**94.4**	**10.5**	**289.2**	**15.9**
Alcohol harmful use	40.4	4.4	35.6	4.0	76.0	4.2
Alcohol dependence	110.2	12.0	38.3	4.3	148.6	8.2
Drug use disorders	85.1	9.2	32.0	3.6	117.1	6.4
Total selected mental disorders[a]	**249.4**	**27.1**	**232.2**	**25.9**	**481.6**	**26.5**
Total persons ('000)	**920.6**	**100.0**	**896.5**	**100.0**	**1,817.1**	**100.0**

(a) Total selected mental disorders include anxiety, affective and substance use disorders only. Total is not cumulative as categories are not mutually exclusive.

Source: AIHW analysis of ABS 1997 National Survey of Mental Health and Wellbeing confidentialised unit record file.

INDICATOR:

Prevalence rate for mental disorders (affective and anxiety disorders) among young people aged 18–24 years

INDICATOR:

Prevalence rate for substance use disorders among young people aged 18–24 years

- In 1997, just over one in four young people aged 18–24 years (an estimated 481,600 young people) experienced anxiety, affective or substance use disorders. Rates were similar for males and females—27% for males and 26% for females.
- Substance use disorders were the most prevalent disorder among young people, affecting about 1 in 5 males and 1 in 10 females. Alcohol dependence accounted for over half of the total substance use disorders, affecting 12% of males and 4% of females.
- One in ten 18–24 year olds experienced anxiety disorders, affecting 8% of males and 14% of females. Within the group of anxiety disorders, post-traumatic stress disorder was the most prevalent, affecting 3% of males and 7% of females.
- Depression and dysthymia (chronic mild depression) affected 3% of young males and 11% of young females in 1997.

Health service use for mental health disorders

People with mental disorders may access a wide range of service types including specialist mental health services, general health services and services provided in residential and ambulatory care settings (AIHW 2005g). The ABS SMHWB found that, for all people with a mental disorder, the service most frequently used was general practitioners. The Child and Adolescent Component of the same survey found that the two services used most commonly by adolescents with a mental disorder were school counselling and family doctors. If mental disorders are poorly managed or a young person has hurt or threatened to hurt themselves or others, or if they are experiencing an acute phase of a moderate to severe psychiatric illness, hospitalisation may be required.

Hospital separations

In 2004–05, there were 47,372 hospital separations for mental and behavioural disorders (ICD-10-AM codes F00–F99) among those aged 12–24 years, accounting for 16% of all mental and behavioural disorder separations and 8% of all hospital separations for young people in that year. This was a rate of 1,302 separations per 100,000 young people (1,076 and 1,550 per 100,000 for young males and females respectively).

The separation rate for mental and behavioural disorders increased with age. Among those aged 12–14 years, the rate was 431 per 100,000, and for those aged 20–24 years it was 1,731 per 100,000—a fourfold difference. The separation rate among young people aged 15–19 years (1,407 per 100,000) was more than three times the rate among those aged 12–14 years.

Young females had higher separation rates for mental and behavioural disorders than young males. The difference was greatest for 15–19 year olds, where the female rate was almost twice the rate for males (1,824 compared to 1,010 per 100,000 young people).

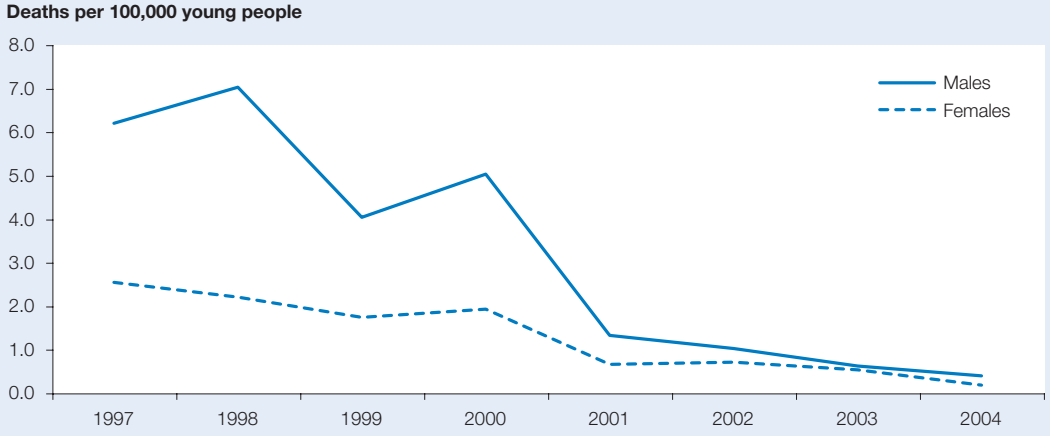
For young males, the leading cause of hospital separation due to mental and behavioural disorders was psychoactive substance use (24%), followed by schizophrenia (20%) and depression (13%). For young females, the leading causes were depression (19%), eating disorders (14%) and psychoactive substance use (12%). Approximately half of all hospital separations for psychoactive substance use among young males and females were due to use of alcohol (45% and 52% respectively).

Community mental health services

Young people were also in contact with community mental health services for the treatment of mental health-related disorders. In 2003–04, over a million contacts with community mental health services were made by young people aged 12–24 years and this accounts for 20% of total service contacts made in Australia in this period. Approximately 62% of service contacts by young people had a specific principal diagnosis mentioned. Of those specifying a principal diagnosis, 26% had a principal diagnosis of schizophrenia, 15% each had neurotic, stress-related and somatoform disorders and depressive disorders (National Community Mental Health Care Database (NCMHCD), unpublished data).

Deaths related to mental and behavioural disorders

In 2004, most of the deaths attributed to a mental or behavioural disorder among young people aged 12–24 years were due to abuse of psychoactive substances such as heroin and other drugs (7 out of 10 deaths). The decline in the number of deaths from 2001 corresponds with a dramatic decline in the availability of heroin that occurred in Australia in early 2001, resulting in fewer fatal drug overdoses (Degenhardt et al. 2005).



Note: ICD-10 codes F00–F99.
Source: AIHW National Mortality Database.

Figure 2.5: Deaths from mental and behavioural disorders for young people aged 12–24 years, by sex, 1997–2004

- In 2004, a mental or behavioural disorder was responsible for 10 deaths among young people aged 12–24 years. The age-standardised rate for young males was 0.4 per 100,000 young people, a decline from 6.2 per 100,000 in 1997. The female death rate from mental and behavioural disorders also declined from 2.5 per 100,000 young people in 1997 to 0.2 per 100,000 in 2004.

Suicide and self-harm

Experiencing a mental disorder is a risk factor for self-harm and suicide. Studies of people who self-harm have shown that more than 90% have at least one mental disorder—commonly depression (Skegg 2005). A history of mental illness, in particular depression, as well as the presence of more than one mental disorder are also strong predictors of suicide (Beautrais 2000; Rey & Dudley 2005; Schmidt et al. 2002). While not all young people who self-harm or contemplate suicide have a mental disorder, these behaviours do suggest psychological distress.

Self-harm

The term 'self-harm' refers to a range of behaviours that, at the milder end of the spectrum, includes mild to moderate self-injury as a response to emotional pain and, at the more extreme end, includes attempted suicide (Skegg 2005). In many cases, self-harm is not intended to be fatal (Skegg 2005). Self-harm frequently involves cutting and poisoning (typically overdosing on medication), but may also involve behaviours such as self-battery and hanging (De Leo & Heller 2004; Skegg 2005).

The number of young people who commit suicide is relatively low compared with the number who self-harm. In a 2002 survey, 6% of Year 10 and Year 11 students in Queensland reported having deliberately self-harmed in the previous 12 months and 12% reported that they had deliberately self-harmed at some point in their lives (De Leo & Heller 2004).

Data on self-harm hospital separations among young people are available from the AIHW National Hospital Morbidity Database. However, it is likely that only a minority of young people who self-harm will seek medical treatment. Survey data suggest that only 10% of young people who self-harm will present for hospital treatment (De Leo & Heller 2004).

In 2004–05, there were 7,874 hospital separations for intentional self-harm among young people aged 12–24 years, a rate of 218 separations per 100,000 young people (ICD-10-AM codes X60–X84, Y87.0). Of these, 5,598 hospital separations (71%) were for females. The separation rate for intentional self-harm among young females was 2.5 times the rate for young males (318 separations per 100,000 young females and 122 per 100,000 young males).

Between 2000–01 and 2004–05, the separation rate for intentional self-harm decreased by 4% for young males aged 12–24 years but increased by 27% for young females.

The main cause of intentional self-harm hospital separations for both males and females was self-poisoning, accounting for 80% of self-harm separations (6,273 separations). Intentional self-harm by sharp object was the cause of 15% of the separations (1,169 separations) (see also *Injury and poisoning* in Part 2 of this report).

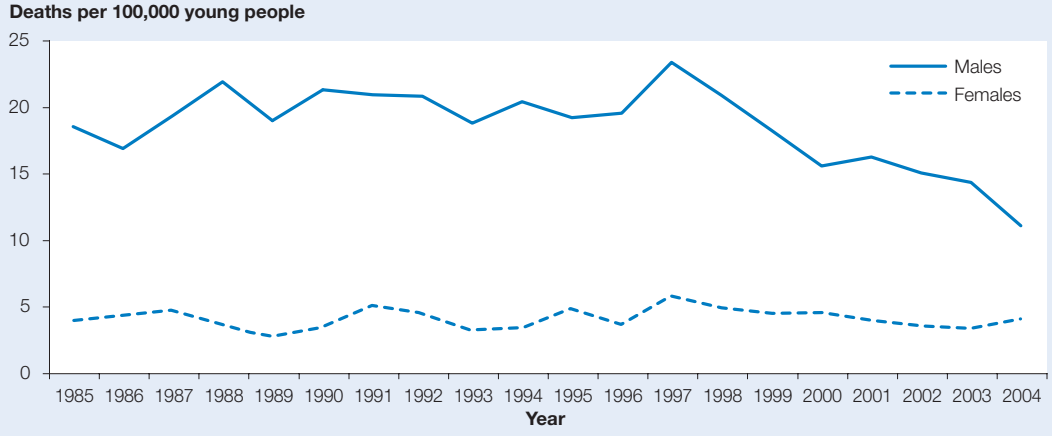
Suicide

A range of interacting factors are associated with increased risk of suicide among young people. These include individual, family and social circumstances. Mental illness combined with harmful drug use, previous suicide attempts or intentional self-harm are also linked to suicide (Beautrais 2000; Goldney 1998). A Western Australian study found that young people who had attempted suicide were 30 times more likely to commit suicide than all young people (Silburn et al. 1990). A family history of suicide or suicidal behaviour is also associated with significant suicide risk. In addition, socioeconomic disadvantage, including low educational achievement, unemployment, imprisonment, experience of abuse in childhood and easy access to firearms, is an important contributor to the risk of suicide (Beautrais 2000).

INDICATOR:

Rate of suicide for young people aged 12–24 years

In 2004, 272 young people aged 12–24 years committed suicide (a rate of 8 per 100,000 young people). This accounted for 14% of all suicide deaths in Australia and 19% of all deaths for this age group in 2004. Suicide causes the second highest number of deaths among young Australians (see also *Injury and poisoning* and *Deaths* in Part 2 of this report).



Note: ICD-10 codes X60–X84, Y87.0.

Source: AIHW National Mortality Database.

Figure 2.6: Suicide death rates for young people aged 12–24 years, 1985–2004

- In 2004, the rate of suicide among young males and females aged 12–24 years was 11 per 100,000 and 4 per 100,000 young people respectively.
- Between 1985 and 1997, the rate of suicide among young males fluctuated between 19 and 23 per 100,000 young people when the rate peaked. Since then, the death rate from suicide among young males has declined by over 50% from 23 per 100,000 young males in 1997 to 11 per 100,000 in 2004. Female suicide death rates have remained relatively stable over the last two decades.
- While male suicide rates were 4 to 7 times as high as female rates in the 1980s, more recently the gap between young males and females has narrowed with the declining male suicide rate since 1997. In 2004, the male suicide rate was 3 times as high as that of females.

In 2004, hanging, strangulation and suffocation were the major methods of suicide among young people (149 deaths or 55%), followed by poisoning (48 deaths or 18%), jumping from a high place (26 deaths or 10%) and firearms (15 deaths or 6%). See also *Injury and poisoning* in Part 2 of this report.

Aboriginal and Torres Strait Islander young people

National data on the prevalence of mental illness among young Indigenous Australians are not available.

The AIHW National Hospital Morbidity Database provides data on hospital separations due to mental and behavioural disorders among young Indigenous Australians for Queensland, Western Australia, South Australia and public hospitals in the Northern Territory. In 2004–05, the hospital separation rate for mental and behavioural disorders among Indigenous 12–24 year olds was 2,028 per 100,000 young people (1,989 for males and 2,070 for females) (ICD-10-AM codes F00–F99). This rate was 1.6 times that of other young Australians. Separation rates increased with age, from 394 per 100,000 young people for 12–14 year olds to 1,570 per 100,000 young people aged 15–19 years and 2,942 per 100,000 for 20–24 year olds.

Schizophrenia was the main mental and behavioural disorder associated with hospitalisation among young Indigenous males in 2004–05 (35%). This was followed by mental and behavioural disorders due to psychoactive substance use (32%) (13% due to alcohol use alone) and reaction to severe stress and adjustment disorder (9%). Among young Indigenous females, the main reasons for mental and behavioural disorder hospital separations were psychoactive substance use (25%) (9% due to alcohol use alone), reaction to severe stress and adjustment disorder (16%) and schizophrenia (15%). Use of alcohol was responsible for 42% and 35% of hospital separations for psychoactive substance use among young Indigenous males and females respectively.

Over 49,000 community mental health services contacts were made by young Indigenous people aged 15–24 years in 2003–04 and 58% of the contacts had a specific principal diagnosis. The most common principal diagnoses among young Indigenous people were schizophrenia, accounting for 32% of the service contacts, and depressive disorders (15%) (NCMHCD, unpublished data).

Injury and poisoning

Injury has a major but largely preventable impact on the health of young Australians. It is the leading cause of death among young people, accounting for more deaths than all other causes of death combined, and can leave many with serious disability or long-term conditions. For these reasons, injury prevention and control was declared a National Health Priority Area (NHPA) in 1986, and is the subject of a national prevention plan (NPHP 2004).

Patterns of injury in young people are distinct from other age groups, showing the strong influence that stage of life has on susceptibility to certain types of injury. Injury patterns change during adolescence and early adulthood as young people assume more independent roles.

Greater responsibility for decision-making creates more opportunity for young people to engage in risky behaviours (NPHP 2004). For young people, particularly those aged 15–17 years, this independence occurs simultaneously with the development of new skills, such as driving, job skills and exposure to alcohol and other drugs, at a time when peer acceptance is important. Young people are more likely to experiment with or use illicit substances and alcohol, which can make them more prone to certain types of injuries, such as falls, transport accidents and assault.

Of particular concern is the over-representation of young adults in road traffic accidents that have been linked to risky driving behaviours such as speeding, driving when fatigued and driving under the influence of alcohol or other drugs (Smart et al. 2005). Work-related injuries are also an important issue among young people. These injuries may be due to the types of jobs young people are employed in, inexperience with the tasks required, or risk-taking (AIHW: Moller 1995).

Injury can affect a person's employment, educational and recreational opportunities, and can lead to permanent disability and disfigurement, which can then affect future health and wellbeing. Thus, there are far-reaching effects of injury on the social and emotional development of a young person, which can also affect family and friends if they are required to take on a care-giving role (NPHP 2004).

The ABS 2004–05 National Health Survey estimated that 835,310 injury events occurred among young people in the 4 weeks preceding the survey. The most frequently reported injury that resulted in a health action being taken was being cut with a knife, tool or other implement (34%), followed by hitting something or being hit by something (20%) and a low fall (20%). Males and females reported similar frequencies of each of these injury events.

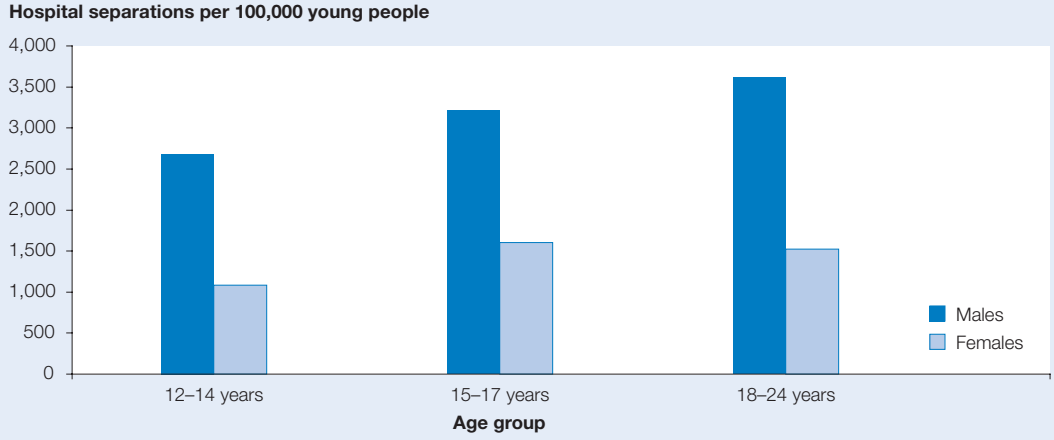
Of those young people who reported an injury, 10% had days off work or study and 23% had to cut down on usual activities due to the injury event.

The information presented in this section is derived from the AIHW National Hospital Morbidity Database and the AIHW Mortality Database. See Appendix 1 for details on the methods used for analysis of injury and poisoning hospital separations and external causes of injury and poisoning hospital separations.

Injury and poisoning hospital separations

INDICATOR:

Injury and poisoning hospital separation rate for young people aged 12–24 years



Note: ICD-10-AM codes S00–T98.

Source: AIHW National Hospital Morbidity Database.

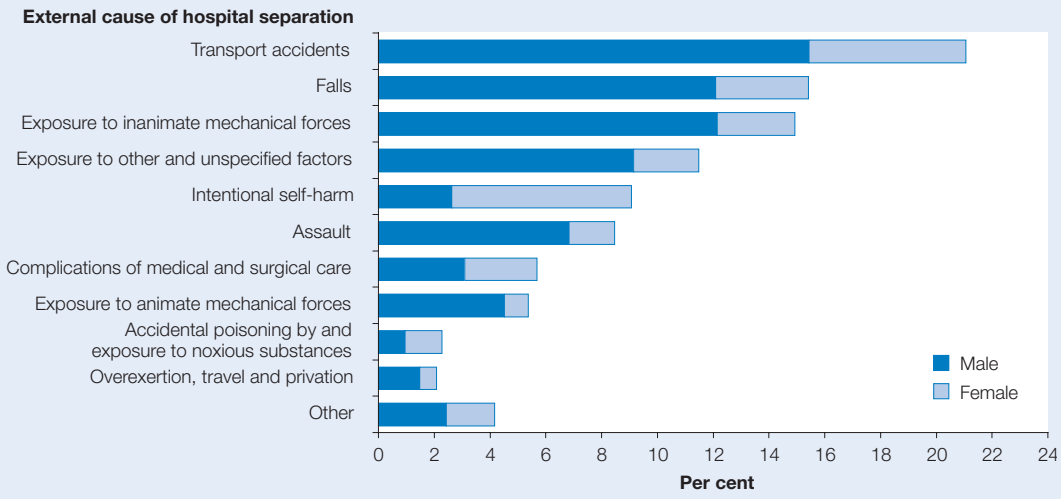
Figure 2.7: Injury and poisoning hospital separation rate for young people aged 12–24 years, 2004–05

- Injury and poisoning was the third leading cause of hospital separation for young people aged 12–24 years in 2004–05, with 86,943 separations—a rate of 2,397 separations per 100,000 young people and 15% of all hospital separations for young people.

- Injury and poisoning was the leading cause of hospital separation for young males, with 61,502 separations, and the fourth leading cause for females, with 25,441 separations. The male separation rate was 2.3 times as high as the rate for young females in 2004–05 (3,309 compared to 1,440 per 100,000 young people).
- Separation rates among young males increased with age. Males aged 18–24 were 1.3 times as likely to be hospitalised as those aged 12–14 years. Hospital separations among females were highest for those aged 15–17 years (1,604 per 100,000 young people).

Between 1996–97 and 2004–05, there was a 3% increase in injury and poisoning separations among young people.

Hospital separations for specific external causes of injury and poisoning



Notes

1. ICD-10-AM codes V01–Y99 and S00–T98. Transport accidents (V01–V99, Y85), falls (W00—W19), exposure to inanimate mechanical forces (W20–W49), exposure to other and unspecified factors (X58–X59), intentional self-harm (X60–X84, Y87.0), assault (X85–Y09, Y87.1), complications of medical and surgical care (Y40–Y84), exposure to animate mechanical forces (W50–W64), accidental poisoning by and exposure to noxious substances (X40–X49), overexertion, travel and privation (X50–X57), other (all remaining ICD-10-AM codes within the V01–Y99 range).
2. Includes only one external cause per hospital separation.

Source: AIHW National Hospital Morbidity Database.

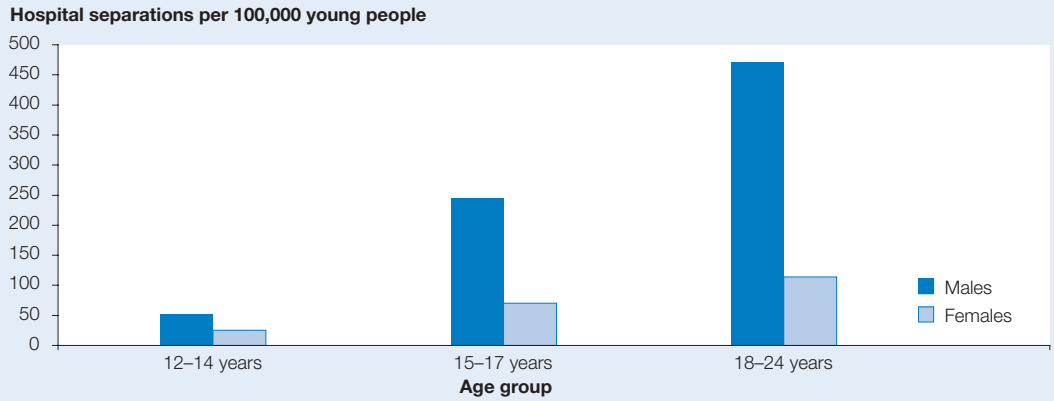
Figure 2.8: Injury hospital separations for young people aged 12–24 years, by external cause of injury 2004–05 (per cent)

- In 2004–05, the most common external cause of injury leading to hospitalisation among young people was transport accidents, accounting for 18,377 or 21% of injury and poisoning separations (a rate of 507 per 100,000 young people). The majority of these separations were for young males (71%). Over half of transport accident separations were more specifically due to motor vehicle traffic accidents. For both transport and motor vehicle traffic accidents, the separation rates for young males were higher than for females (2.6 times for transport accidents and 2 times for motor vehicle traffic accidents). Nearly half of all separations for motor vehicle traffic accidents among young people involved the drivers of the motor vehicle and 25% were passengers.
- Falls and exposure to inanimate mechanical forces were the second and third highest external causes of injury respectively, each accounting for approximately 15% of injury separations among young people.
- Males made up a higher proportion of hospital separations for all external causes of injury of young people, except for intentional self-harm and accidental poisoning by, and exposure to, noxious substances. Females accounted for 71% of the 7,874 separations due to intentional self-harm in 2004–05. In the same year, of the 1,979 separations for accidental poisoning, by and exposure to, noxious substances, females accounted for 59%.

Hospital separations for assault

INDICATOR:

Hospital separation rate for assault among young people aged 12–24 years



Note: ICD-10-AM codes S00–T98 & X85–Y09, Y87.1.

Source: AIHW National Hospital Morbidity Database.

Figure 2.9: Assault hospital separation rate for young people aged 12–24 years by sex, 2004–05

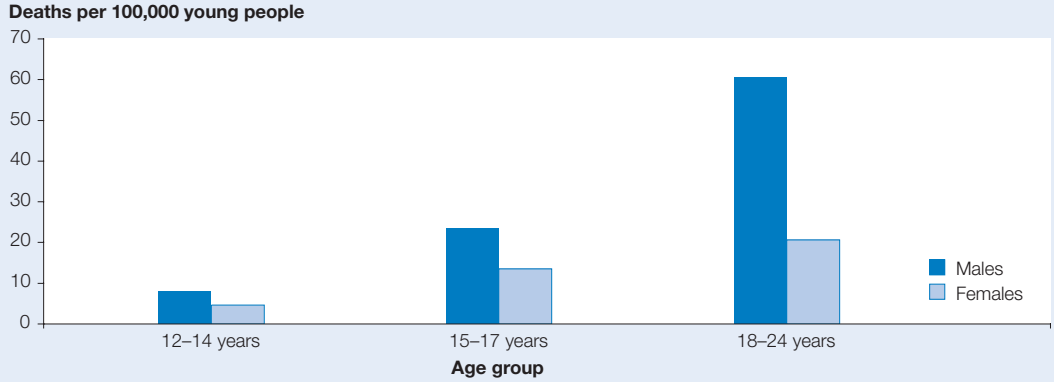
- In 2004–05, there were 7,359 separations for an injury caused by assault among young people aged 12–24 years—a rate of 203 per 100,000 young people.
- The assault separation rates for young males were almost 4 times the rates for young females. The gap between male and female rates increased with age. For 12–14 year olds, the male rate was 2.1 times as high as the female rate. This ratio increased to 3.5 for the 15–17 year olds and to 4.1 for 18–24 year olds.
- Separation rates for assault increased with age for both young males and females but it was more marked in males. The male separation rate for 18–24 year olds was 9.1 times as high as for males aged 12–14 years, and twice as high as for males in the 15–17 year age group. For females, the separation rate for 18–24 year olds was 4.6 times as high as for 12–14 year olds and 1.6 times as high as for 15–17 year olds.

Overall, between 1996–97 and 2004–05, separation rates due to assault increased slightly among young people (7% increase). Rates peaked in 2000–01 for males and in 2001–02 for females, and have decreased slightly since then, by 6% for young males and by 7% for young females.

Injury deaths

INDICATOR:

Injury and poisoning death rate for young people aged 12–24 years



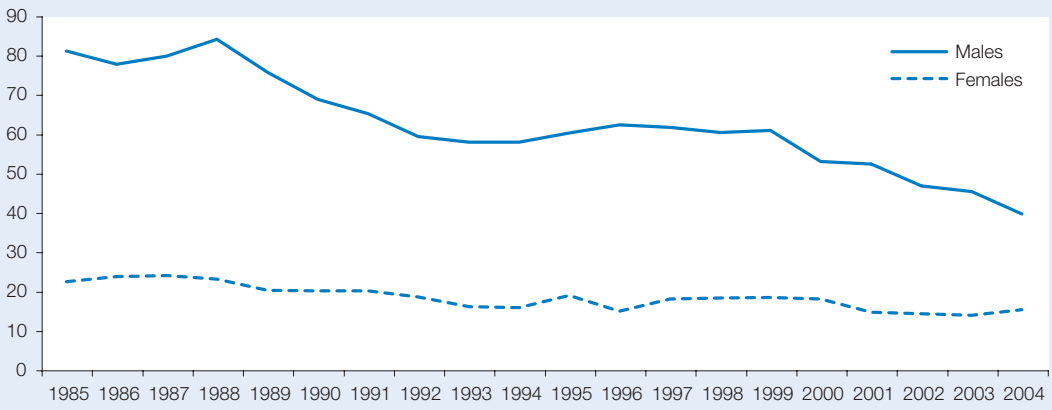
Notes

1. Includes deaths registered during 2004 for which an external cause was coded as the underlying cause of death (ICD-10 codes V01–Y98).

Source: AIHW National Mortality Database.

Figure 2.10: Injury and poisoning death rates, for young people aged 12–24 years, 2004

- In 2004, injury and poisoning was the leading cause of death among young people aged 12–24 years, with 1,005 deaths—a rate of 28 deaths per 100,000 young people (40 per 100,000 for young males and 15 per 100,000 for young females). This accounted for two-thirds of all deaths of young people aged 12–24 years (71% of all deaths among 18–24 year olds, 67% of all deaths among 15–17 year olds and 44% of all deaths among 12–14 year olds).
- The death rate due to injury and poisoning was higher for males than females at all ages. The largest difference was in the 18–24 year age group, where the male rate was 2.9 times the female rate (32 compared to 11 per 100,000 young people).
- The age pattern of mortality from injury and poisoning shows that the majority of these deaths occurred among those aged 18–24 years (80%), followed by those aged 15–17 years (15%) and 12–14 years (5%).



Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. Includes deaths registered during 2004 for which an 'external cause' was coded as the underlying cause of death (ICD-9 codes E800–E999 and ICD-10 codes V01–Y98).

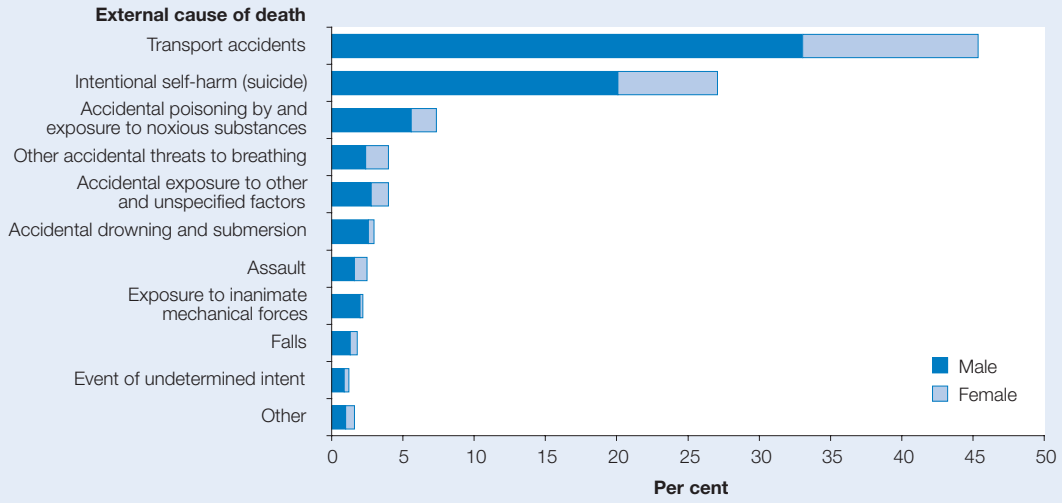
Source: AIHW National Mortality Database.

Figure 2.11: Trends in injury and poisoning deaths for young people aged 12–24 years, 1985 to 2004

- Between 1985 and 2004, the death rate due to injury and poisoning decreased by 50% for young males (from 81 to 40 per 100,000 young people) and by 31% for young females (from 22 to 15 per 100,000 young people).
- Death rates for young males due to external causes of injury and poisoning have been consistently higher than for young females over the last two decades, although this gap has been narrowing in recent times—from 3.6 times in 1984 to 2.6 times in 2004.

Between 1985 and 2004, injury and poisoning death rates have been declining fastest for young people aged 12–14 years (a decline of 67% for males and 73% for females), followed by those aged 15–17 years, (61% for males and 50% for females). The lowest rate of reduction between the same two periods occurred in the 18–24 year age group (47% decline for males and 42% for females), although these are still substantial decreases.

Deaths by specific external causes of injury



Note: ICD-10 codes V01–Y99 and S00–T98. Transport accidents (V01–V99, Y85), intentional self-harm [suicide] (X60–X84, Y87.0), accidental poisoning by and exposure to noxious substances (X40–X49), other accidental threats to breathing (W75–W84), exposure to other and unspecified factors (X58–X59), accidental drowning and submersion (W65–W74), assault (X85–Y09, Y87.1), exposure to inanimate mechanical forces (W20–W49), falls (W00–W19), event of undetermined intent (Y10–Y34), other (all remaining ICD-10 codes within the V01–Y99 range).

Source: AIHW National Mortality Database.

Figure 2.12: Injury and poisoning deaths among young people aged 12–24 years, by external cause of injury, 2004 (per cent)

- Transport accidents were responsible for 45% of the deaths of young people due to injury and poisoning in 2004.
- In 2004, intentional self-harm (suicide) accounted for 272 deaths of young people aged 12–24 years—a rate of 8 per 100,000 young people. This represented 27% of injury deaths of young people and 14% of all intentional self-harm deaths in Australia in that year. Deaths due to intentional self-harm decreased by 40% between 1995 and 2004. In 2004, almost 75% of intentional self-harm deaths among young people were for males, with the rate being 2.7 times that for young females.

INDICATOR:

Accidental drowning death rate for young people aged 12–24 years

Accidental drowning was responsible for 30 deaths of young people in 2004—a rate of 1 per 100,000 young people. Most accidental drowning deaths occurred among those aged 18–24 years, and rates were substantially higher for males than for females (6 times as high in 2004).

Transport accident and assault deaths

Transport accidents include any accident involving a device designed primarily for, or primarily being used at the time for, conveying persons or goods from one place to another. Motor vehicle traffic accidents are a subset of this category. Other groups under the transport accident category include accidents involving pedestrians and pedal cyclists, and railway and water transport. Transport accidents are further divided into traffic accidents, non-traffic accidents, persons injured while boarding or alighting and not specified. Traffic accidents are those that occur on a public highway, while non-traffic accidents are those that occur entirely in a place other than a public highway.

Table 2.11: Transport accidents and assault death rates for young people aged 12–24 years, 2004

External cause	Age (years)	Number			Rate per 100,000 young people		
		Males	Females	Persons	Males	Females	Persons
Transport accidents	12–14	19	8	27	4.4	2.0	3.2
	15–17	60	28	88	14.4	7.0	10.8
	18–24	252	88	340	25.2	9.3	17.5
	12–24	**331**	**124**	**455**	**7.1**	**17.9**	**12.6**
Assault	12–14	0	0	0	0.0	0.0	0.0
	15–17	2	1	3	0.5	0.3	0.4
	18–24	13	8	21	1.3	0.8	1.1
	12–24	**15**	**9**	**24**	**0.8**	**0.5**	**0.7**

Note: ICD-10 codes: transport accidents (V01–V99) and assault (X85–Y09, Y87.1).
Source: AIHW National Mortality Database.

INDICATORS:

Transport accident death rate for young people aged 12–24 years

Assault death rate for young people aged 12–24 years

- There were 455 deaths of young people aged 12–24 years due to transport accidents in 2004 (a rate of 13 per 100,000 young people), 90% of which were a result of traffic accidents involving a motor vehicle. The transport accident death rate decreased by 35% between 1995 and 2004, from 20 to 13 deaths per 100,000 young people. The rate increased with age and was higher for males than for females. Over one-quarter of all deaths due to transport accidents were of young people in 2004.
- There were 24 deaths of young people due to assault in 2004, which represents 16% of all deaths due to assault in that year (a rate of 0.7 per 100,000 young people). Rates were higher for males than for females and increased with age.

Population groups

The socioeconomic environment of young people, determined by factors such as education, income and employment status, influences opportunites for and knowledge about safety and injury prevention (NPHP 2004). Other factors such as gender, age and cultural background shape attitudes and knowledge which then influence lifestyle and behaviours. Therefore, some groups of young people are more at risk of injuries than others, in particular young males, people who are socioeconomically disadvantaged, people who live in remote and rural areas, and Indigenous Australians (DoHA 2001).

Aboriginal and Torres Strait Islander young people

In 2004–05, among young Indigenous Australians aged 12–24 years, the age-standardised rate of hospital separation due to injury and poisoning was 4,066 per 100,000 young people (4,717 for males and 3,397 for females). This was 1.7 times that for other young Australians, which was 2,426 per 100,000 young people (data are for Queensland, Western Australia, South Australia and public hospitals in the Northern Territory only). The male rate was higher than the female rate for all age groups. The separation rate was lowest among those aged 12–14 years and increased with age.

There were 205 deaths of young Indigenous Australians due to injury and poisoning during the period 2002–2004—a rate of 137 per 100,000 young people. This was almost 4.5 times that for young non-Indigenous Australians, which was 31 per 100,000 young people (data are for Queensland, Western Australia, South Australia and the Northern Territory only). The male rate was higher than the female rate for all age groups. The death rate was lowest among those aged 12–14 years and increased with age.

Regional status

Injury and poisoning hospital separation rates and death rates among young people aged 15–24 years are higher with increasing remoteness. In 2004–05, hospital separation rates in Very Remote areas were 2.7 times those in Major Cities (6,002 per 100,000 compared to 2,192 per 100,000 young people respectively). For deaths, the rate in Very Remote areas was more than 5 times that in Major Cities (145 per 100,000 compared to 28 per 100,000 young people respectively).

Chronic disease

A chronic disease is an ongoing condition characterised by a diagnosis of a specific physical or mental condition, functional limitation, and service use or need beyond routine care (Sawyer & Aroni 2005; Westbrook et al. 1998). The focus of this section of the report is chronic non-communicable diseases as these diseases contribute most to morbidity, disability and mortality in Australia.

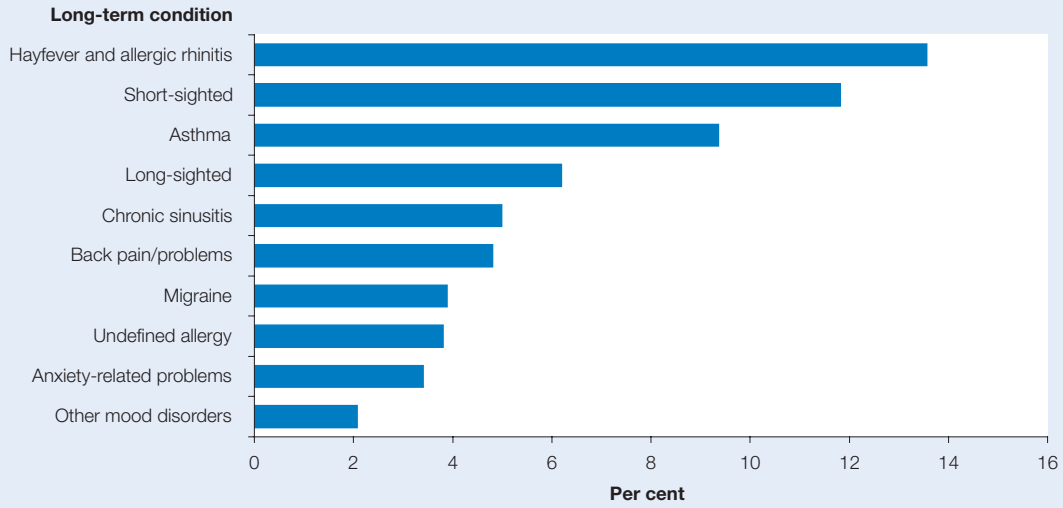
Chronic disease in young people is significant for several reasons. Adolescence and young adulthood are characterised by rapid growth and physiological changes, as well as important individuation and socialisation processes (Suris et al. 2004). The normal growth and development process can be affected either directly by a chronic disease, or indirectly through treatment. This can cause delays in muscle development and sexual maturation, result in short stature and have effects on physical appearance such as scarring. These effects occur at a time of emotional development when it is important to belong among peers. Body image issues at this stage of development can affect self-esteem and social adjustment (Yeo & Sawyer 2005). In addition, adolescence and young adulthood are periods of transition from dependence to independence during which new emotional and social roles are determined. For young people with chronic diseases, establishing autonomy and moving from childhood to adulthood can be difficult while they remain dependent on family for physical, emotional and financial support (Kyngäs et al. 2000).

Children and adolescents have the highest growth rates of chronic disease prevalence of all population cohorts (Perrin 2002) and it is estimated that over 90% of children born today with a chronic disease will survive beyond the age of 20 (Scal et al. 1999). Improved survival for people with chronic diseases is likely to have a cumulative effect on young people and their families in terms of social, psychological and economic pressures.

While there are many chronic diseases affecting young people, this section focuses primarily on the conditions considered NHPAs—asthma, diabetes and cancer—on the basis of their health impact, the potential to reduce their burden and community concern about them. Due to their substantial impacts on the health of young Australians, Crohn's disease, epilepsy, cystic fibrosis and cerebral palsy are also briefly discussed.

The information presented in this section is derived from the ABS National Health Surveys (NHS), the AIHW National Hospital Morbidity Database, the AIHW National Mortality Database, the AIHW National Cancer Statistics Clearing House (NCSCH) and the National Diabetes Register (NDR).

Chronic disease prevalence



Note: Long-term conditions are defined here as conditions lasting, or expected to last, 6 months or more.
Source: AIHW analysis of ABS 2004–05 National Health Survey, confidentialised unit record file.

Figure 2.13: Most frequently reported long-term conditions in young people aged 12–24 years, 2004–05

INDICATOR:

Prevalence of chronic diseases among young people aged 12–24 years

- In 2004–05, 63% of young Australians aged 12–24 years reported a long-term condition. Multiple long-term conditions were reported by 34% of young Australians.
- Young females were more likely than young males to report a long-term health condition (68% and 60% respectively).
- Hay fever and allergic rhinitis was the most frequent long-term condition reported by young people (14%), followed by short-sightedness (12%). The prevalence of short-sightedness (or myopia) was similar to that found by Ip et al. (2006) in their recent study of 12-year-old Australian school children (12%). The prevalence of short-sightedness has decreased since 2001, when the ABS NHS estimated the prevalence rate to be 15%.
- Asthma was the third most frequently reported long-term condition by young people, at 9%.

Asthma

Asthma is one of the most common long-term conditions among young Australians. The disease is characterised by recurrent episodes of wheeze, chest tightness, cough and shortness of breath caused by narrowing of the airways and obstruction to airflow (GINA 2005). Asthma was made the sixth NHPA in 1999, which has resulted in activities and projects to improve asthma management and care and the monitoring of asthma in Australia. The National Asthma Strategy 2006–08 provides a framework for a collaborative approach towards improving asthma care in Australia (Australian Health Ministers' Conference 2006).

While the underlying causes of asthma are still not well understood, constitutional factors such as genetic traits, age and sex, as well as environmental factors such as diet and lifestyle, may increase the risk of developing asthma. A number of factors can trigger airway narrowing and symptoms in people with asthma, including physical activity, viral infections, irritants (such as smoking and other air pollutants), cold weather, specific allergies (house dust mites and mould pores) and certain food preservatives (AIHW 2006a; AIHW Australian Centre for Asthma Monitoring 2005).

For the majority of people with asthma, the condition can be effectively controlled with the regular use of medications that prevent and reduce symptoms, as well as avoiding or controlling trigger factors. In some people with severe asthma, or those with poorly managed asthma, it can cause

poor quality of life, interfere with work, study or other activities, create a need for urgent medical care, and even cause premature death. Asthma can therefore place considerable restrictions on the physical, social and emotional lives of those with asthma and their families (GINA 2005).

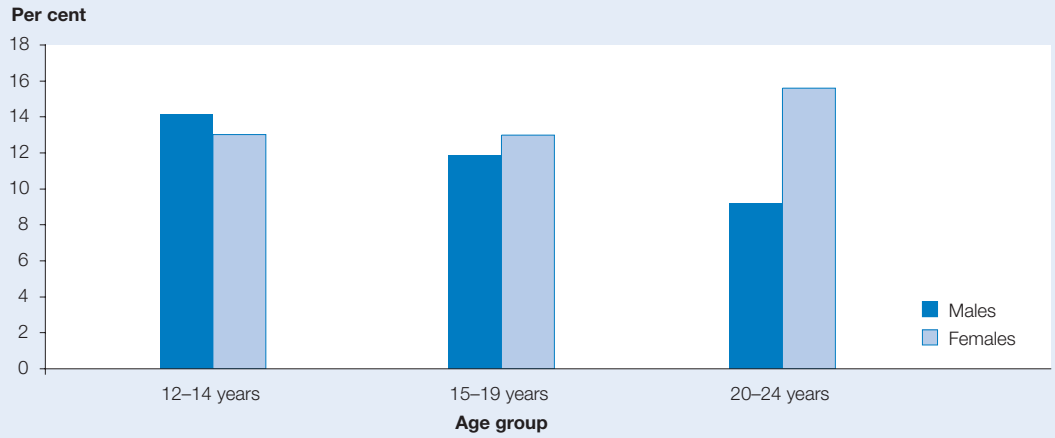
It is difficult to quantify the prevalence of asthma in the population because the prevalence can be based on self-reported wheeze, diagnosis by a general practitioner based on symptoms, or a combination of symptoms and lung function tests (Woolcock et al. 2001). Despite difficulties in accurately estimating asthma prevalence, international comparative studies indicate that Australia has one of the highest prevalence rates in the world (AIHW Australian Centre for Asthma Monitoring 2005; Masoli et al. 2004). It is commonly believed that asthma prevalence in Australia is on the rise (Robertson et al. 1998; Woolcock et al. 2001). Asthma prevalence did indeed increase in the 1980s and early-to-mid 1990s, however, in recent years, there has been emerging evidence that this trend has plateaued in adults and may even have reversed in children (AIHW Australian Centre for Asthma Monitoring 2005).

Despite this, the burden of disease due to asthma is substantial. Asthma was estimated to account for 7,995 DALYs or 4% of the total disease burden in 2003 for young Australians aged 15–24 years. The majority of this burden was due to years of 'healthy' life lost due to poor health or disability (96%). The burden was substantially higher for females than for males (6,641 compared to 1,314 DALYs) and was the second highest cause of disease burden for females aged 15–24 years (Begg et al. 2007).

Prevalence of asthma

INDICATOR:

Proportion of young people aged 12–24 years with asthma as a long-term condition



Note: Includes persons reporting ever told has condition, still current and long term.
Source: ABS 2004–05 National Health Survey, unpublished data.

Figure 2.14: Prevalence of asthma in young people aged 12–24 years, 2004–05

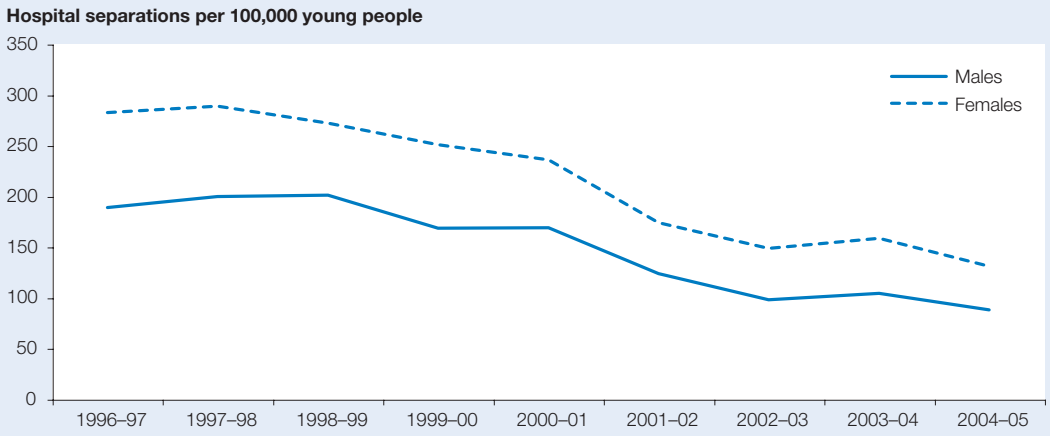
- Estimates based on the ABS 2004–05 NHS indicate that 435,200 young people had asthma as a current long-term condition—a prevalence rate of 13%. This is higher than the prevalence rate for the general population (10%). Those aged 12–24 years reported the highest prevalence compared to all other age groups.
- Asthma prevalence was slightly higher overall for young females (14%) than for young males (11%). The difference was largest in the 20–24 year age group where the prevalence rate for females was 1.7 times the rate for males. However, among those aged 12–14 years, the prevalence was similar for males and females (14% and 13% respectively).
- Prevalence rates were similar for each of the age groups—14% for those aged 12–14 years, and 12% each for those aged 15–19 years and 20–24 years.

The prevalence of asthma has declined since 2001 when the 2001 NHS estimated that 532,200 young people had asthma as a current long-term condition, a prevalence rate of 16%.

Action taken for asthma

No action had been taken for asthma in the 2 weeks before the survey by 51% of young people diagnosed with asthma. The most common action taken was the use of pharmaceutical medications (48%). A doctor was consulted by 5% of young people who took action for asthma, and less than 2% were admitted to hospital or visited casualty, an outpatient clinic or a day clinic.

Hospital separations due to asthma



Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM code 493 (1996–97 to 1997–98) and ICD-10-AM codes J45 & J46 (1998–99 to 2004–05).

Source: AIHW National Hospital Morbidity Database.

Figure 2.15: Asthma hospital separation rates for young people aged 12–24 years, 1996–97 to 2004–05

- In 2004–05, there were 3,948 hospital separations for asthma among those aged 12–24 years, or 109 separations per 100,000 young people. This represents less than 1% of all hospital separations for those aged 12–24 years during this period.
- Between 1996–97 and 2004–05, females were overall more likely to be admitted to hospital for asthma than males (1.5 times as likely in 2004–05). However, when the age group is broken down, males aged 12–14 years had higher separation rates than females (135 compared to 124 hospital separations per 100,000 12–14 year olds in 2004–05).
- Between 1996–97 and 2004–05 there have been significant reductions in asthma hospital separation rates among young people, falling from 189 to 88 separations per 100,000 young people for males and from 283 to 131 separations per 100,000 for young females (a decline of 54%). This decline may have occurred due to reductions in the severity of asthma, the prevalence of asthma, or improved management of the condition. Changes in hospital admission criteria and administrative policies could also have affected asthma hospitalisation data (AIHW Australian Centre for Asthma Monitoring 2005).

Deaths due to asthma

In 2004, there were 14 deaths due to asthma among young people, accounting for less than 1% of all deaths in this age range. Between 1995 and 2004, deaths from asthma almost halved among young people. Asthma is not a major cause of death in Australia, but death rates are moderately high by international standards (AIHW Australian Centre for Asthma Monitoring 2005).

This decrease in asthma death rates is most likely due to a reduction in the risk of dying among people who have asthma. Nationwide programs to improve asthma management, including the introduction of management guidelines, have been implemented since asthma was made a NHPA in 1999. Changes in treatment practices or environmental factors may also have had a role in reducing the severity of asthma and of asthma exacerbations (AIHW Australian Centre for Asthma Monitoring 2005).

Asthma among Aboriginal and Torres Strait Islander young people

The estimated prevalence of asthma among young Indigenous people in 2004–05 was 16% (12% for males and 19% for females). This compares with 9% for all young Australians.

Among young Indigenous Australians, the age-standardised hospital separation rate due to asthma was 144 per 100,000 young people in 2004–05 (111 per 100,000 for young males and 178 per 100,000 for young females). This was one-third higher than the rate of other Australians, which was 107 per 100,000 young people (data are for Queensland, Western Australia, South Australia and public hospitals in the Northern Territory only). The age-standardised rate for young Indigenous females was 1.6 times the rate for young Indigenous males, however, when the age group is broken down, young Indigenous males aged 12–14 years had a rate 1.2 times that of Indigenous females of the same age. The rate was highest overall for Indigenous young people aged 12–14 years, followed by those aged 20–24 years.

Diabetes mellitus

Diabetes is a chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to a relative or absolute deficiency in insulin, a hormone produced by the pancreas. Insulin helps glucose enter the body's cells from the bloodstream and then be processed by them. Diabetes is marked by an abnormal build-up of glucose in the blood and it can have serious short- and long-term effects (AIHW 2006a). However, people with diabetes can do much to control the disease and reduce their risk.

There are several types of diabetes, with the two main types being Type 1 and Type 2. Other types of diabetes include gestational diabetes, or diabetes caused by medications or health conditions (see AIHW: O'Brien et al. (2006) for a description of the different types of diabetes).

Type 1 diabetes (also called juvenile onset or insulin dependent diabetes) most often appears during childhood or adolescence and is marked by a complete lack of insulin, requiring insulin replacement for survival (AIHW 2006a). Type 2 diabetes is the most common form of diabetes and is marked by reduced or less effective insulin (AIHW 2006a). Type 2 diabetes is often linked to lifestyle factors, such as obesity and physical inactivity, and occurs most often among people older than 40 years; although with increasing levels of obesity and lack of physical activity, Type 2 diabetes is being increasingly diagnosed among young Australians (Taras & Potts-Datema 2005).

Australia has a relatively high incidence of Type 1 diabetes (IDF 2006), and there is evidence that it is increasing. Recent studies in New South Wales and Western Australia found that the incidence of Type 1 diabetes increased significantly by 2.8% to 3.1% per year between 1985 and 2002 (Haynes et al. 2004; Taplin et al. 2005). These results are consistent with overseas findings which also indicate a rising incidence of Type 1 diabetes (see Haynes et al. 2004; Taplin et al. 2005).

For young people aged 15–24 years, diabetes was estimated to account for less than 1% of the disease burden in 2003 (1,352 DALYs), which was mostly due to years of 'healthy' life lost due to poor health or disability (Begg et al. 2007).

Prevalence and new cases of diabetes

Data on new cases of Type 1 diabetes for the 12–24 year age group are available from the National Diabetes Register (NDR).

In 2004, the NDR reported 648 new cases of Type 1 diabetes among those aged 12–24 years, of which 61% were males. This is a rate of 18 new cases per 100,000 young people. The rate of new cases was highest among those aged 12–14 years (30 per 100,000 young people) and decreased with age.

Diabetes prevalence data for young Australians are available from the ABS National Health Surveys.

INDICATOR:

Prevalence of diabetes among young people aged 12–24 years

Estimates based on this survey indicate that, in 2004–05, approximately 11,000 young people aged 15–24 years had diabetes (all types), a prevalence of 0.4%. Due to high relative standard error associated with this estimate (between 25% and 50%), it should be used with caution.

Hospital separations due to diabetes

Table 2.12: Diabetes hospital separation rates for young people aged 12–24 years, 2000–01 to 2004–05 (per 100,000 young people)

Sex	2000–01	2001–02	2002–03	2003–04	2004–05
Males	74.9	75.7	77.2	84.8	93.8
Females	142.3	147.8	145.8	151.2	157.3
Persons	**108.0**	**111.1**	**110.8**	**117.2**	**124.8**

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-10-AM codes E10–E14 & O24 (excluding O24.5).
3. Includes separations where diabetes was the principal diagnosis.
4. Diabetes separations were affected by coding changes that came into effect in July 1999 and July 2000. Therefore, rates for 2000–01 to 2004–05 only are shown, as they are not directly comparable with those prior to 1999. See AIHW: Phillips (2003) for more detail.

Source: AIHW National Hospital Morbidity Database.

- In 2004–05, there were 4,523 hospital separations of young people aged 12–24 years with diabetes as the principal diagnosis—a separation rate of 125 per 100,000 young people.
- The diabetes separation rate increased overall by 16% for young people between 2000–01 and 2004–05. The male rate increased by 25% from 75 to 94 separations per 100,000 young people, while the female rate increased by 11% from 142 to 157 separations per 100,000 young people.
- Separation rates were consistently higher for females than for males between 2000–01 and 2004–05, remaining between 1.7 and 2.0 times the male rate.

In 2004–05, Type 1 diabetes accounted for the majority (78%) of diabetes hospital separations of young people (3,524 separations), while Type 2 diabetes was responsible for 3% (147 separations). Gestational diabetes resulted in 522 separations of young females (12% of diabetes hospital separations for young people) (ICD-10-AM code O24.4). The remaining separations for diabetes were due to unspecified diabetes and diabetes in pregnancy (excluding gestational diabetes).

When all diabetes in pregnancy (ICD-10-AM codes O24, excluding O24.5) is excluded, the separation rate for diabetes among females was only slightly higher than for males, at 1.1 times the male rate.

Deaths due to diabetes

Deaths from diabetes among those aged 12–24 years are uncommon. In 2004, there were 6 deaths of young people with an underlying cause listed as diabetes. All were aged between 15 and 24 years.

Diabetes among Aboriginal and Torres Strait Islander young people

Among young Indigenous Australians aged 12–24 years, the age-standardised hospital separation rate for diabetes was 318 per 100,000 young people in 2004–05. This was 2.6 times that for other young Australians, which was 125 per 100,000 young people (data are for Queensland, Western Australia, South Australia and public hospitals in the Northern Territory only). The age-standardised rate for young Indigenous males was only slightly higher than the rate for other Australian males (1.1 times), whereas the Indigenous female rate was significantly higher at 3.4 times the rate for other Australian females (526 per 100,000 compared to 154 per 100,000 young people respectively). The difference is largely due to separations of young Indigenous females for diabetes mellitus in pregnancy—young Indigenous females had a rate 9 times that of other young Australian females (383 per 100,000 compared to 43 per 100,000 young females respectively).

Cancer

Cancer is a common term used to describe a range of diseases in which cells become abnormal, grow in an uncontrolled way and form a mass called a neoplasm or a tumour. Tumours can be benign (not cancerous) or malignant (cancerous). Benign tumours do not spread to other parts of the body, although they may interfere with other areas of the body as they expand. A malignant tumour is characterised by its ability to spread to other parts of the body through a process known as metastasis. Cancers can develop from most cell types in the body and are usually classified according to their organ or tissue of origin and histological features.

The cancers that most commonly affect young people are different to those that affect adults. While the most common cancers among young people are melanoma, Hodgkin's disease and cancer of the testis, the leading cancers among adults are colorectal cancer, breast cancer and prostate cancer (AIHW & AACR 2004).

Cancer is a major cause of morbidity and death in Australia, but fortunately, cancer incidence among young people remains relatively uncommon compared to the general population. Despite this, cancer was the sixth overall leading cause of disease burden among those aged 15–24 years in Australia in 2003, accounting for an estimated 4,456 DALYs (2% of total DALYs). Cancer accounted for an estimated 9% of years of life lost due to premature mortality, and less than 1% of years of 'healthy' life lost due to poor health or disability (Begg et al. 2007).

Cancer incidence

Information on cancer incidence and survival rates is derived from the AIHW National Cancer Statistics Clearing House (NCSCH). Complete incidence data on non-melanoma skin cancers (NMSC) are not routinely collected by state and territory cancer registries as they are not legally notifiable.

INDICATOR:

New cases of cancer per 100,000 young people aged 12–24 years

Table 2.13: Cancer incidence in young people aged 12–24 years, 1993–2002

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number	871	929	967	988	979	902	909	903	952	943
Rate per 100,000 young people	24.4	26.0	27.2	28.2	28.2	26.3	26.7	26.4	27.5	26.9

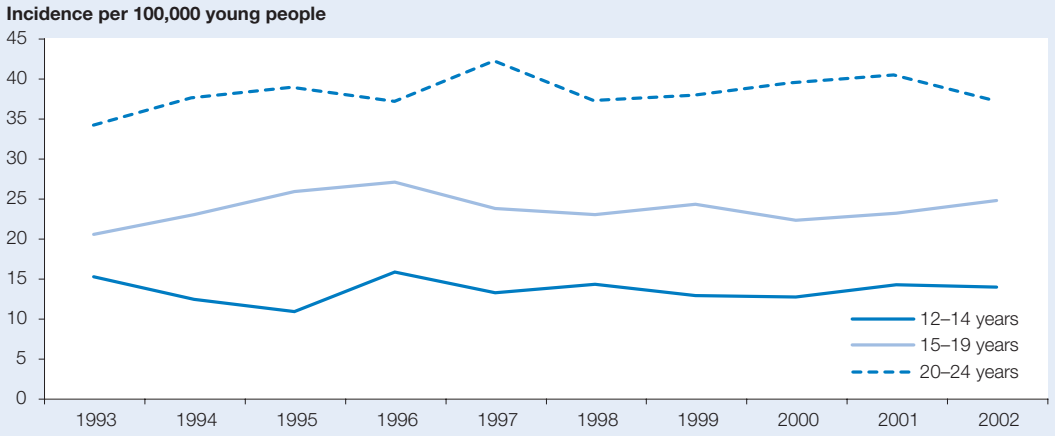
Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM codes 140–208 and ICD-10-AM codes C00–C96, excluding NMSC (ICD-9-CM code 173 and ICD-10-AM code C44).

Source: AIHW National Cancer Statistics Clearing House.

- In 2002, there were 943 new cancers diagnosed in young people—a rate of 27 per 100,000 young people. Just over half (51%) of new cancers were reported in males.
- Between 1993 and 2002, the annual incidence rate increased by 10% (24 to 27 per 100,000 young people), with the rates being slightly higher for males than for females over this period.

The cancer with the highest incidence rate throughout the period 1993–2002 was melanoma. However, between 1993–97 and 1998–2002, the rate of melanoma incidence decreased by 23% for males (from 7.6 to 5.9 per 100,000 young people) and by 14% for females aged 12–24 years (from 9.1 to 7.8 per 100,000 young people).



Notes

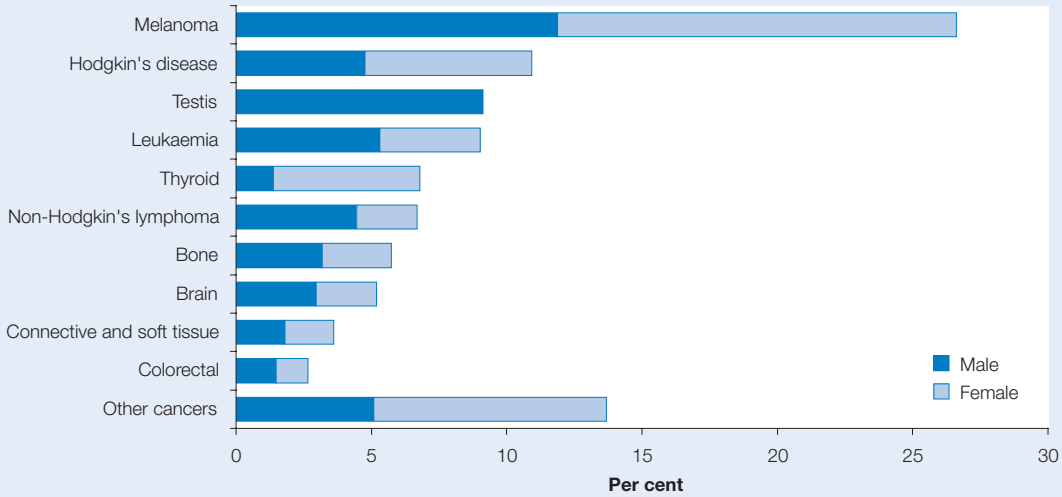
1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM codes 140–208 and ICD-10-AM codes C00–C96, excluding NMSC (ICD-9-CM code 173 and ICD-10-AM code C44).

Source: AIHW National Cancer Statistics Clearing House.

Figure 2.16: Cancer incidence rates for young people aged 12–24 years, 1993–2002

- Cancer incidence rates increased with age. In 2002, the rate for those aged 15–19 years was 1.8 times as high as the 12–14 year age group (25 compared to 14 per 100,000 young people). The rate for those aged 20–24 years (37 per 100,000 young people) was almost 3 times as high when compared to those aged 12–14 years.
- Overall, 52% of new cancers diagnosed among young people in 2002 were in those aged 20–24 years.

Most common cancers among young people



Note: ICD-10-AM codes: Melanoma C43; Hodgkin's disease C81; Testis C62; Leukaemia C91–C95; Thyroid C73; Non-Hodgkin's lymphoma C82–85, C93; Bone C40–C41; Brain C71; Connective and soft tissue C47–C49; Colorectal C18–C21; Other cancers includes all other cancers C00-C97, excluding NMSC (ICD-10-AM code C44).

Source: AIHW National Cancer Statistics Clearing House.

Figure 2.17: Most common types of new cancer diagnosed in young people aged 12–24 years, 2002

- Melanoma was the most common type of new cancer diagnosed among young people in 2002, with 251 diagnoses (30% of all new cancers). Hodgkin's disease accounted for 11% (103 diagnoses), while cancer of the testis and leukaemia both accounted for 9% of all new cancers diagnosed (86 and 85 respectively).
- Melanoma, Hodgkin's disease and cancer of the thyroid were more common among females compared to males, while more males were diagnosed with non-Hodgkin's lymphoma and leukaemia.

Incidence rates for melanoma, cancer of the testis and Hodgkin's disease for young people increased with age, while rates for leukaemia decreased.

Hospital separations due to cancer

In 2004–05, there were 4,995 hospital separations among those aged 12–24 years with a principal diagnosis of cancer—a rate of 138 per 100,000 young people (ICD-10-AM codes C00–C96). This does not include separations for radiotherapy or chemotherapy. This represented less than 1% of the total number of hospital separations for young people. Of these separations, 54% were for males, and male separation rates for cancer were consistently higher than for females over the period from 1996–97 to 2004–05. For young males, the highest separation rate occurred among those aged 15–19 years, whereas for young females the rate was highest among those aged 12–14 years.

Between 1996–97 and 2004–05, there was no statistically significant change in the hospital separation rate for males or females.

Deaths due to cancer

Table 2.14: Cancer deaths in young people aged 12–24 years, 1995–2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number	155	145	156	153	160	138	144	143	131	144
Rate per 100,000 young people	4.4	4.2	4.5	4.5	4.7	4.0	4.2	4.1	3.7	4.0

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM codes 140–208 and ICD-10-AM codes C00–C97.

Source: AIHW National Mortality Database.

- In 2004, there were 144 deaths from cancer among young people (4 deaths per 100,000 young people), accounting for 10% of all deaths in this age group.
- Between 1995 and 2004, there was an average annual percentage decrease of 1.6% in death rates due to cancer. In Australia and internationally, improvements in cancer outcomes for young people have been lagging behind advances achieved for children and older adults, resulting in lower reductions in mortality than in other age groups (Thomas et al. 2006).

Young males aged 12–24 years were 1.3 times as likely to die from cancer than young females, with the greatest difference occurring in the 20–24 year age group (2.6 times as high in males than females).

Death rates due to cancer increased with age, consistent with the risk of cancer increasing with age (AIHW & AACR 2004).

In 2004, the most common cancers causing death among young people were brain cancer (28 deaths), followed by unspecified cancer of bone and articular cartilage (20 deaths), and myeloid leukaemia and unspecified non-Hodgkin's lymphoma (both 12 deaths). These cancers have been consistently among the most common cancers causing death over the 10-year period from 1995 to 2004, and are consistent with the lower 5-year relative survival for these cancers compared with other cancers (see the next section for an explanation of relative survival).

Cancer survival

Survival rates after a diagnosis of cancer can be used to assess the effectiveness of early cancer detection and treatment.

Relative survival is the ratio between the observed survival rate among a group of people with cancer and the expected survival rate among the same group had they not been diagnosed with cancer. For example, a relative survival of 100% indicates that the disease has made no difference to survival of the group over a given period. A survival rate less than 100% indicates that cancer did reduce survival compared to the population without cancer.

Five-year relative survival rates are presented in this report for those aged 10–24 years due to data availability. The most recent available data for five-year relative survival rates are for 1992–97.

Table 2.15: Five-year relative survival rates for cancers affecting young people aged 10–24 years between 1982–86 and 1992–97 (per cent)

	Males		Females		Persons	
Cancer type	**1982–86**	**1992–97**	**1982–86**	**1992–97**	**1982–86**	**1992–97**
Bone cancer	50.3	55.7	61.6	66.5	56.0	61.1
Connective and soft tissue	64.2	67.9	69.1	76.0	66.7	72.0
Malignant melanoma	87.3	96.9	96.5	97.6	91.9	97.3
Cancer of the testis	88.9	94.4	—	—	88.9	94.4
Brain	66.4	69.1	60.9	68.6	63.7	68.9
Ovary	—	—	82.1	85.1	82.1	85.1
Thyroid	[(a)]100.7	98.5	97.6	99.7	99.2	99.1
Non-Hodgkin's lymphoma	64.9	69.9	66.4	71.8	65.7	70.9
Hodgkin's disease	85.5	95.7	88.6	93.1	87.1	94.4
Leukaemia	37.5	50.7	43.5	56.6	40.5	53.7
All cancers	**71.6**	**81.2**	**81.5**	**85.0**	**76.6**	**83.1**

(a) The estimated relative survival proportion is greater than 100. This means that survival for young people aged 10–24 years with a diagnosis of thyroid cancer in 1982–86 cannot be statistically distinguished from survival for young people in the general population.

— Nil or rounded to zero.

Note: ICD-9-CM codes: lip cancer (140) colorectal cancer (153, 154), bone cancer (170), connective and soft tissue (171), malignant melanoma (172), female breast cancer (174), cancer of the cervix (180), cancer of the ovary (183), cancer of the testis (186), kidney (189), brain (191), meninges and other central nervous system (192), thyroid (193), unknown primary (195–199, 165, 159), non-Hodgkin's disease (200, 202), Hodgkin's disease (201), leukaemia (204–208).

Source: AIHW National Cancer Statistics Clearing House.

INDICATOR:

Five-year relative cancer survival rates for young people aged 10–24 years

- Five-year relative survival rates for all cancers in young people aged 10–24 years increased between 1982–86 and 1992–97, from 72% to 81% for males and from 82% to 85% for females.
- In 1992–97, five-year relative survival was highest among young people with thyroid cancer (99%), malignant melanoma (97%), cancer of the testis (94%) and Hodgkin's disease (94%).
- In 1992–97, five-year relative survival was lowest among young people with leukaemia (54%), bone cancer (61%) and brain cancer (69%).
- Between 1982–86 and 1992–97, the greatest improvements in survival were for young people with leukaemia, bone cancer, Hodgkin's disease and brain cancer.

Over the period 1982–86 and 1992–97, survival rates were highest (over 85%) for females aged 20–24 years. The improvement in survival rates was greatest for males aged 10–14 years and least for females aged 20–24 years. Relatively high improvements in survival rates were also experienced by males aged 20–24 years and females aged 10–14 years.

Other chronic diseases affecting young people

Crohn's disease

Crohn's disease is a chronic, relapsing inflammatory disorder of the gastrointestinal tract. The disease can occur at any age, however it is most common in adolescents and young adults (Selby 2003). When active, Crohn's disease results in inflammation of the full thickness of the bowel wall and can affect any part of the digestive tract. This results in symptoms of diarrhoea, fever, nausea, malaise and abdominal and joint pain. These symptoms are usually intermittent, with varying periods of remission.

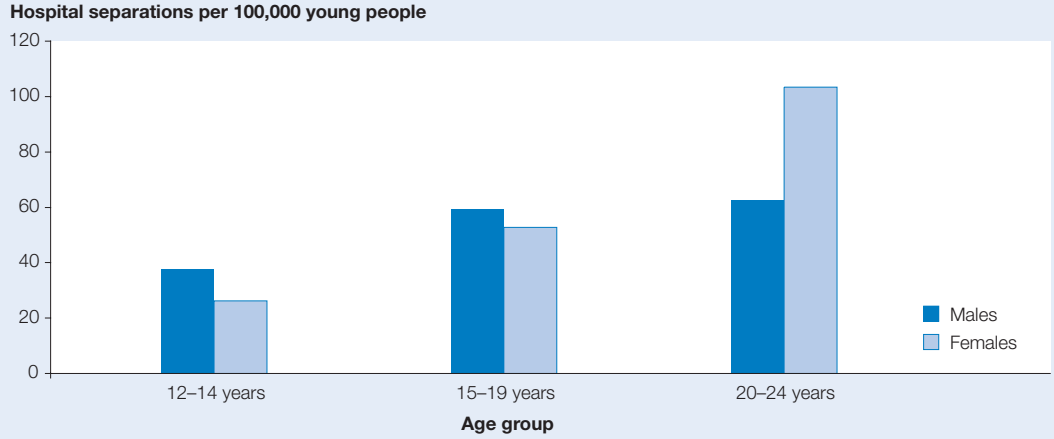
Even when the disease is inactive, persons with Crohn's disease suffer from a variety of nutritional deficiencies. Protein energy malnutrition is common as a result of fluid, electrolyte, iron, mineral and vitamin deficiencies (Jeejeebhoy 2002). Anaemia can also be a significant problem, due to malabsorption of vitamin B12, blood loss, or the effect of inflammation on bone marrow (Knutson et al. 2003).

The cause of Crohn's disease is largely unknown, but based on available evidence, a combination of genetic and environmental factors seems most likely. An association with diet has been recognised and infectious causes are also suspected (Knutson et al. 2003; Selby 2003). Smoking is associated with an increased risk of developing Crohn's disease and also of causing the disease to take a more aggressive course (Shields & Low-Beer 1996).

Crohn's disease results in considerable social cost due to work absences, requirements for expensive drugs or surgery and multidisciplinary care (Shanahan 2002). It is therefore an important cause of morbidity in Australia and the prevalence of Crohn's disease appears to be increasing. A study investigating Crohn's disease in Victorian children found a significant increase in the incidence of newly diagnosed Crohn's disease over the last three decades (Phavichitr et al. 2003). This is consistent with a worldwide increase in the incidence of this disease in both children and adults (Bach 2002; Jeejeebhoy 2002).

Limited data are available specifically for Crohn's disease. This section presents data on hospital separations and deaths.

Hospital separations due to Crohn's disease



Note: ICD-10-AM code K50.

Source: AIHW National Hospital Morbidity Database.

Figure 2.18: Crohn's disease hospital separation rates for young people aged 12–24 years, 2004–05

- In 2004–05, there were 2,203 hospital separations for Crohn's disease among young people (60 per 100,000 young people) and of all separations for Crohn's disease, 21% were for young people. The overall separation rate was highest in the 20–24 year age group (83 per 100,000 young people). Hospital separations for this condition were highest among those aged 20–45 years.
- Young females were overall more likely to be hospitalised than males (1.2 times in 2004–05), although this differs by age. Among those aged 12–14 and 15–19 years, the male separation rates for Crohn's disease were 1.4 and 1.1 times that for females respectively, but in the 20–24 year age group, the female rate was substantially higher, at 1.7 times the male separation rate.

Table 2.16: Crohn's disease hospital separations for young people aged 12–24 years, 1996–97 to 2004–05 (rate per 100,000 young people)

Sex	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Males	34.0	29.2	28.8	30.6	36.8	39.4	50.1	55.7	55.5
Females	42.5	46.2	44.0	45.3	49.4	57.0	63.4	67.7	65.6
Persons	**38.2**	**37.6**	**36.3**	**37.8**	**43.0**	**48.1**	**56.6**	**61.6**	**60.4**

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM code 555 (1996–97 to 1997–98) and ICD-10-AM code K50 (1998–99 to 2004–05).

Source: AIHW National Hospital Morbidity Database.

- Between 1996–97 and 2004–05, hospital separation rates for Crohn's disease increased by 58%, from 38 per 100,000 to 60 per 100,000 young people. The male separation rate increased by 63% over this period, while the female rate increased by 54%.
- The separation rate for Crohn's disease has been consistently higher for females than for males over this period, at between 1.2 and 1.6 times the male rate.

Deaths due to Crohn's disease

Deaths due to Crohn's disease are uncommon among young people and occur most frequently among those aged 65 and older. Between 1995 and 2004, Crohn's disease was responsible for two deaths of young people.

Cerebral palsy

Cerebral palsy describes a range of neurological impairments and is characterised by disabilities relating to movement and posture. 'Cerebral' refers to the brain and 'palsy' means weakness or lack of muscle control. Cerebral palsy distorts messages from the brain to cause increased or reduced muscle tension. It is a permanent condition that affects people in different ways—some people experience minor motor skill problems, while others may be totally physically dependent. The motor disorders of cerebral palsy are often accompanied by hearing, sight, speech or behaviour disorders, epilepsy, or an intellectual disability (Bax et al. 2005).

The causes of cerebral palsy are the subject of much debate (Australian and New Zealand Perinatal Societies: MacLennan 1995). Cerebral palsy results from brain injury that occurs before cerebral development is complete (Krigger 2006). However, since cerebral development is not complete until two years of age, it is usually not known whether the injury occurred in the antenatal, intrapartum or postnatal period. Around three-quarters of cases are acquired antenatally from largely unknown causes. A growing body of research has suggested that maternal infection during gestation is an important contributor to the development of cerebral palsy (Gibson et al. 2006). Studies have shown that hypoxia (a deficiency of oxygen reaching the tissues of the body) during birth accounts for only 6–10% of cases of cerebral palsy (Australian and New Zealand Perinatal Societies: MacLennan 1995; Krigger 2006). The remainder of cases are acquired postnatal, usually due to brain injury from bacterial meningitis, viral encephalitis, excess bilirubin in the blood (a product produced from the breakdown of red blood cells), motor vehicle collisions, falls, or child abuse (Krigger 2006).

Limited data are available for cerebral palsy. This section includes data on hospital separations and deaths among young people.

Hospital separations due to cerebral palsy

Table 2.17: Cerebral palsy hospital separations for young people aged 12–24 years, 1996–97 to 2004–05 (rate per 100,000 young people)

Sex	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Males	4.7	4.3	4.0	5.5	6.2	8.9	10.7	10.0	13.7
Females	2.9	3.0	2.7	4.3	5.9	6.7	6.3	6.1	6.9
Persons	**3.8**	**3.7**	**3.4**	**4.9**	**6.1**	**7.8**	**8.5**	**8.1**	**10.4**

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM code 343 (1996–97 to 1997–98) and ICD-10-AM code G80 (1998–99 to 2004–05).

Source: AIHW National Hospital Morbidity Database.

- In 2004–05, there were 371 hospital separations for cerebral palsy among young people—a rate of 10 per 100,000 young people (14 and 7 per 100,000 young people for males and females respectively). This is almost a threefold increase in the separation rate since 1996–97 and has resulted from a variation in admission practices.
- Between 1996–97 and 2004–05, separation rates for cerebral palsy have been consistently higher for young males than for young females. In 2004–05, the male separation rate was twice as high as for females.

Hospital separation rates for cerebral palsy were highest among those aged 12–14 years and decreased thereafter with age.

Deaths due to cerebral palsy

Table 2.18: Cerebral palsy deaths for young people aged 12–24 years, 1995–2004

Deaths	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number	30	27	18	17	15	19	16	22	22	21
Rate per 100,000 young people	0.9	0.8	0.5	0.5	0.4	0.6	0.5	0.6	0.6	0.6

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9 code 343 (1995 to 1996) and ICD-10 code G80 (1997 to 2004).

Source: AIHW National Mortality Database.

- In 2004, cerebral palsy was the underlying cause of 21 deaths of young people aged 12–24 years, a rate of 0.6 per 100,000 young people. Males accounted for 57% of these deaths.

Cerebral palsy may be a contributor to death rather than the underlying cause. Young people with cerebral palsy most commonly die of respiratory diseases—predominantly pneumonia (Hemming et al. 2006; Reddihough et al. 2001).

Cystic fibrosis

Cystic fibrosis is the most common terminal hereditary disease in the Caucasian population, affecting 1 in every 2,500 births (Graetz et al. 2000). It is a recessive genetic disorder affecting the exocrine glands, which secrete body fluids such as sweat, mucus and enzymes. Cystic fibrosis therefore affects many organs in the body, but primarily the lungs, pancreas, liver and reproductive systems (Quittner et al. 2000). The most serious effects are on the lungs and pancreas. In persons with cystic fibrosis, the mucus in the lungs is thick, sticky and therefore difficult to shift. This causes a persistent cough and results in the clogging of tiny air passages, creating a breeding ground for bacteria. Chronic lung infections result in irreversible lung tissue scarring. The pancreas is also affected in cystic fibrosis, whereby the release of enzymes required for digesting food is prevented.

Major advances in the diagnosis and treatment of cystic fibrosis have prolonged life expectancy into adulthood. The median survival rate for cystic fibrosis is now about 32 years (Goldbeck & Schmitz 2001), but this improved life expectancy requires strict adherence to intensive and time-consuming treatment regimes (Quittner et al. 2000). There is currently no cure for cystic fibrosis and treatment aims to slow the progression of the condition through early screening and better management.

Management of cystic fibrosis can be a significant burden on the patient and family. Daily treatment regimes are time-consuming and include physiotherapy, high-calorie meals and routine medications (Burker et al. 2004). Additionally, chronic lung infections result in repeated hospitalisations, which can adversely affect study and employment (Burker et al. 2004; de Jong et al. 1997). These factors have a substantial impact on the quality of life of those with cystic fibrosis and their families.

Limited data are available for cystic fibrosis. This section presents data on hospital separations and deaths.

Hospital separations due to cystic fibrosis

Table 2.19: Cystic fibrosis hospital separations for young people aged 12–24 years, 1996–97 to 2004–05 (rate per 100,000 young people)

Sex	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Males	36.3	38.5	40.4	40.3	37.6	41.2	42.9	37.9	37.0
Females	43.2	45.6	50.3	47.2	47.2	49.9	51.3	42.3	44.3
Persons	**40.3**	**41.3**	**45.2**	**43.7**	**42.3**	**45.5**	**47.0**	**40.0**	**40.6**

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM code 277 (1996–97 to 1997–98) and ICD-10-AM code E84 (1998–99 to 2004–05).

Source: AIHW National Hospital Morbidity Database.

- In 2004–05, there were 1,464 hospital separations for cystic fibrosis among young people—a rate of 41 per 100,000 young people. Hospital separation rates were highest among those aged 15–24 years (46 per 100,000 young people).
- Overall, young females were more likely to be hospitalised for cystic fibrosis than young males (1.2 times as high on average) over the period from 1996–97 to 2004–05. This difference was highest in the 12–14 year age group where the female separation rate was nearly twice as high as the male rate.
- The separation rate among young people did not change significantly between 1996–97 and 2004–05.

Young people with cystic fibrosis require longer than average hospitalisations. In 2004–05, the average length of stay in hospital for young people admitted with a principal diagnosis of cystic fibrosis was 11.7 days, compared to an average stay of 2.6 days for all separations of young people.

Deaths due to cystic fibrosis

Table 2.20: Cystic fibrosis deaths for young people aged 12–24 years, 1995–2004

Deaths	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number	28	15	30	23	32	26	24	16	12	11
Rate per 100,000 young people	0.8	0.4	0.9	0.7	0.9	0.8	0.7	0.5	0.3	0.3

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9 code 277 (1995 to 1996) and ICD-10 code E84 (1997 to 2004).

Source: AIHW National Mortality Database.

- In 2004 there were 11 deaths due to cystic fibrosis among young people aged 12–24 years—a rate of 0.3 per 100,000 young people (less than 1% of all deaths for this age group in 2004).
- Death rates due to cystic fibrosis decreased by 62% during the 10-year period from 1995 to 2004.

Epilepsy

Epilepsy is the most common neurological disorder of adolescence. Epilepsy is a condition where a person has recurring seizures that are not triggered by fever or a new injury to the brain. Seizures occur when there is a sudden increase in the activity of the brain, accompanied by altered consciousness and/or behaviour. The cause, type and frequency of seizures vary. The cause is often unknown, but in some people it can be caused by a previous head injury, infections of the brain, other illnesses, or problems during pregnancy or birth (Braunwald et al. 2001). Other risk factors known to contribute to epilepsy include family history, congenital malformation, cerebral palsy, mental retardation and central nervous system infection.

Seizures due to epilepsy can be generalised or partial. A general seizure occurs when abnormal electrochemical activity affects the whole brain at the same time, whereas a partial seizure arises from abnormal electrochemical activity affecting one part of the brain, but may spread to other parts. The particular part of the brain affected by abnormal electrochemical activity determines whether a person will experience an altered state of consciousness, altered body movements, altered sensations or altered behaviour.

Medication can provide seizure control for approximately 70 per cent of people with epilepsy. For some people, surgery is successful if medication fails. Avoiding known triggers can sometimes improve seizure control.

This section presents information on epilepsy prevalence, hospital separations and mortality among young Australians.

Prevalence of epilepsy

Estimates based on the 2004–05 NHS indicate that 20,888 young people aged 12–24 years had epilepsy as a current long-term condition—a prevalence rate of 1%. This is slightly higher than the prevalence rate for the general population (ABS 2006m).

Males accounted for 54% of young people with epilepsy.

Hospital separations due to epilepsy

Table 2.21: Epilepsy hospital separations for young people aged 12–24 years, 1996–97 to 2004–05 (rate per 100,000 young people)

Sex	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Males	90.8	84.3	87.5	83.1	81.8	80.1	75.4	81.3	78.0
Females	75.7	75.1	76.0	75.3	68.9	70.8	68.9	73.3	72.8
Persons	**83.3**	**79.7**	**81.8**	**79.2**	**75.4**	**75.5**	**72.2**	**77.4**	**75.5**

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9-CM code 345 (1996–97 to 1997–98) and ICD-10-AM code G40 & G41 (1998–99 to 2004–05).

Source: AIHW National Hospital Morbidity Database.

- In 2004–05, there were 2,741 hospital separations for epilepsy among young people—a rate of 76 per 100,000 young people. There has been a significant decrease in the separation rate for males by 14% since 1996–97, but no significant change was observed for females.
- Over the period between 1996–97 and 2004–05, young males were more likely than young females to be hospitalised for epilepsy. However, the age-specific separation rate for epilepsy showed that there was no difference between male and female hospitalisation at younger ages (12–19 years) and that among those aged 20–24 years, the male rate was, on average, 1.4 times as high as for females.

Epilepsy hospital separation rates increased with age. In 2004–05, the rate was 64 per 100,000 young people for those aged 12–14 years, 72 per 100,000 young people for those aged 15–19 years and 86 per 100,000 young people for those aged 20–24 years.

Deaths due to epilepsy

Table 2.22: Epilepsy deaths for young people aged 12–24 years, 1995–2004

Deaths	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Number	26	29	28	16	32	26	26	26	31	26
Rate per 100,000 young people	0.7	0.8	0.8	0.5	0.9	0.8	0.8	0.7	0.9	0.7

Notes

1. Age-standardised to the Australian population as at 30 June 2001.
2. ICD-9 code 345 (1995 to 1996) and ICD-10 code G40 & G41 (1997 to 2004).

Source: AIHW National Mortality Database.

- In 2004, there were 26 deaths of young people due to epilepsy, a rate of 0.7 per 100,000 young people. The majority of these deaths were of young males (67%).
- Epilepsy caused the tenth highest number of deaths of young people in 2004, accounting for 2% of all deaths of young people in that year.
- Between 1995 and 2004, death rates due to epilepsy fluctuated from 0.5 per 100,000 to 0.9 per 100,000 young people.

Communicable diseases

Communicable diseases are caused by specific infectious agents or their toxic products. The transmission of these diseases can be through contacts with humans, animals or vectors as well as water, food or environments that carry the organism. Some communicable diseases such as pertussis (whooping cough) and tuberculosis are caused by bacteria,while others such as measles, influenza and AIDS are caused by viruses.

Most communicable diseases are acute and are usually managed by a person's immune system or medical treatment, but some can become chronic. For example, hepatitis B and C can have long-term effects on the liver. Improvements in hygiene, better socioeconomic conditions, mass immunisation programs, and the availability of antibiotics, have dramatically reduced the impact of infectious diseases in Australia. Despite these reductions, communicable diseases remain a major threat to human health (AIHW 2006a).

In the past, communicable diseases have been a major contributor to premature death worldwide, but over the last century the incidence and mortality associated with communicable diseases have declined considerably. In the early twentieth century, communicable diseases accounted for around 20% of all deaths. In 2004, they accounted for approximately 4% of deaths in Australia.

Communicable diseases are, however, still a source of ill health and health care use in Australia (AIHW 2006a). Bettering the Evaluation and Care of Health (BEACH) survey data indicate that infections and immunisations make up around 7% of all general practitioner (GP) encounters (AIHW: Britt et al. 2005). A characteristic feature of communicable diseases-related GP visits is that many of them are new problems for the patient. While 38% of all GP visits are for new problems, the proportion of new problems exceeds 70% for communicable diseases (AIHW 2006a).

This section presents data for vaccine-preventable disease, sexually transmissible infections, HIV/AIDS and viral hepatitis. The incidence of communicable diseases in this section comes primarily from data on notifiable diseases compiled by the National Notifiable Diseases Surveillance System (NNDSS). Notification rates for HIV infection come from the National Centre in HIV Epidemiology and Clinical Research. Notifications data need to be interpreted with caution, because not all diseases are notifiable in each state and territory. Furthermore, owing to under-reporting, notifications are likely to underestimate the actual incidence (that is, the number of new cases each year) of disease. Despite these limitations, notifications data are the best available estimates of the incidence of various infectious diseases (ABS 1997; New South Wales. Department of Health. Population Health Division 2005).

Vaccine-preventable diseases

Vaccine-preventable diseases included in the Australian Standard Vaccination Schedule (ASVS) for young people aged 12–24 years are included in this section—pertussis, rubella, measles, mumps, tetanus, polio, diphtheria, pneumococcal disease and meningococcal disease. Although it is included in the National Immunisation Program, hepatitis B is presented with other types of hepatitis later in this section under the heading 'Viral hepatitis'.

In Australia, periodic epidemics of pertussis occur every 3–5 years (Yohannes et al. 2006). While immunisation against pertussis is highly effective for children, elimination of the disease is difficult. This is mainly because the level of protection from the childhood vaccine decreases in adolescents and adults and they become an important pertussis reservoir, facilitating transmission to children who have not yet completed the recommended dose of the vaccine (AIHW 2006a).

Measles notifications have declined in Australia following a two-dose vaccination schedule in 1994 (Gidding et al. 2001), the Measles Control Campaign of 1998 (Turnbull et al. 2001) and improved coverage as part of the routine childhood vaccination schedule. Mumps is not a major cause of morbidity or mortality but this can cause some long-term complications.

Rubella notifications have declined greatly since 1995 (AIHW 2006a). Rubella infection in pregnancy can cause fetal death or miscarriage, congenital deformities including deafness, blindness, cardiovascular abnormalities and mental retardation (AIHW 2006a).

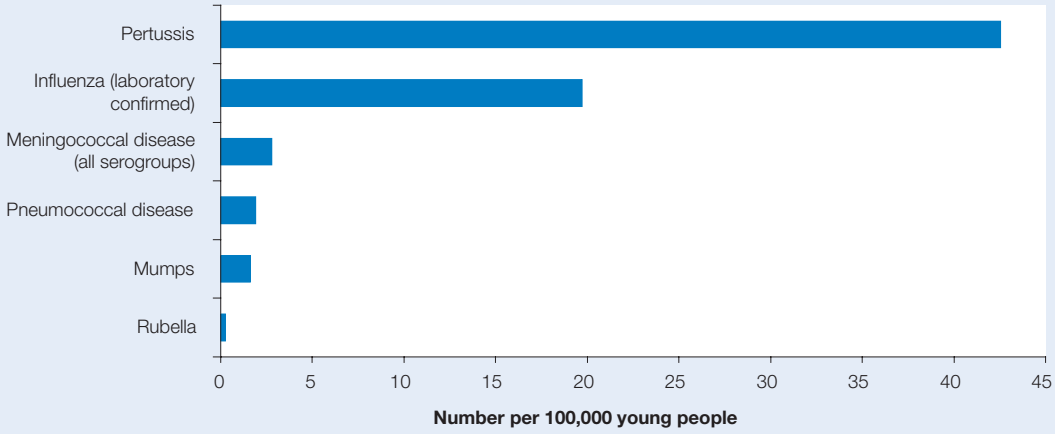
Meningococcal disease is caused by an infection with the bacterium *Neisseria meningitidis* (meningococcus). The disease most commonly affects children under 5 years of age and young adults aged 15–24 years (DoHA 2003). Transmission occurs from person to person by infected droplets and respiratory secretions spread by coughing, sneezing and kissing (Heyman 2004; Tully et al. 2006). Meningococcus can be divided into 13 distinct strains or 'serogroups'. Most infections in Australia are caused by groups B and C; in 2004, 95% of the meningococcal disease notifications were due to serogroup B and C (Yohannes et al. 2006).

Currently, vaccines are available only for some of the strains and serotypes that cause meningococcal disease. A polysaccharide vaccine that is effective only in children over 2 years of age and adults, and only against groups A, C, Y and W135, has been available for some time. This vaccine is not recommended for routine use because it is not effective in children under 2 years of age, and because the protection is short-lived. In January 2003, the National Meningococcal C Vaccine Program commenced in Australia. This provided a new meningococcal C conjugate vaccine that is more effective than the previously used polysaccharide vaccine to all children and young people aged 1 to 19 years. This is now part of the routine childhood immunisation schedule, with one dose at 12 months of age (Cohen 2003).

INDICATOR:

Incidence of vaccine preventable diseases among young people aged 12–24 years

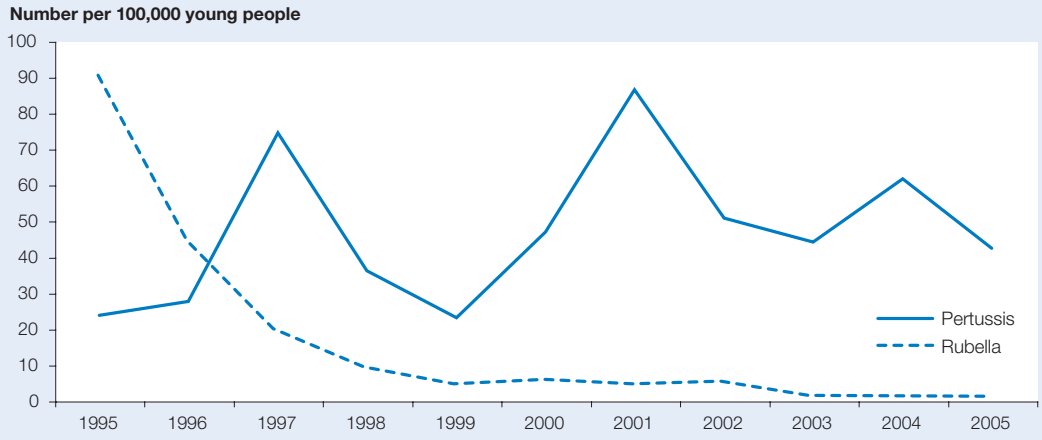
In 2005, there were no cases of polio, tetanus or diphtheria notified for young people aged 12–24 years, and only 1 case each of measles and *Haemophilus influenza type b* disease were notified.



Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System.

Figure 2.19: Rate of selected vaccine-preventable disease notifications for young people aged 12–24 years, 2005

- Pertussis and influenza were the most frequently notified diseases among young Australians. In 2005, there were 1,616 notifications of pertussis and 305 notifications of laboratory-confirmed influenza recorded for young people (42 per 100,000 and 20 per 100,000 young people respectively). The rates of notifications were evenly distributed across all age groups: 12–14, 15–17 and 18–24 years.
- In 2005, there were 105 notifications (2.8 per 100,000 young people) of meningococcal disease for young people in Australia. Of these, only 9 notifications (a rate of 0.2 per 100,000) were for serogroup C.
- Among those aged 12–24 years, the incidence of meningococcal disease was highest among young adults aged 18–24 years (61% of notifications in 2005 were for those aged 18–24 years).



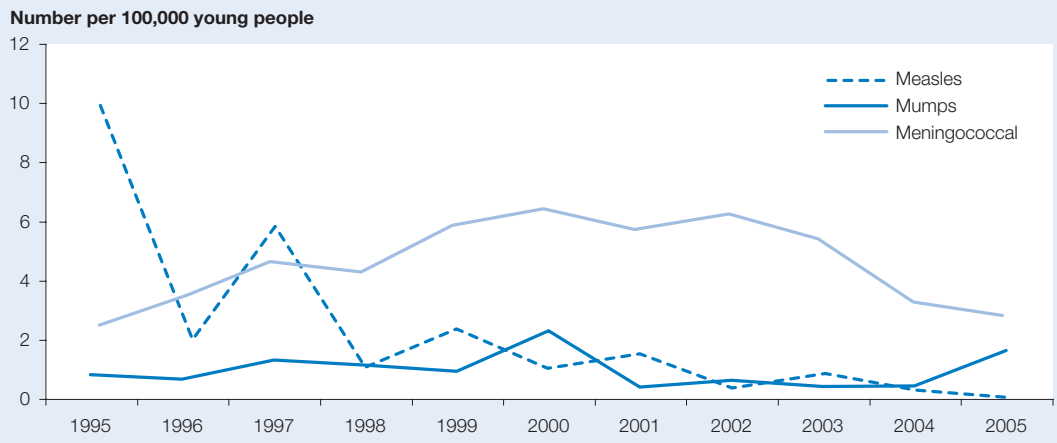
Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System.

Figure 2.20: Notification rates of pertussis and rubella for young people aged 12–24 years, 1995 to 2005

- Between 1995 and 2005, the number of pertussis notifications fluctuated, but there were clear increases in 1997 and 2001. In 2004, there was also an above average number of notifications for pertussis recorded for young Australians. This may have been the result of an outbreak of pertussis occurring in Western Australia in 2004 (Yohannes et al. 2006).

- Since 1995, the rate of rubella notifications declined dramatically from 90 per 100,000 to 0.3 per 100,000 young people in 2005.

The rate of rubella notifications was much higher among young males than females when only females received the vaccination. With the introduction of the Measles, Mumps, Rubella (MMR) vaccine in 1994 for adolescent males as well as females, there has been a substantial decrease in the notification rate, particularly for young males (80.5 per 100,000 to 0.3 per 100,000 young people in 2005). The rate for young females has also declined over this period, from 22.7 per 100,000 to 0.2 per 100,000 young people.



Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System.

Figure 2.21: Notification rates of measles, mumps and meningococcal (all types) for young people aged 12–24 years, 1995–2005

- There were 61 notifications of mumps (less than 2 per 100,000 young people) and 1 case of measles for young people in 2005.
- The rate of notifications for measles has decreased by almost 100% among young people between 1995 and 2005, from 10.2 per 100,000 to 0.03 per 100,000 young people.
- Notification rates for mumps fluctuated between 1995 and 2005, with a peak of 2.3 per 100,000 young people in 2000. Rates then declined until an increase in 2005 to a rate of 1.6 per 100,000 young people.
- Between 1995 and 2005, rates of meningococcal notifications for young people fluctuated, reaching a peak of 6.4 cases per 100,000 young people in 2000. Between 2002 and 2005, the rate of notifications has declined by 55%.

Hospital separations and deaths due to vaccine-preventable diseases

Very few hospital separations for vaccine-preventable diseases were recorded for young people aged 12–24 years in 2004–05. There were 24 separations (9 males and 15 females) for pertussis, 12 for mumps, 3 for measles and 1 for diphtheria in that period (ICD-10-AM codes A36, A37, B05, B26).

In 2004–05, there were 125 separations for meningococcal infection in young people aged 12–24 years, and over 50% of these separations were for those aged 15–17 years (ICD-10-AM code A39).

There were 23 deaths from meningococcal infection among all Australians in 2004 and 26% of these were for young people aged 12–24 years (4 deaths of young males and 2 of young females) (ICD-10 code A39).

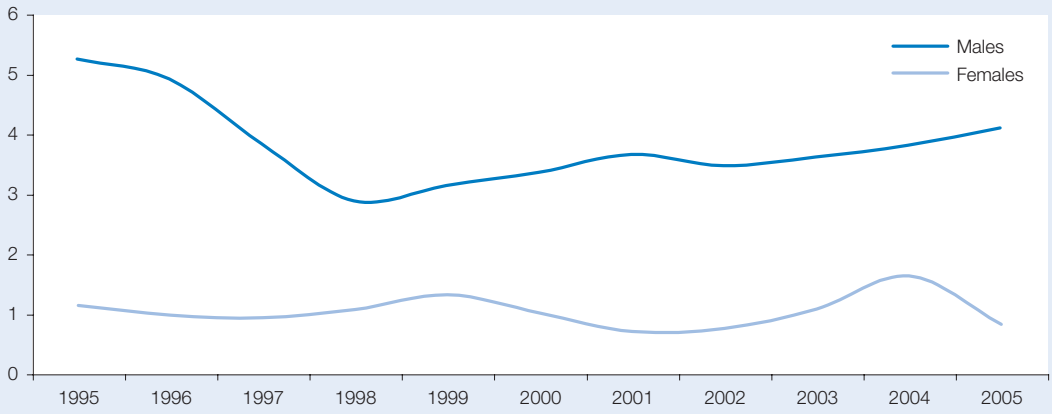
HIV/AIDS

Acquired immune deficiency syndrome (AIDS) is caused by a retrovirus, the human immunodeficiency virus (HIV). HIV is a bloodborne disease usually transmitted via blood, blood products and bodily fluids, usually through blood contact or sexual contact.

Through the destruction of key cells of the immune system, HIV can reduce human immune function such that relatively minor infections become deadly. Often persons with HIV can be clinically healthy, especially with the latest treatments, and have not necessarily progressed to the symptomatic stage of AIDS. New diagnoses of HIV infection in Australia declined between 1995 and 2000, and then increased over the last few years.

The vast majority of new HIV diagnoses were among males with a history of homosexual contact; relatively small numbers were attributed to injecting drug use or heterosexual contact. HIV prevalence remained below 1% among those attending needle and syringe programs, people entering prison and individuals with a history of heterosexual only contact (National Centre in HIV Epidemiology and Clinical Research 2005).

Survival following the progression to AIDS is low. In cases diagnosed before 1996, average survival was 17 months, but this has increased to 45 months for cases diagnosed since 2001. The availability of antiretroviral treatment has contributed to improved survival. An estimated 53% of people with HIV/AIDS were receiving antiretroviral treatment in 2004. The number of AIDS deaths has declined considerably in the last decade (National Centre in HIV Epidemiology and Clinical Research 2005).



Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Centre in HIV Epidemiology and Clinical Research, unpublished data.

Figure 2.22: Notification rate for HIV for young people aged 12–24 years, 1995–2005

INDICATOR:
HIV infection notification rate for young people aged 12–24 years

- In 2005, there were 93 HIV notifications for young people aged 12–24 years (78 for males and 15 for females), a rate of 2.5 per 100,000 young people. Of these notifications, 95% were among those aged 18–24 years.
- HIV incidence rates have been consistently higher for males than for females. In 2004, the notification rate for males was 4.1 per 100,000 young people while the rate for females was 0.8 per 100,000 young people.
- For young males, the notification rate increased by 43% since 1998, after a large decline between 1995 and 1998.
- For young females, the notification rate fluctuated between 1995 and 2005, reaching a peak of 1.6 per 100,000 young people in 2004.

In 2004, there were 2 deaths of young people from HIV/AIDS. These were both males aged 20–24 years.

Viral hepatitis

Viral hepatitis (inflammation of the liver due to viral infection) is caused by a variety of viruses. There are five different types that affect humans: A, B, C, D and E. Types B, C and D are bloodborne (Clarke 2004). The usual ways in which bloodborne diseases are transmitted are through blood contact and sexual contact. Contaminated food or water is a major source of transmission for hepatitis A (AIHW 2006a; Yohannes et al. 2006).

Hepatitis B and C are known to cause chronic infection, which may lead to cirrhosis of the liver or liver cancer. The risk of chronic infection is greatest among those infected as infants, particularly if infected in the perinatal period. Vaccination against hepatitis B has been routine for newborns since 2000.

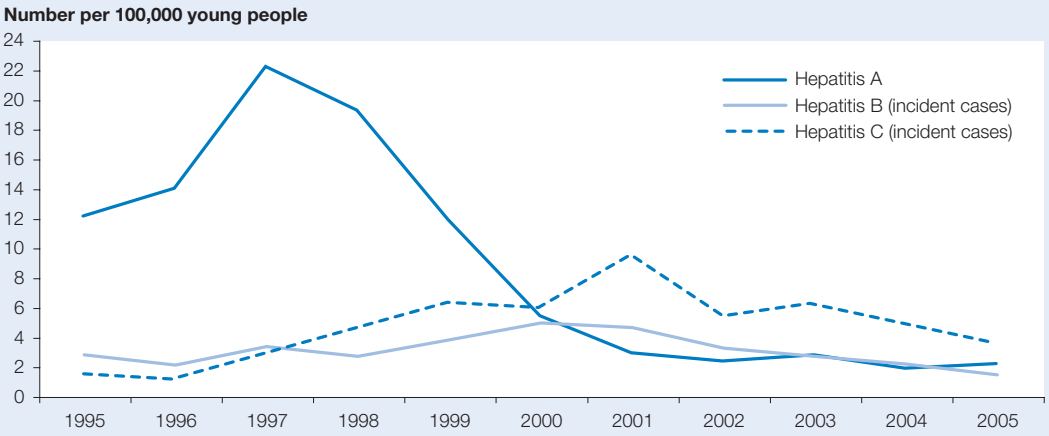
Hepatitis B virus (HBV) is spread through a number of means, including blood, semen or saliva, and may be transmitted from one person to another by unprotected sex with an infected person, sharing needles when injecting drugs, through needle-stick injuries or sharps exposures, or from an infected mother to her infant during birth. Persons at risk of HBV infection might also be at risk of infection with hepatitis C virus (HCV) and HIV/AIDS. HBV is, however, between 50 and 100 times more infectious than HIV because it is more concentrated in an infected person's blood (WHO 2000a).

HCV is a major contributor to chronic liver disease, and has become an important disease in recent years due to its chronic nature. HCV is transmitted mainly through injecting drugs (reuse of unsterilised needles, syringes or through needle sharing). The risk of contracting hepatitis C from a needle-stick or sharps injury from the blood of a person with hepatitis C antibody has been estimated at 0–7% (average 1.8%), compared with 0.3% for HIV infection and 30% for hepatitis B (Victoria. Department of Human Services 2005). HCV has been found in bodily fluids other than blood, but the viral load is thought to be too low for transmission to occur. Infection can be transmitted through blood transfusions and sexual transmission. Mother-to-baby transmission of HCV may also occur, but is less frequent. Ear and body piercing, circumcision, and tattooing can also be modes of transmission, if inadequately sterilised equipment is used. Blood/tissue recipients are also at risk of HCV infection (Yohannes et al. 2006).

No vaccine is currently available to prevent hepatitis C. Efforts to reduce the risk of infections include strategies aimed at reducing HCV transmission through blood transfusions, unsafe injection practices and high-risk behaviours (for example, injecting drug use).

Hepatitis A is an infection of the liver caused by the hepatitis A virus (HAV). The virus is commonly spread from person to person or from contaminated food or water. Illicit drug use is an important risk factor for hepatitis A and may account for a higher notification rate among adolescents and young people. Hepatitis A is also more common among homosexual men and Indigenous young people. In Australia, hepatitis A vaccine is recommended for selected at-risk groups and for people in certain occupations (NHMRC 2003a).

The data for hepatitis B and C notifications presented here are for incident cases only, which require evidence of seroconversion (the development of antibodies to an antigen as a result of infection or vaccination). Therefore, the actual notification rates for hepatitis B and C may be higher than those reported here, due to the exclusion of unspecified hepatitis B and C notifications where laboratory testing of blood for confirmation of seroconversion was not performed.



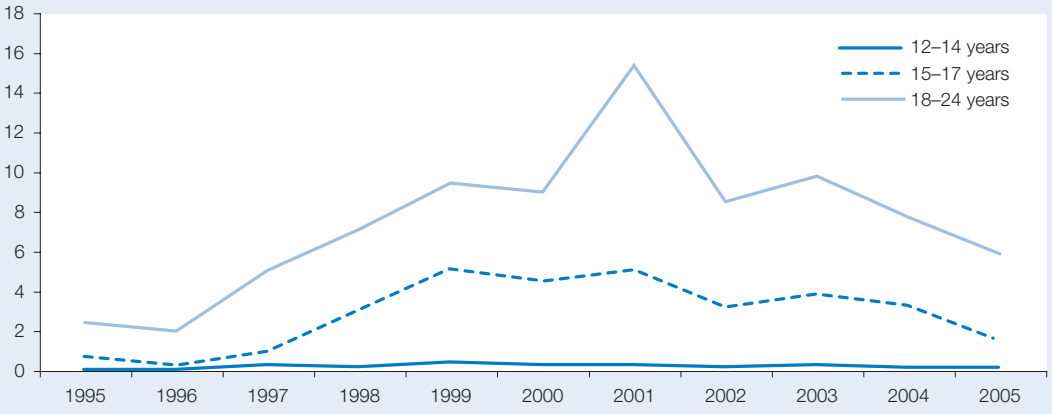
Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System.

Figure 2.23: Hepatitis A, B and C notification rates for young people aged 12–24 years, 1995–2005

INDICATOR:

Hepatitis A, B and C notification rates for young people aged 12–24 years

- In 2005, there were 81 hepatitis A notifications for young people in Australia—a rate of 2.1 per 100,000 young people. Since 1997, the rate of hepatitis A notifications has declined dramatically, possibly due to the introduction of the hepatitis A vaccination program to high-risk population groups (Hanna et al. 2004).
- The number of incident (newly acquired) hepatitis B notifications almost halved between 1995 and 2005, from 100 notifications to 55 (from 2.9 per 100,000 in 1995 to 1.4 per 100,000 young people in 2005). Of these notifications, 91% were for young people aged 18–24 years.
- There were 133 incident hepatitis C notifications for young people in 2005. The rate of notification of incident hepatitis C has increased since 1996 from 1.1 per 100,000 young people, reaching a peak of 9.4 per 100,000 in 2001 and then declining again to 3.5 per 100,000 in 2005.



Source: National Notifiable Diseases Surveillance System.

Figure 2.24: Notification rate for incident hepatitis C infections for young people aged 12–24 years, 1995–2005

- In 2005, most notifications of hepatitis C among young people were for those aged 18–24 years (88%).
- Hepatitis notifications for young people aged 15–17 years and 18–24 years increased between 1995 and 2001, with a marked peak for those aged 18–24 years. Since then, there has been a decline in the rate of notifications for hepatitis C for both age groups.

Between 1995 and 2005, hepatitis C notifications were generally higher for young males than for young females, although this gap has narrowed and even reversed in recent years. In 2005, the age-standardised young female notification rate was slightly higher than that for young males (3.7 and 3.4 per 100,000 young people respectively).

Age-specific notification rates indicate that among young people aged 15–17 years the rate is higher for females (0.7 and 2.7 per 100,000 for males and female respectively), while among those aged 18–24 years, the rate is higher for males (6.1 and 5.7 per 100,000 for males and females respectively).

Sexually transmissible infections

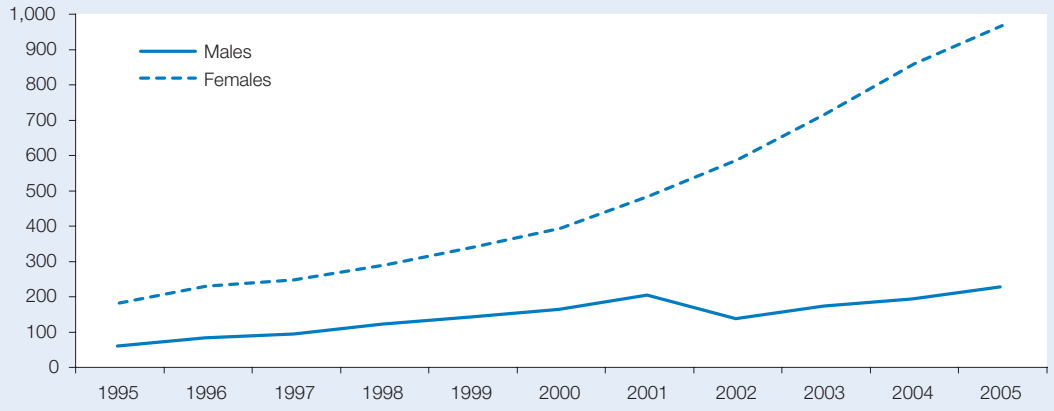
Sexually transmissible infections (STIs) in Australia still remain a major public health concern, contributing to significant long-term morbidity (Bowden et al. 2002; DoHA 2005). Data on STIs collected by the NNDSS include chlamydia, donovanosis, gonococcal infection, and syphilis. In 2005, there were 51,546 STI notifications in Australia. Of these, 25,571 or 50% were for young people aged 12–24 years—a rate of 673 per 100,000 young people. Chlamydia infection was the most commonly reported STI for all people as well as among young people aged 12–24 years (NNDSS 2007).

Chlamydia can potentially affect young people's reproductive health. In women, it can cause cervicitis, upper genital tract infection, tubal infertility, ectopic pregnancy complications and chronic pelvic pain. If left untreated, chlamydia can cause infertility in women. In men, it can cause urethritis and, occasionally if untreated, acute inflammation of the testis and epididymis (Bowden et al. 2002; DoHA 2005).

Syphilis can cause serious health problems in its own right, but the genital sores caused by syphilis in adults make it easier to acquire and transmit HIV infection through unprotected sex with those infected with HIV (Jin et al. 2005).

INDICATOR:

Incidence of notifiable sexually transmissible infections among young people aged 12–24 years

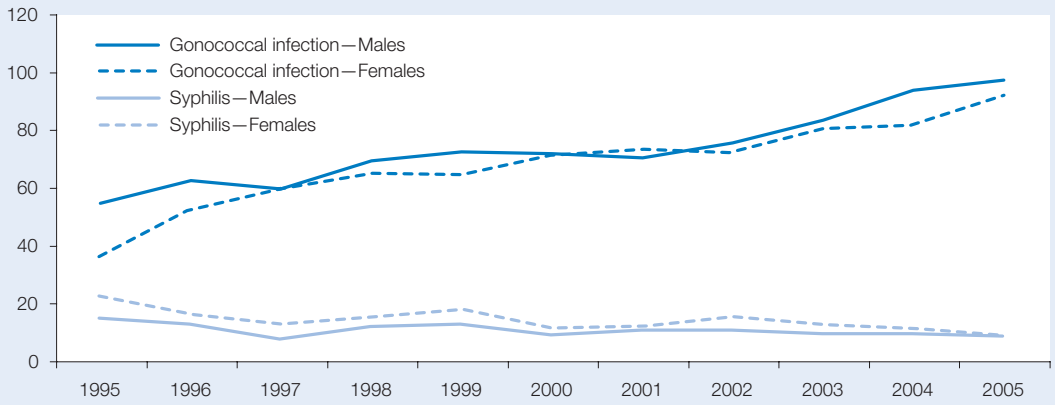


Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System.

Figure 2.25: Chlamydia notifications for young people aged 12–24 years, 1995–2005

- Chlamydia is the most common STI among young people (21,692 notifications in 2005, a rate of 572 per 100,000 young people), in particular, among young women. In 2005, the rate of chlamydia notification was more than 4 times as high in females than males (961 per 100,000 for females compared with 221 per 100,000 young people for males). Over 50% of all chlamydia notifications were for young people in 2005 (21,692 notifications out of 41,305 for the total population).

- The rates of chlamydia notifications for young women have been steadily increasing over time, particularly between 2001 and 2005, when the rate almost doubled . This may be related to increased awareness and diagnosis, although it is possible that young people are increasingly engaging in unprotected sex and frequently changing their sexual partners (AIHW 2003a).



Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: National Notifiable Diseases Surveillance System, unpublished data.

Figure 2.26: Syphilis and gonococcal infection notifications for young people aged 12–24 years, 1995–2005

- In 2005, there were 2,212 notifications of syphilis in Australia (NNDSS 2007) and 14% (315 notifications) of these were for young people aged 12–24 years. Syphilis notifications among young people are low and are decreasing. The rate of notifications of syphilis among young people in 1995 was 18 per 100,000, and by 2005, this declined to 8 per 100,000 young people. For both males and females the rate remains very similar.
- There were 3,564 notifications of gonococcal infection among young Australians in 2005—a rate of 93 per 100,000 young people. While gonococcal infection among young people contributed to 14% of all STIs notified in that age group, it accounted for 43% of the total gonococcal infection notifications in Australia in 2005. Notifications of gonococcal infection among young men and women were evenly distributed.
- Notification rates for gonococcal infection have been increasing steadily, with a twofold increase for young people between 1995 and 2005.

Hospital separations for sexually transmitted infections

Very few young people are hospitalised for STIs. In 2004–05, there were 134 hospital separations of young people for chlamydia infection, and 84 and 8 separations respectively for gonococcal infection and syphilis (ICD-10-AM codes A51–A56).

Aboriginal and Torres Strait Islander young people

Table 2.23: Notification rate for communicable diseases among young Indigenous people aged 12–24 years, 2002–2005 (per 100,000 Indigenous young people)

Communicable disease	2002	2003	2004	2005
Hepatitis A	6.6	7.2	5.4	7.4
Hepatitis B (incidents[a])	4.1	7.2	6.1	4.4
Hepatitis C (incidents[a])	14.1	22.3	16.1	13.3
Influenza (laboratory confirmed)	1.7	8.0	2.3	8.1
Meningococcal (all types excluding C)	3.3	0.8	1.5	0.7
Meningococcal type C	2.5	3.2	0.0	0.0
Mumps	0.0	0.0	0.0	0.0
Pertussis	31.4	30.2	27.6	29.6
Pneumococcal	6.6	11.1	13.0	13.3

(a) Newly acquired infections.

Source: National Notifiable Diseases Surveillance System.

- Of the vaccine-preventable diseases notified for Indigenous young people, the most common was pertussis (40 notifications) with a notification rate of 30 per 100,000 young Indigenous persons in 2005. By comparison, the rate for all young people was 43 per 100,000 young people. Over the last 4 years, the rate of notification for pertussis remained fairly constant among young Indigenous people.
- In 2005, there were 18 cases (a rate of 13 per 100,000) of incident hepatitis C reported for young Indigenous people accounting for 14% of total incidents of hepatitis C reported for young people.

Sexually transmitted infections (STIs)

Table 2.24: Notification rate of sexually transmitted infections for young Indigenous people aged 12–24 years, 2002–2005

Sexually transmitted infection	2002	2003	2004	2005
Chlamydia				
Number	2,210	2,708	2,879	2,791
Number per 100,000 young people	1,827.5	2,154.0	2,208.3	2,066.7
Gonococcal infection				
Number	1,530	1,853	2,029	2,294
Number per 100,000 young people	1,265.2	1,473.9	1,556.3	1,698.6
Syphilis				
Number	347	290	227	177
Number per 100,000 young people	286.9	230.7	174.1	131.1

Source: National Notifiable Diseases Surveillance System.

- Chlamydia and gonococcal infection were the most commonly notified STIs among young Indigenous Australians. In 2005, there were 2,791 chlamydia notifications among young Indigenous people—a rate of 2,067 per 100,000 young Indigenous people—and accounting for 13% of all chlamydia notifications for young people in that year. Gonococcal infection notifications among young Indigenous people accounted for 64% of all gonococcal infection notifications for young people in 2005 (2,294 notifications among young Indigenous people—a rate of 1,699 per 100,000 young Indigenous people).
- There were 177 notifications of syphilis among young Indigenous people, accounting for 56% of the total number notified for young people in 2005. The rate of syphilis notifications has decreased between 2002 and 2005, from 187 to 131 per 100,000 Indigenous young people.

- Between 2002 and 2005, the rates of chlamydia and gonorrhoea notifications among young Indigenous people increased (by 13% and 34% respectively), and the notification rate for syphilis decreased (by 54%). This trend is similar to that occurring for all young Australians, however the chlamydia notification rate among Indigenous young people increased by a much smaller proportion (13% increase for Indigenous compared with a 53% increase for all young people), and the syphilis notification rate decreased by a greater proportion (54% decrease for Indigenous compared with a 34% decrease for all young people).

Oral health

Oral health affects people both physically and psychologically and can have a significant impact on their quality of life. Oral diseases and, in particular, the resulting missing, damaged or discoloured teeth, affect the people's ability to enjoy life, their appearance, speech, ability to chew and taste food, and social life. The pain associated with dental caries (tooth decay) can interfere with children and young people's daily activities including school work, employment, sleeping and eating (AIHW 2000; Kwan et al. 2005; Peterson et al. 2005; Sheiham 2005).

Risk factors and prevention

Risk factors for oral diseases are diet and hygiene, smoking, alcohol, stress and risky behaviours causing injuries. A number of these risk factors are also responsible for many chronic diseases. Recent research indicates a relationship between periodontal (gum) disease and stroke, heart disease, and pre-term low-birthweight babies (Reibel 2005; Sheiham 2005). Poor mouth care also contributes to oral cancer. In addition, poor oral health affects the digestive process: physical and chemical activities in the mouth can lead to intestinal failure, irritable bowel syndrome and other problems (U.S. Department of Health and Human Services 2000).

Early preventive strategies (such as water fluoridation) and improved dental hygiene practices (such as regular brushing and flossing, better diet, and improved disease management) help maintain healthy gums and teeth. Good dental health practices established early in childhood contribute to better dental outcomes in adulthood. The level of accessibility and affordability of dental health services is also an important determinant of good dental health.

Oral health of young people

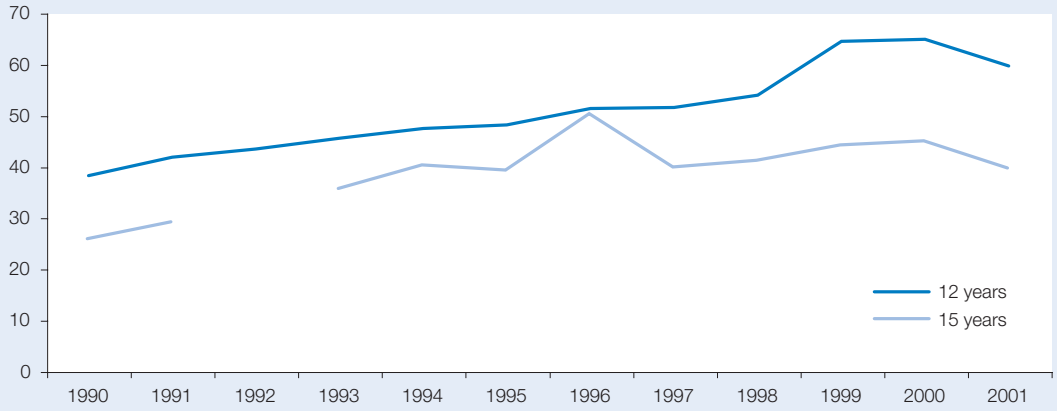
The dental health of young Australians has been improving over time as indicated by the declining proportion of young people with dental decay and the low mean number of decayed teeth. These improvements are due partly to access to fluoridated drinking water and toothpaste with fluoride, and partly due to the availability of a School Dental Scheme, which provides clinical preventative services and ongoing monitoring of child dental health. However, in recent years, there has been a slight increase in the tooth decay experience among children. This increase may be related to changes in dietary patterns, including less drinking of fluoridated mains water and increased sugar consumption.

Dental decay experience is an important measure of dental health, and is expressed as a DMFT score (the number of teeth currently decayed, teeth extracted due to decay and teeth with fillings) (AIHW 2000). The 'DMFT' score describes decay experience in permanent teeth. Another commonly used statistic is the percentage of individuals who are decay free, that is, when DMFT equals 0.

This section provides an overview of oral health among young Australians, looking at caries, using data from the AIHW Dental Statistics Research Unit (DSRU) and the AIHW National Hospital Morbidity database.

INDICATOR:

Proportion of young people decay free at 12 years and 15 years



Note: Data not available for those aged 15 years in 1992.
Source: AIHW Dental Statistics and Research Unit, various years.

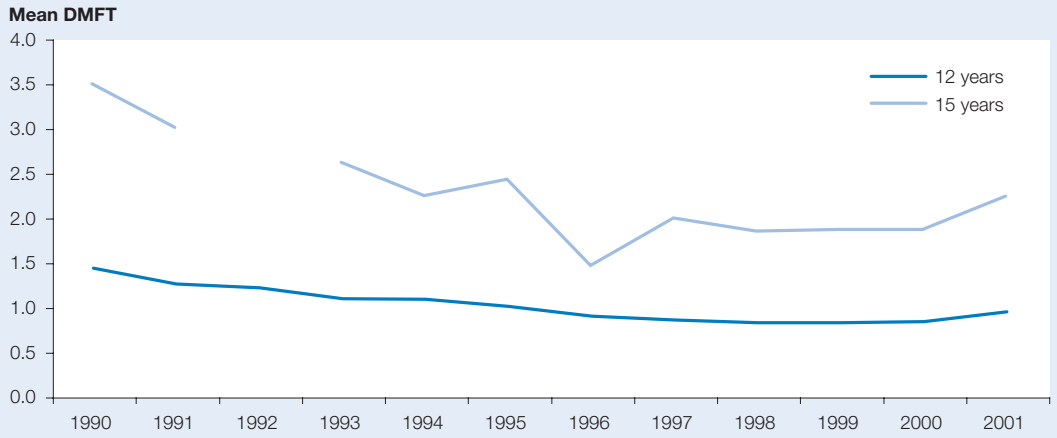
Figure 2.27: Proportion of young people aged 12 and 15 years who had no caries in their permanent teeth, 1990 to 2001

- In 2001, 60% of 12 year olds and 40% of 15 year olds were free from clinical tooth decay experience (DMFT=0).
- Both the 12 year olds and 15 year olds experienced an increase in decay-free teeth between 1990 and 2001 (1.7fold increase). However, in 2001, the proportion of young people free from tooth decay at ages 12 and 15 years showed a decline since the previous year.

Dental caries are the second most costly diet-related disease in Australia, with an economic impact comparable with that of diabetes and heart disease (AHMAC 2001). Approximately $3.7 billion was spent on dental services in 2001–02—representing 5.2% of the total health expenditure (AIHW 2003c).

INDICATOR:

Mean number of decayed, missing or filled teeth (DMFT) at 12 and 15 years



Note: Data not available for those aged 15 years in 1992.
Source: AIHW Dental Statistics and Research Unit, various years.

Figure 2.28: Mean caries experience (DMFT score) of young people aged 12 and 15 years, 1999 to 2001

- In 2001, the mean number of teeth with caries (DMFT) experienced by 12 year olds was 0.95 and for 15 year olds it was 2.23.
- Between 1990 and 1999, the mean DMFT score declined for both 12 and 15 year olds, but since then has increased.

Dental hospital separations

In 2004–05, there were over 50,824 dental health-related hospital separations among young people aged 12–24 years in Australia—a rate of 1,403 separations per 100,000 young people (1,057 and 1,765 per 100,000 young males and females respectively). The vast majority (82%) of the dental health-related separations were for embedded and impacted teeth. Dentofacial anomalies, including anomalies of tooth position, accounted for 7% and dental decay for 6% of dental separations.

Dental consultation

Regular dental visits are important for maintaining healthy teeth. According to the 2002 National Dental Telephone Interview Survey, 75% of young people aged 12–17 years had visited a dentist in the 12 months before the survey, while only 53% of those aged 18–24 years had done so. The time since last dental visit for 14% of young people aged 18–24 years had been 2–5 years before the survey, and for 11% it had been 5 years or more. In the same survey, 81% of young people aged 12–17 years reported that they usually visited the dentist at least once a year but only 58% of young people aged 18–24 years reported annual dental visits. These dental visits by both groups were mainly for a check-up rather than for a specific problem— 81% and 63% of the visits by those aged 12–17 and 18–24 years respectively were for check-ups (Carter & Stewart 2003).

Access to fluoridated water

Water fluoridation is an effective public health measure to prevent dental decay. It reduces dental disease, loss of teeth, time away from work or school, and anaesthesia-related risks associated with dental treatment (DPERU 1997). Fluoridation of public water is favoured by public health experts because it is the most equitable way to achieve community-wide exposure to the caries prevention effects of fluoride.

Table 2.25: Proportion of young people with access to fluoridated water by state/territory of residence

State/territory	Per cent
New South Wales	89.8
Victoria	75.3
Queensland	4.7
Western Australia	90.1
South Australia	82.6
Tasmania	94.7
Australian Capital Territory	100.0
Northern Territory	84.2

Source: AIHW Dental Statistics and Research Unit, unpublished data.

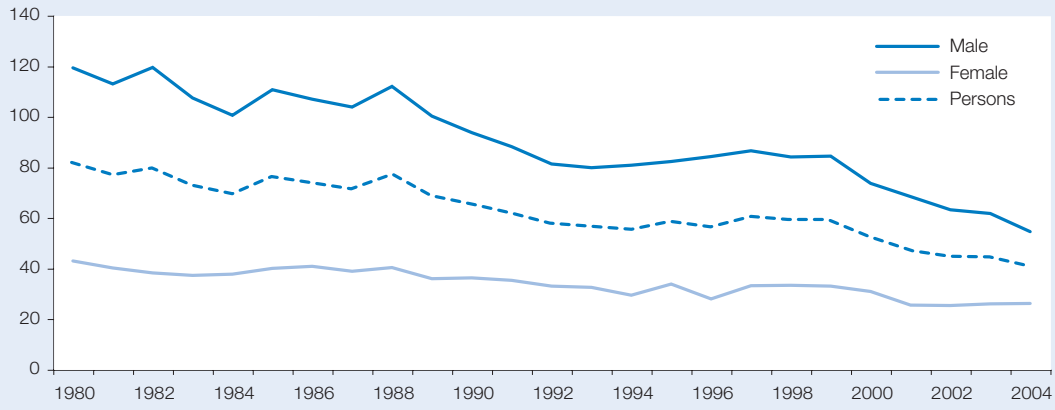
Most young people live in areas with access to fluoridated water, but there are some parts of Australia without fluoride in the public water supply. This is the case in most parts of Queensland and some rural areas of Victoria.

2.4 Deaths

Death rates and causes of death are key indicators of the health of a population, and are important in the planning of public health care. They not only reflect circumstances around the time of death, but also provide some insight into changes in social and environmental conditions, medical interventions, lifestyles and trends in underlying risk factors. This section describes the patterns of mortality among young Australians, examining causes of death, age and sex patterns, differences among certain groups of the population, and recent and long-term trends.

INDICATOR:

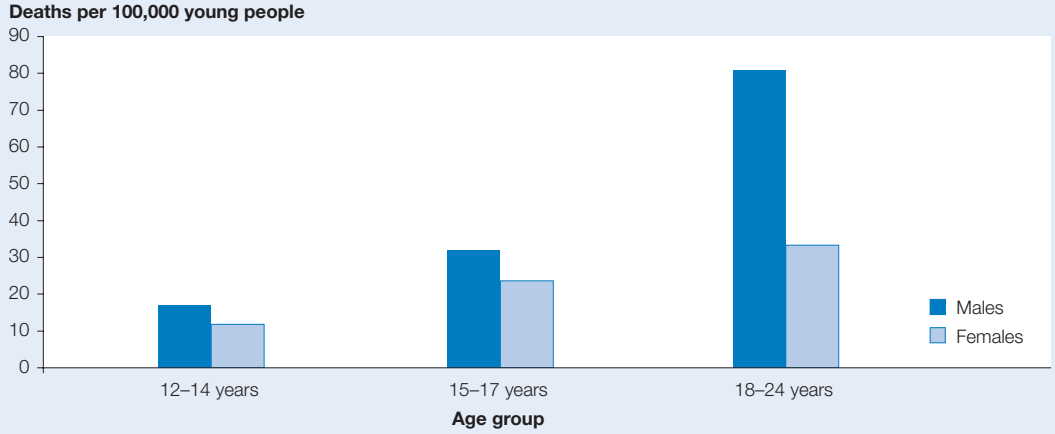
Death rates for young people aged 12–24 years



Note: Age-standardised to the young Australian population as at 30 June 2001.
Source: AIHW National Mortality Database.

Figure 2.29: Death rates for young people aged 12–24 years, 1980–2004

- In 2004, there were 1,470 deaths among young Australians aged 12–24 years—a rate of 41 deaths per 100,000 young people. Males accounted for 69% of all deaths among those aged 12–24 years (1,012 deaths).
- Deaths among 12–24 year olds represented 1.1% of all deaths in 2004, a decrease since 1980, when 12–24 year olds accounted for 2.5% of all deaths.
- Between 1980 and 2004, death rates have halved among those aged 12–24 years (from 82 per 100,000 to 41 per 100,000 young people respectively), representing an average annual decrease of 2.5%.



Source: AIHW National Mortality Database.

Figure 2.30: Death rates for young people aged 12–24 years, 2004

- Male death rates have been consistently higher than those for females over the last 25 years, however, the ratio of male to female death rates has been falling over this period from 2.8 in 1980 to 2.1 in 2004. In accordance with this, the decrease in the death rate was greater for males than for females between 1980 and 2004 (54% compared with 39%).
- The age pattern of mortality among young people shows that many more deaths occur during early adulthood (18–24 years) than in the younger ages (12–17 years). Three-quarters of all deaths of young people in 2004 occurred among those aged 18–24 years, despite this age group making up just over 50% of the 12–24 year old population. Of the remaining deaths, 15% occurred among 15–17 year olds and 8% among 12–14 year olds.
- Male death rates were higher than female death rates in each age group. This difference was largest among those aged 18–24 years, where the male death rate was almost 2.5 times that of females.

Between 1980 and 2004, death rates declined faster (59% decline) among 15–17 year olds than among those aged 12–14 years (54%) and 18–24 years (48%). This pattern was observed for males, however, among females the greatest fall occurred among 12–14 year olds (51% compared with around 37–38% among 15–17 and 18–24 year olds).

Major causes

Patterns of mortality among young Australians are distinct from other age groups. For example, the leading causes of death for all ages are circulatory diseases (ischaemic heart disease and cerebrovascular disease), while for young people aged 12–24 years, injury and poisoning are the leading causes of death (specifically land transport accidents and intentional self-harm (suicide)) (AIHW 2005h). It is therefore important to understand the major causes contributing to the deaths of young Australians in order to plan targeted public health interventions for this age group.

Table 2.26: Leading causes of death[(a)] in young people aged 12–24 years, 2004

	Male		Female		Persons	
Cause of death	**Number**	**Per cent**	**Number**	**Per cent**	**Number**	**Per cent**
Land transport accidents	322	31.8	120	26.2	442	30.1
Intentional self-harm (suicide)	202	20.0	70	15.3	272	18.5
Accidental poisoning	56	5.5	18	3.9	74	5.0
Symptoms, signs and ill-defined conditions	41	4.1	15	3.3	56	3.8
Malignant neoplasms of lymphoid, haematopoietic and related tissue	24	2.4	16	3.5	40	2.7
Accidental threats to breathing	24	2.4	16	3.5	40	2.7
Accidental drowning and submersion	26	2.6	4	0.9	30	2.0
Congenital malformations, deformations and chromosomal abnormalities	11	1.1	18	3.9	29	2.0
Malignant neoplasm of brain	14	1.4	14	3.1	28	1.9
Epilepsy and status epilepticus	16	1.6	10	2.2	26	1.8
Other	276	27.3	157	34.3	433	29.5
All deaths	**1,012**	**100.0**	**458**	**100.0**	**1,470**	**100.0**

(a) Leading causes of death were determined using the classifications developed by Becker et al. 2006.

Note: ICD-10 codes: land transport accidents (V01–V89), intentional self-harm/suicide (X60–X84), accidental poisoning (X40–X49), symptoms, signs and ill-defined conditions (R00–R99), malignant neoplasms of lymphoid, haematopoietic and related tissue (C81–C96), accidental threats to breathing (W75–W84), accidental drowning and submersion (W65–W74), congenital malformations, deformations and chromosomal abnormalities (Q00–Q99), malignant neoplasm of brain (C71), epilepsy and status epilepticus (G40,G41).

Source: AIHW National Mortality Database.

- In 2004, the leading cause of death for young Australians was land transport accidents (442 deaths or 30% of all deaths in this age group). This was followed by intentional self-harm (suicide), with 272 deaths (19%), and accidental poisoning, with 74 deaths (5%). These three causes accounted for over 50% of all deaths among 12–24 year olds and are all types of injury and poisoning (see also *Injury and poisoning* in Part 2 of this report).
- Cancers also featured among the leading causes of death for young Australians. Malignant neoplasms of lymphoid, haematopoietic and related tissue were responsible for 40 deaths in 2004 (3% of all deaths), while malignant neoplasms of the brain accounted for 28 deaths (2% of all deaths).

Population groups

Table 2.27: Death rates[a] for young people by Indigenous status, regional status and socioeconomic status (per 100,000)

	Male		Female		Person	
Population group	**Number**	**Rate**	**Number**	**Rate**	**Number**	**Rate**
Indigenous status,[b] 12–24 years, 2002–2004						
Indigenous	183	244.8	90	124.2	273	184.5
Non-Indigenous	1,250	61.9	510	26.8	1,760	44.8
Regional status, 15–24 years, 2002–2004						
Major Cities	1,687	58.1	682	24.4	2,369	41.5
Inner Regional	708	88.5	267	34.8	975	62.5
Outer Regional	407	105.8	142	40.7	549	75.1
Remote	70	110.2	37	69.6	107	91.6
Very Remote	124	284.9	36	97.9	159	198.5
Socioeconomic status, 15–24 years, 2000–2002						
Quintile 1 (most disadvantaged)	752	89.7	324	40.6	1,076	65.8
Quintile 2	637	81.9	229	31.1	866	57.3
Quintile 3	600	74.2	231	30.4	831	53.0
Quintile 4	569	66.4	206	25.0	775	46.1
Quintile 5 (least disadvantaged)	415	48.7	166	20.0	581	34.9

(a) Age-standardised to the Australian population as at 30 June 2001.Rates are per 100,000 young people.

(b) For data quality reasons, data are for Queensland, Western Australia, South Australia and the Northern Territory only. The data presented here are not necessarily representative of the jurisdictions excluded.

Source: AIHW National Mortality Database.

Aboriginal and Torres Strait Islander young people

- In 2002–2004, there were 273 deaths among Aboriginal and Torres Strait Islander people aged 12–24 years in Queensland, Western Australia, South Australia and the Northern Territory, a rate of 158 per 100,000 young people.
- The death rate among young Indigenous Australians was just over 4 times that of young non-Indigenous Australians. For young Indigenous females, the rate was 4.6 times that of non-Indigenous females, while young Indigenous males were 4.0 times as likely to die as non-Indigenous males.
- The death rate for Indigenous males was almost twice that of Indigenous females (209 compared to 107 per 100,000 young Indigenous people).

See Part 4 of this report for further information on Indigenous mortality.

Regional status

- Death rates for young Australians increase substantially with remoteness, with the rate for Very Remote areas almost 5 times that for Major Cities in 2002–2004 (199 per 100,000 compared to 42 per 100,000 young people aged 15–24 years). The gap in death rates between those living in Major Cities and Very Remote areas has widened among those aged 15–24 years since 1997–99, when the rate in Very Remote areas was 2.7 times that for Major Cities (166 per 100,000 compared to 61 per 100,000 young people). The increasing difference in the rates is due to a decline in the death rate in Major Cities and an increase in Very Remote areas.
- The difference in death rates between those living in Very Remote areas and Major Cities was greater for 15–19 year olds than for 20–24 year olds (death rates in Very Remote areas 5 times as high for 15–19 year olds compared with 4 times as high for 20–24 year olds).

A number of factors contribute to higher death rates outside of Major Cities, including limited access to health services, occupational hazards, lower socioeconomic status and hazards associated with driving outside of major cities (ABS & AIHW 2001; AIHW 2003e). Rates of smoking, physical activity, risky alcohol consumption and poorer nutrition are also higher outside of Major Cities. This could adversely affect health in those areas (AIHW 2003e).

The higher death rates in Very Remote areas is also related to the proportionally large number of Indigenous young people in these areas (young Indigenous Australians account for more than 50% of all young people in Very Remote areas), who generally have much poorer health status (ABS & AIHW 2001; AIHW 2003e).

Socioeconomic status

- In 2000–2002, young people aged 15–24 years in the most disadvantaged areas of Australia had death rates almost twice as high as those from the least disadvantaged areas (66 per 100,000 compared to 35 per 100,000 young people aged 15–24 years).