



## 2 Health of Australians

The health of the Australian population is continually improving. Australians are now living longer than ever before. There have been large reductions in morbidity and mortality from communicable diseases; notable improvements have also been observed for a variety of chronic diseases and injuries over the last several decades. The impact of these changes is visible in almost all segments of the population, although not uniformly so.

This chapter provides an overview of the health of the Australian population as a whole. The concept of population here is not limited to any particular class or characteristic but includes all Australians without regard to any special features. The health of populations defined by a particular characteristic, such as country of birth, age group, socioeconomic status and so forth, is described in Chapter 4.

The chapter is organised into 10 major sections, as follows:

- |                            |  |
|----------------------------|--|
| 2.1 Demographics           | 2.6 Non-communicable diseases            |
| 2.2 Health and functioning | 2.7 Mental health problems and illnesses |
| 2.3 Morbidity and illness  | 2.8 Communicable diseases                |
| 2.4 Disability             | 2.9 Injury in Australia                  |
| 2.5 Causes of death        | 2.10 Summarising the burden of disease   |

The first five sections of the chapter describe the health of the Australian population in general dimensions, namely life expectancy, population ageing, self-assessment of health, illness, disability and mortality. Sections 2.6 to 2.9 provide surveillance summaries of a variety of diseases (non-communicable and communicable), mental problems and illnesses, and injuries, as well as describing their individual effects on the Australian population. The last section summarises the impact of various diseases and injuries on the health of the population using the disability-adjusted life years (DALY) measure, developed by the World Bank and the World Health Organization (WHO) (World Bank 1993) and applied to the Australian situation by the Australian Institute of Health and Welfare (AIHW: Begg et al. in press; AIHW: Mathers et al. 1999).

### 2.1 Demographics

An important aspect of monitoring a population's health is to track its demographic structure: how large is the population, what is the ratio of males to females, and what is its age composition? These characteristics reflect past demographic events but they also influence present and future health.

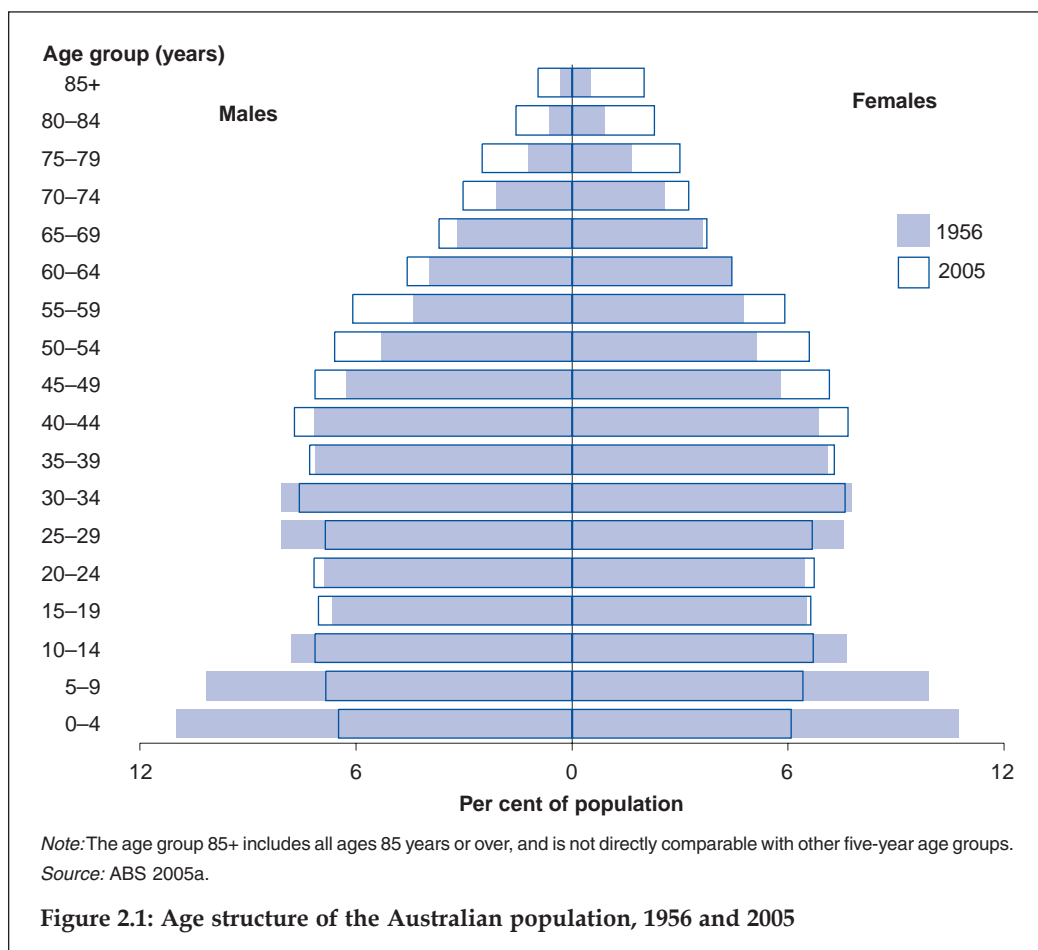
Other demographic features that provide good insights to a population's health are fertility, mortality and life expectancy. Birth and death rates are major drivers of a population's structure. Immigration is another contributor. Life expectancy summarises the outlook on life based on current mortality patterns.

A continually ageing population, for example, is much more than a demographic outcome. In the context of health, population ageing translates into higher overall morbidity and mortality, and an increasingly older population will place greater demand on health care facilities.

## Age and sex structure

The estimated resident population of Australia was 20.3 million in June 2005 (ABS 2005a). Since Federation in 1901, the population has increased by 16 million, with over 2 million added over the past decade. Natural increase has been the main component of growth, contributing around two-thirds in the past 50 years. Net overseas immigration has contributed to the remainder of the increase.

Two major features of demographic transition in Australia have been declining fertility and declining mortality. The decline in fertility since the 1960s has led to slow growth of the population in younger ages, whereas declining mortality has contributed to significant increases in the number of old people. Figure 2.1 shows this change in the age structure, from its pyramid-like look in 1956 to its present beehive shape.



Since 1979, females have outnumbered males. In 1956, there were 2.7% more males than females in Australia's population, while in 2005 there were 1.1% more females than males. This crossover reflects significant gains in the health of females, compared to males. However, the gap appears to be reducing with relatively greater increases to male life expectancy in the past 20 years.

## Median age

The median age is the mark at which half the population is older and half is younger, and for Australia in 2005 it is estimated to be 36.6 years, having increased by 5.8 years in the last two decades (ABS 2005a). The Australian median age is much younger than in some developed countries, for example Japan (42.9 years) and Italy (42.3).

## The older population

During the past several decades, the number and proportion of the population aged 65 years or over have increased rapidly in Australia. The increase in the population aged 85 years or over was even more marked.

In 2005, more than 2.6 million Australians were aged 65 years or over, representing 13.1% of the total population (Table 2.1). The proportion is similar to that in the United States and Canada but is substantially lower than in Japan and Italy.

The proportion of those aged 85 years or over was 1.5% of the total population and for those aged 65 years or over it was 13%. There were 5,178 Australian centenarians and over 110,000 persons aged 90 years or over in 2005.

**Table 2.1: Estimated resident population, ages 65 years or over, 2005**

Age group (years)	Males		Females	
	Estimated resident population	Per cent of population	Estimated resident population	Per cent of population
65–69	382,427	3.8	389,377	3.8
70–74	300,026	3.0	327,001	3.2
75–79	251,725	2.5	301,262	2.9
80–84	162,847	1.6	238,309	2.3
85–89	70,712	0.7	132,463	1.3
90–94	24,350	0.2	61,292	0.6
95–99	5,050	0.05	15,982	0.2
100 and over	1,728	0.02	3,450	0.03
<b>Total (65 years or over)</b>	<b>1,198,865</b>	<b>11.9</b>	<b>1,469,136</b>	<b>14.4</b>
<b>Total, all ages</b>	<b>10,110,836</b>	<b>100.0</b>	<b>10,217,773</b>	<b>100.0</b>

Source: ABS 2005b.

## Fertility

The total fertility rate in Australia has fallen below the replacement level of 2.1 births for the past quarter of a century, as in most developed and an increasing number of developing countries (ABS 2006a). The fertility rate is the number of babies, on average, that a woman could expect to bear during her lifetime if she experienced current age-specific fertility rates throughout her childbearing life. In 2004, the Australian total

fertility rate based on birth registration was 1.8 births (ABS 2006a). The decline had a strong effect on the age structure of the population. However, the rate has now levelled off and may be even beginning to rise (McDonald 2005).

Another indicator of Australia's fertility is the median age of mothers at first birth. In 2004, the median age at birth was 30.6 years (ABS 2005c). Fertility rates in Australia now peak in the age group 30–34 years, at 114 babies per 1,000 females, with the second highest fertility rate among those aged 25–29 years. The fertility rate of females aged 20–24 years has halved since 1980 to 53 babies per 1,000 females.

The upward shift in the age of mothers at first birth has contributed to the declines in the total fertility rate. However, a balance may now have been reached in these two interrelated aspects of fertility.

## Mortality

Mortality is another key determinant of a population's age structure. Cause-specific mortality also provides insights into health events around the time of death. (For further information on causes of death in Australia, see Section 2.5.)

There were 132,508 deaths recorded in Australia in 2004. Male deaths outnumbered female deaths, 68,395 to 64,113. The crude death rate ratio was 108 males to 100 females (Table 2.2). About 75% of male and 85% of female deaths in 2004 were of persons aged 65 years or over. The median age at death was 76.6 years for males and 82.6 years for females.

**Table 2.2: Age- and sex-specific distribution of deaths, 2004**

Age group (years)	Males		Females		Sex ratio	
	Number	Rate <sup>(a)</sup>	Number	Rate <sup>(a)</sup>	Crude <sup>(b)</sup>	Rate ratio <sup>(c)</sup>
<1	678	524.6	506	415.4	134	126
1–14	340	17.8	229	12.6	148	141
15–24	940	66.4	410	30.4	229	218
25–44	3,656	124.6	1,759	59.7	208	209
45–64	11,612	477.1	6,971	286.8	167	166
65–84	36,532	3,408.1	28,190	2,278.2	130	150
85+	14,631	15,635.9	26,047	12,892.7	56	121
Missing age	6	..	1	..	..	..
<b>Total</b>	<b>68,395</b>	<b>684.6</b>	<b>64,113</b>	<b>634.7</b>	<b>107</b>	<b>108</b>

.. Not applicable.

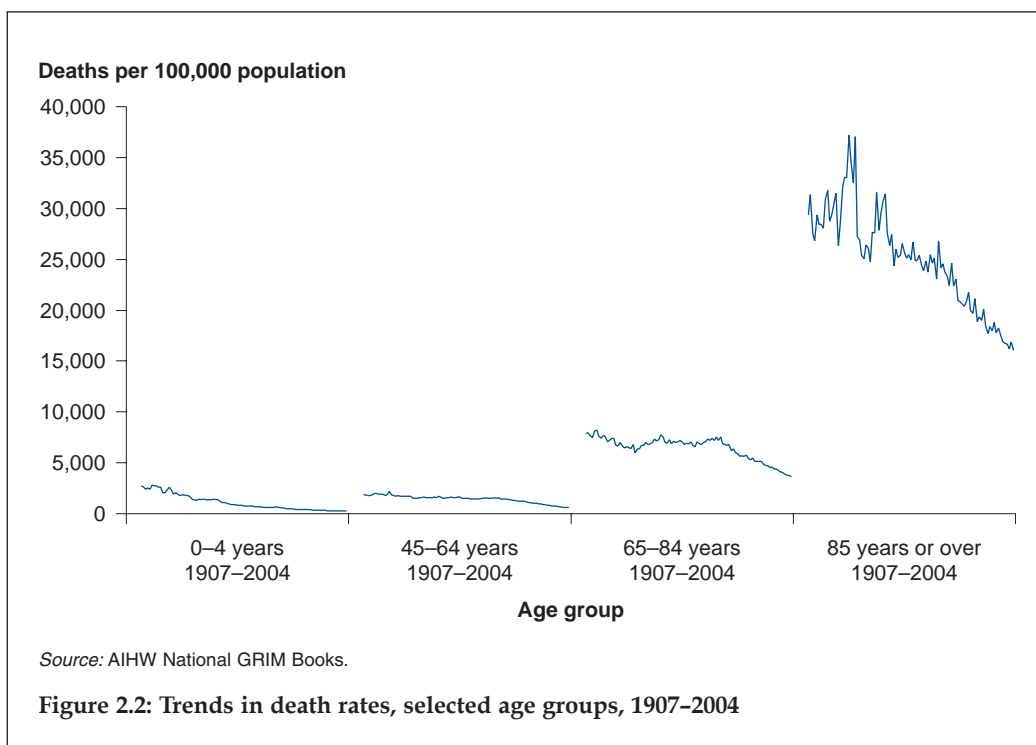
(a) Age-specific number of deaths per 100,000 persons.

(b) Male deaths per 100 female deaths.

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

Source: AIHW National Mortality Database.

Death rates are declining in Australia. The female age-standardised death rate fell by 72%, from 1,844 per 100,000 in 1907 to 511 in 2004. The corresponding male death rate fell by 65%, from 2,234 to 770 per 100,000. These mortality reductions have occurred in several different phases. Large reductions in infant mortality and in the 0–4 year death rate preceded declines in death rates in middle age groups. The death rates subsequently began falling among those aged 65 years or over (Figure 2.2).



Reductions in death rates do not necessarily mean a lower death count. The annual number of deaths in Australia increased from 45,305 in 1907 to 132,508 in 2004. While much of this increase reflects population growth, some of it is due to more people getting close to the upper end of the life span.

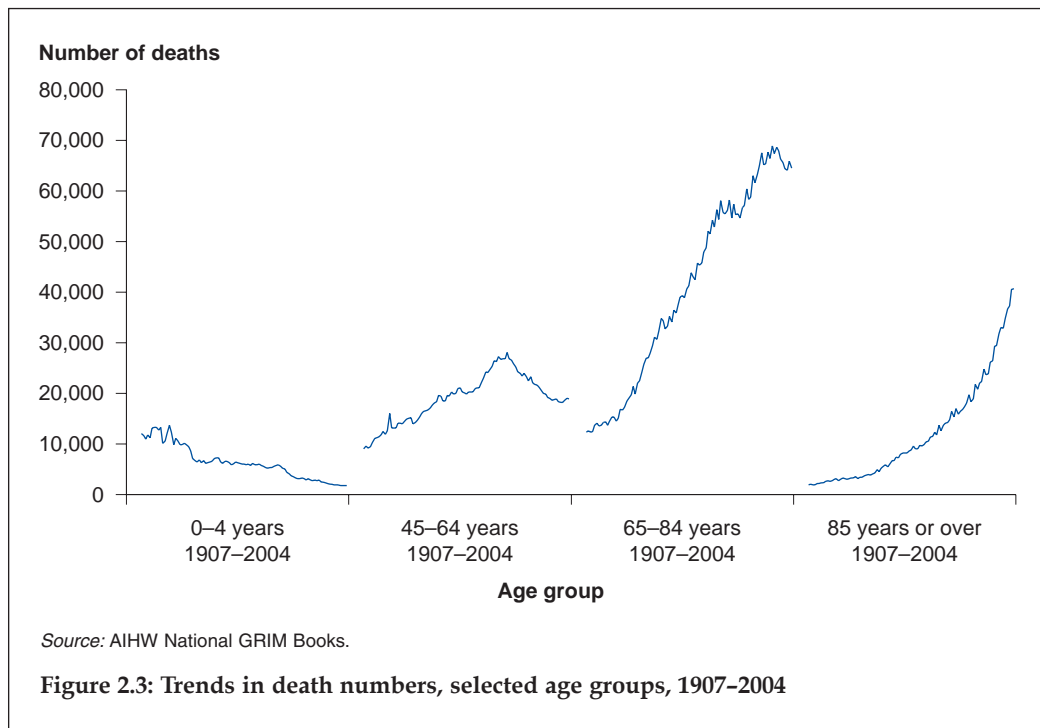
The number of deaths has also varied greatly in different age groups during this period (Figure 2.3). For example:

- The number of deaths of children aged 0–4 years declined from 13,000 in 1907 to less than 1,500 in 2004. Mortality in this age group accounted for around a quarter of all deaths at the beginning of the 20th century.
- The number of deaths in the 65–84 years age range began falling in 1996, from 68,292 deaths to 64,722 in 2004.
- While the bulk of deaths in Australia currently occur among those aged 65–84 years, the number of deaths in the 85 years or over group is increasing rapidly. This latter group will be the category with the largest number of deaths sometime in the future.

## Life expectancy

Life expectancy at birth is the average number of years a newborn can expect to live if the existing mortality patterns prevail over the individual's lifetime. At other ages, life expectancy denotes the additional number of years a person may expect to live, on average (Box 2.1). Life expectancy is one of the most commonly used summary

indicators of a population's health. Calculated as it is using current death rates, life expectancy also summarises the mortality pattern obtained in a population.



A direct consequence of declining death rates, as described earlier, is that Australians enjoy one of the highest life expectancies in the world. Australian females born in 2002-2004 could expect to live an average of 83.0 years while a male could expect to live 78.1 years.

### Box 2.1: Calculating life expectancy

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

*Life expectancy is based on the prevailing mortality patterns in a population; the calculation assumes that the current death rates will persist throughout the life span. The life expectancy of newborns is based on age-specific death rates that year and not on future, projected death rates.*

*In this report, life expectancy is expressed as the total number of years a person may expect to live rather than the additional number of years after achieving a particular age. For example, the life expectancy of a 65-year-old male is presented as 82.5 years, rather than 17.5 years.*

## Life expectancy at different ages

With each year lived, life expectancy increases. This is because, as age-specific, life-threatening factors are overcome, the opportunity to survive improves. Early in the 20th century, when death rates were high in the younger age groups, this gain was substantial upon surviving the first few years of life. The gain remains but is much smaller at present because infant mortality rates are not much higher than those in later childhood.

The calculation of life expectancy at birth takes into consideration factors affecting the full course of life, including the relatively higher death rates in early years of life. Some of these factors do not extend beyond those early years. Persons at age 30 years would have overcome many of these early risk factors and therefore would have an increased life expectancy. In 2002–2004, life expectancies for 30-year-old females and males were 83.8 years and 79.4 years, respectively about 0.8 years and 1.3 years greater than at birth.

These increments in life expectancy with age continue into the later years of life as well. Australian females and males aged 65 years in 2002–2004 could look forward to living up to the ages of 86.1 years and 82.5 years, respectively; again, substantially greater than those obtained at birth and at age 30 years. For those aged 85 years, life expectancy increased to 91.9 years for females and 90.7 years for males in 2002–2004 (Table 2.3). The calculation of life expectancies at ages 65 years and 85 years takes into account only those risk factors that have an impact in later years of life.

**Table 2.3: Life expectancy at different ages, 1901–1910 and 2002–2004**

Age	Males			Females		
	1901–1910	2002–2004	Per cent Increase <sup>(a)</sup>	1901–1910	2002–2004	Per cent Increase <sup>(a)</sup>
Birth	55.2	78.1	41.5	58.8	83.0	41.2
30 years	66.5	79.4	35.3	69.3	83.8	36.9
65 years	76.3	82.5	54.9	77.9	86.1	63.6
85 years	87.7	90.7	111.1	89.2	91.9	64.3
Gap <sup>(b)</sup>	32.5	12.6	..	30.4	8.9	..

(a) The life expectancy (remaining years) for an age in 2002–2004 expressed as a percentage increase over the remaining years for the same age in 1901–1910. For example, at age 85 years the percentage increase for males =  $100 \times ((90.7 - 85) - (87.7 - 85)) / (87.7 - 85)$ .

(b) Gap between life expectancy at birth and at age 85 years.

Sources: ABS 2005d; ABS unpublished data.

## Trends in life expectancy

Life expectancy in Australia has been increasing. Apart from a period around 1960–1970, when the death rates for heart disease were at their peak, life expectancy improved continually throughout the last century and into this century (Figure 2.4).

The overall increase in life expectancy at birth between 1901–1910 and 2002–2004 was about 42%. For females, the increase was 24.2 years—from 58.8 years to 83.0 years. For males, it increased by 22.9 years—from 55.2 years to 78.1 years (Table 2.3).

Male life expectancy has been consistently lower than for females all through this period, although the size of the difference has varied. In 1901–1910, the differences were

3.6 years and 1.6 years, at birth and at age 65 years, respectively. The largest difference between male and female life expectancies occurred during 1980–1982, with a gap of 7.0 years at birth. The gap was 4.2 years for those aged 65 years.

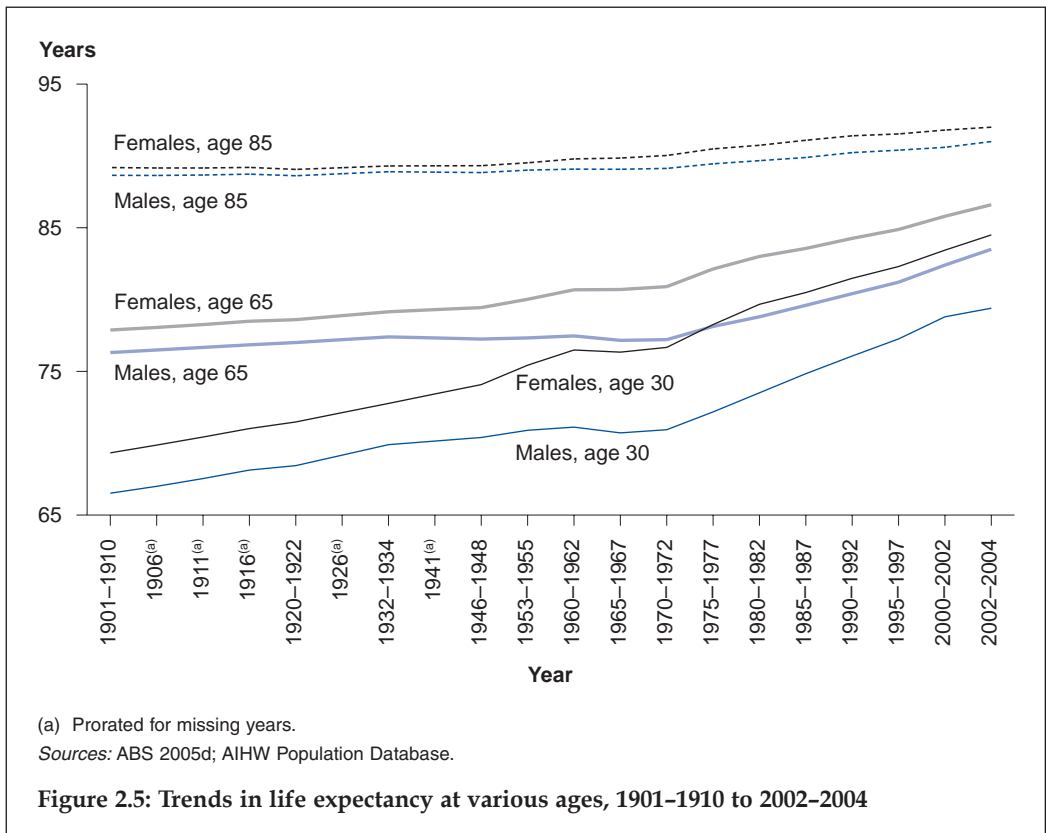
Since then, the gaps have reduced markedly, to 4.9 years at birth and 3.6 at age 65 years, in 2002–2004.



Early in the 20th century, improvements in life expectancy were at middle or younger ages, with reductions in infant and child mortality being the major contributors. Consequently, the gap between life expectancies at birth and at age 65 years has reduced markedly (Table 2.3). However, over the past few decades, reductions in mortality at older ages have also contributed substantially to the increases in life expectancy (Figure 2.5).

The varying changes in life expectancy at different ages are due to a major shift in deaths to older ages (sometimes referred to as 'compression of mortality'). In 1901-1910, the gap between life expectancy at birth and at age 85 years was 30.4 years for females and 32.5 years for males; by 2002-2004, these gaps had reduced to 8.9 years and 12.6 years, respectively (Table 2.3).

The life expectancies at other ages have also shown varying trends. While the changes at age 30 years are broadly similar to those at birth (Figure 2.5), the course of life expectancy at age 65 years was different. Little change in life expectancy occurred at age 65 years until the 1970s but from then on it has consistently improved. Some improvements in life expectancy have also occurred for persons aged 85 years from the 1970s.



## International comparisons of life expectancy

Overall, Australians enjoy one of the highest life expectancies in the world (WHO 2005a). Table 2.4 compares Australia with a range of other countries. (Note that the estimates of Australian life expectancy differ from those provided in earlier pages, because of a different method used by the WHO for calculating life expectancy.)

Newborn Australians could expect to live a little longer than those in countries such as Canada, New Zealand, Norway and Spain—and longer again than in the United Kingdom and the United States. The WHO has estimated that the Australian male life expectancy in 2003 (78 years) was among the world’s highest. Similarly, female life expectancy in Australia (83 years) was not far behind that in the countries with the highest life expectancy—Japan (85 years), France and Italy (both 84 years).

**Table 2.4: Life expectancy at birth for selected countries, 2003**

<b>Country</b>	<b>Males</b>	<b>Females</b>
Japan	78	85
Italy	78	84
France	76	84
<b>Australia</b>	<b>78</b>	<b>83</b>
Sweden	78	83
Switzerland	78	83
Spain	76	83
Canada	78	82
Iceland	78	82
Singapore	78	82
New Zealand	77	82
Norway	77	82
United Kingdom	76	81
United States of America	75	80

Source: WHO 2005a.

## 2.2 Health and functioning

Health and functioning are multidimensional concepts relating to peoples' body functions and structures, the activities people do and the life areas in which they participate. Environmental factors also affect these experiences. Good health and functioning may be described as states characterised by an ability to perform daily tasks with vigour and a low risk of developing disease or disability.

This section attempts to describe some of the common aspects of health and functioning. However, in the absence of quality data, the focus of the section is limited to self-assessed health status, sexual and reproductive health, and oral health. Other sections of this chapter cover the more traditional topics of disease, disability and mortality.

### Self-assessment of health

Individuals' rating of their own overall health is often used as one of the indicators of health status and is sometimes used as a predictor of health care use and mortality.

Self-rating information is collected in many national and state-wide surveys in Australia. The Australian Bureau of Statistics' (ABS) National Health Survey (NHS) asks respondents to assess their health against five grades, from excellent through to poor. Several other surveys generate similar information.

In 2004–05, 56% of NHS respondents aged 15 years or over assessed their health as very good or excellent. This was a small increase from the 52% in 2001 and the 54% in 1995 (Table 2.5). The ratings by males and females showed similar patterns.

The patterns of self-rating varied with age but were similar for males and females. More people in the younger age groups assessed their health as very good or excellent, compared with those in the older age groups (Figure 2.6). The proportion of those assessing their health as poor increased with age, from 1% of those aged 15–24 years to 13% of those aged 75 years or over.

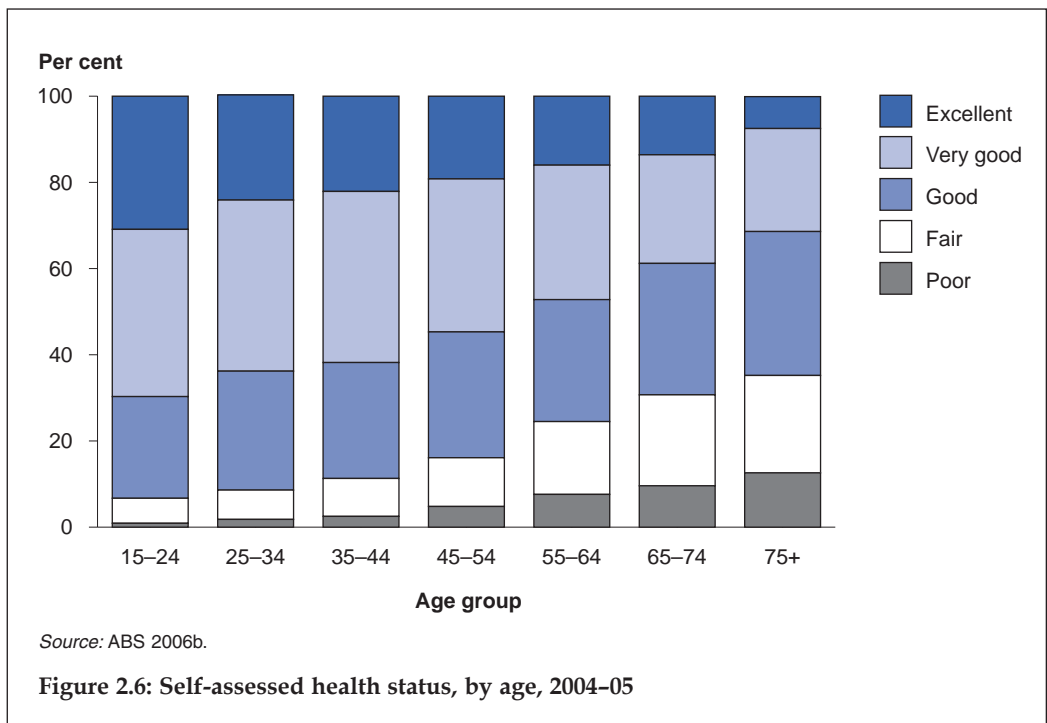
**Table 2.5: Trends in self-assessed health status<sup>(a)(b)</sup>, 1995, 2001 and 2004–05 (per cent)**

Self-assessed health status	Males			Females			Persons		
	1995	2001	2004–05	1995	2001	2004–05	1995	2001	2004–05
Excellent/very good	53.9	50.1	54.7	54.6	52.9	58.1	54.3	51.5	56.4
Good	28.6	31.4	28.8	28.5	29.2	26.9	28.5	30.2	27.8
Fair/poor	17.5	18.5	16.5	16.8	17.9	15.1	17.2	18.2	15.7

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

(b) Persons aged 15 years or over.

Source: ABS 2006b.



The majority of adults (92%) who assessed their health as good or better rated it as the same or improved in the preceding 12 months (Table 2.6). This change in health status information is based on the 2001 NHS. Of those who assessed their health as fair, 70% indicated either no change or an improvement in health. Just over half of those who assessed their health as poor reported a decline in their health compared to one year previously (51%). Overall, however, 87% of those aged 18 years or over rated their health as the same or improved compared with one year previously.

**Table 2.6: Changes in health status<sup>(a)</sup>, 2001 (per cent)**

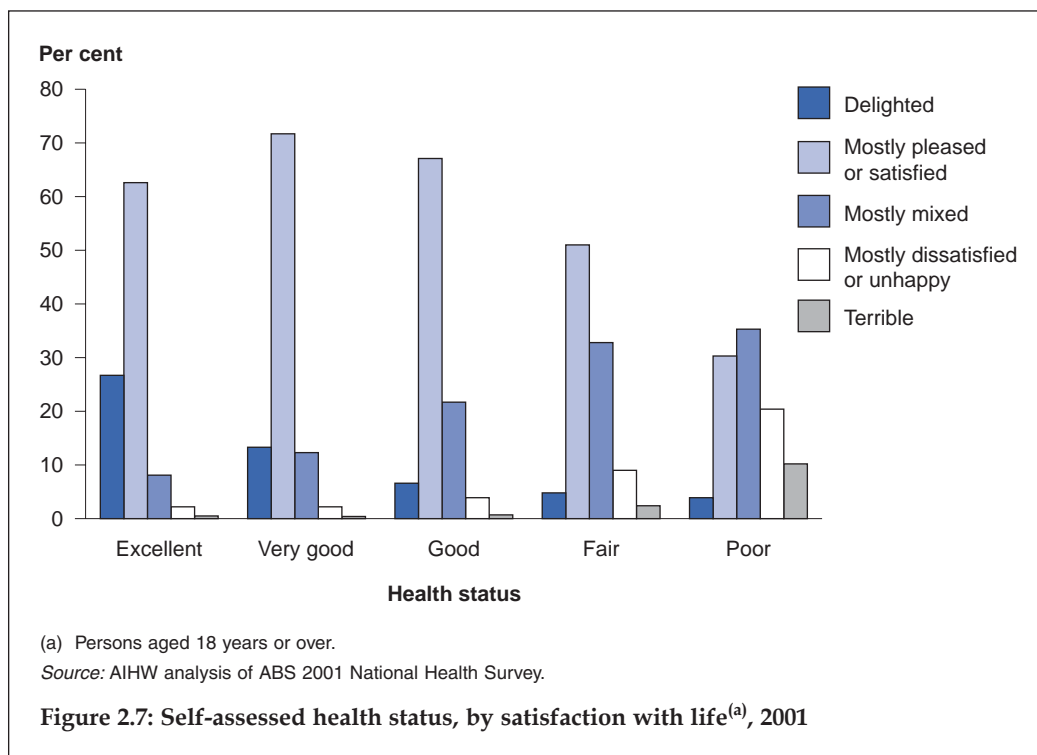
Self-assessed health status	Self-assessed health status <sup>(b)</sup>				
	Much better	Better	Same	Worse	Much worse
Excellent	7.8	10.5	79.7	1.9	0.1
Very good	8.6	13.9	71.7	5.7	0.2
Good	7.4	15.7	62.6	13.2	0.9
Fair	4.2	15.2	50.5	26.1	3.9
Poor	2.3	11.5	35.6	29.0	21.6
<b>Total</b>	<b>7.2</b>	<b>13.9</b>	<b>65.6</b>	<b>11.3</b>	<b>2.0</b>

(a) Persons aged 18 years or over.

(b) Compared to one year ago.

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

There is an association between the self-assessed level of health and feelings about life (Figure 2.7), with those reporting good or better health being more likely to report positive feelings and satisfaction. About 82% of adults in the 2001 NHS who rated their health as good or better either said they were mostly pleased or satisfied, or delighted, with their life. By contrast, only 50% of those who rated their health as fair expressed similar satisfaction. The proportion was much lower (36%) among those who had assessed their health as poor. It should be noted that these observations cannot determine whether feeling healthy brings more satisfaction, vice versa, or both.



The 2004–05 NHS also confirmed that the more long-term conditions a person has, the more likely they are to rate their health unfavourably (Table 2.7). For example, about 63% of persons reporting two long-term conditions assessed their health as excellent or very good, compared with 74% of those reporting no long-term condition and 49% of those reporting four long-term conditions.

**Table 2.7: Self-assessed health status, by number of long-term conditions<sup>(a)</sup>, 2004–05 (per cent)**

Self-assessed health status	Number of long-term conditions					
	None	One	Two	Three	Four	Five or more
Excellent/very good	74	71	63	55	49	30
Good	22	24	29	32	33	31
Fair/poor	4	5	8	13	18	39
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(a) Persons aged 18 years or over.

Source: ABS 2004–05 National Health Survey data.

The relationship between reported long-term conditions and self-assessed health may vary with the type of condition (Table 2.8). For example, persons with diabetes or ischaemic heart disease were less likely to assess their health as excellent or very good (19% and 10%, respectively) in comparison with those with asthma (42%) and back pain (42%).

**Table 2.8: Self-assessed health status, by selected long-term conditions<sup>(a)</sup>, 2004–05 (per cent)**

Disease/condition	Self-assessed health status		
	Excellent/very good	Good	Fair/poor
Diabetes	19	33	58
Asthma	42	31	27
Neoplasms	25	30	45
Mood disorders	30	31	39
Ischaemic heart disease	10	27	63
Back pain and disc disorders	42	31	27
Osteoarthritis	33	30	37

(a) Persons aged 18 years or over.

Source: ABS 2004–05 National Health Survey data.

Self-assessed health was also rated less favourably by those with certain risk factors (Table 2.9). Persons who were overweight or obese were less likely to assess their health as excellent or very good than those whose weight was in the normal range. Similarly, smaller proportions of smokers assessed their health as excellent or very good than did non-smokers. This pattern also applied to those who reported not walking in the preceding week compared with those who did walk.

**Table 2.9: Self-assessed health status, by selected risk factors<sup>(a)</sup>, 2004–05 (per cent)**

Risk factor	Variable	Self-assessed health status				
		Excellent	Very good	Good	Fair	Poor
Body weight	Normal weight range	26	37	25	9	4
	Overweight or obese	15	35	31	14	5
Whether walked in last week	Yes	22	38	27	10	3
	No	17	33	30	14	6
Smoker status	Current daily smoker	12	33	34	14	7
	Never smoked	24	36	27	10	3

(a) Persons aged 18 years or over.

Source: ABS 2004–05 National Health Survey data.

## Sexual and reproductive health

Sexual health and reproductive health together form an important component of human health. Sexual health is the enjoyment of sexual activity of one's own choice without causing or suffering physical or mental harm (Renton et al. 1997). Sex and sexuality are a normal aspect of human functioning, and pervade many aspects of a person's overall health and behaviours. Sexual activity in turn is an important component of human reproduction and family formation.

Quantitative information on the sexual and reproductive health of Australians is available in a variety of data sources. A national survey, the Australian Study of Health and Relationships (ASHR), carried out in 2001–02 and broadly representative of age 15–59 years, is an important source. A variety of information is also available from the ABS National Health Surveys, the Bettering the Evaluation and Care of Health (BEACH) Survey of General Practice Activity, the National Hospital Morbidity Database, the National Perinatal Data Collection and the National Notifiable Diseases Surveillance System.

Information has been derived from several of these data sources to generate the following profile of the sexual and reproductive health of Australians.

### Sexual behaviour and family formation

The ability to choose whether, when and how often to reproduce, and to exercise those choices with confidence and in safety, has been enhanced over the past half century. The introduction of improved methods of contraception and more accessible, safe abortion has affected, and in turn was affected by, changes in attitudes towards sexuality and reproduction. Various social and economic factors have also influenced decisions about marriage and the timing, spacing and number of children. These influences impinged upon and were further transformed by changes in laws and custom. Australian women are increasingly delaying marriage and postponing childbearing. This reflects changing attitudes towards both sex and having children. Changing sexual behaviours and sexual norms are also an important part of sexually transmitted infections.

In the ASHR, the median age of reported first intercourse was 16 years. About 40% of males and one-quarter of females reported having had intercourse when they were

below the age of 16. The median age at first marriage in Australia was 28 years for women and 29 years for men in 2004 (ABS 2004a). The proportion of births occurring within a registered marriage was 68%. Cohabitation now precedes marriage for 76% of couples (ABS 2004a). Among the births to unmarried parents, the father was identified in 89% of cases. Some 20 years earlier, paternity was identified in only two-thirds of births to unmarried mothers (ABS 2005c).

Excluding those who were pregnant or attempting to become so, and those who for various other reasons had no need of contraception, only 13% of women were at risk of an unplanned pregnancy in 2001–02 (Richters et al. 2003a).

## Use of contraception

The use of contraception is common, with some 71% of respondents to the Australian Study of Health and Relationships having used some form of contraception (Smith et al. 2003). The types used are many and varied, including non-medical, medical or surgical. Sterilisation (male or female) was the most commonly used method (41.8%), with oral contraceptives and/or the condom also widely used (Table 2.10). Other forms of contraception used were diaphragms, intra-uterine devices, injectables and tubal occlusion devices, as well as post-coital or emergency contraception.

**Table 2.10: Methods of contraception used by females, 2001–02**

Contraception method	Per cent
Sterilisation	
Tubal ligation/hysterectomy	22.5
Male partner has vasectomy	19.3
<i>Subtotal (sterilisation)</i>	<i>41.8</i>
Oral contraceptive	33.6
Condom	21.4
Withdrawal	4.5
Safe-period method	4.4
Injectables	1.5
Intra-uterine devices	1.2
Progesterone implants	1.1
Diaphragms and caps	0.9
Spermicidal foam or jelly	0.2
Female condom	<1.0

*Note:* Sample size (n=6,275); the total adds to more than 100% because women could report use of more than one method.

*Source:* Richters et al. 2003a.

Medicare fee-for-service benefits were paid for about 24,000 vasectomies and 4,500 tubal ligations in 2004–05. The number of services for which benefits were paid has fallen since 2000–01 by 30% for tubal ligation and by 12% for vasectomy. These figures exclude services provided to public patients in hospitals and through other publicly funded programs.

In addition to services provided by general practitioners (GPs) and gynaecologists, family planning organisations provide services to promote the sexual and reproductive health of Australians, particularly for those who cannot or prefer not to access such services through GPs and gynaecologists. The available services (heavily concentrated in urban areas) include clinic services for individual clients; community education programs, both direct and through training and resourcing of teachers and community workers; and education and training of GPs and nurses.

## Maternal age

An upward trend in maternal age has been shown in Australia in recent years. In 2003, the average age of all women who gave birth was 29.5 years, compared with 28.3 years in 1994. The average age of first-time mothers was 27.6 years in 2003. Mothers aged under 20 years constituted 4.6% of all mothers. Those aged 35 years or over accounted for 18.8% of mothers in 2003, an almost 50% increase on the proportion in 1994 (12.7%).

## Method of birth

Of the 252,584 women who gave birth in Australia in 2003, almost two-thirds (60%) had a spontaneous vaginal birth; 28% had a caesarean section and 11% had a forceps, vacuum extraction or vaginal breech delivery (Table 2.11). Obstetric intervention generally occurs if serious complications arise during pregnancy or labour.

There was much variation in the methods of birth across Australian states and territories. The proportion of women who had spontaneous vaginal births varied from 57% to 64%. There were also significant differences between states and territories in the use of forceps and vacuum extraction. Victoria recorded the highest percentage of forceps delivery (6.4%), and Queensland the lowest (2.0%). The percentage of women who had vacuum extractions ranged from 5.7% in the Northern Territory to 9.0% in both Western Australia and the Australian Capital Territory.

**Table 2.11: Method of birth, all mothers<sup>(a)</sup>, 2003 (per cent)**

Method of birth	National average	Inter-jurisdictional range
Spontaneous vaginal	60.3	57.0–63.7
Forceps	3.9	2.0–6.4
Vacuum extraction	6.8	5.7–9.0
Vaginal breech	0.4	0.3–1.0
Caesarean section	28.5	25.2–30.9

(a) The total number of mothers in 2003 was 252,584.

Note: For multiple births, the method of birth of the first-born baby was used.

Source: AIHW NPSU: Laws & Sullivan 2005.

The proportion of women having caesarean sections has increased markedly, from 19.4% nationwide in 1994 to 28.5% in 2003 (AIHW NPSU: Laws & Sullivan 2005). The proportion of caesarean section deliveries was 30% or more in Western Australia, Queensland and South Australia. The Australian Capital Territory reported the lowest proportion (25.2%) of caesarean sections.

## **Aboriginal and Torres Strait Islander mothers**

Aboriginal and Torres Strait Islander females become mothers at a younger age than the overall female population, with an average age when giving birth of 24.8 years in 2003. More than one in five (22.7%) Indigenous mothers were aged under 20 years, compared with 3.9% of non-Indigenous mothers.

Aboriginal or Torres Strait Islander mothers had higher rates of spontaneous vaginal birth (71.0%) than non-Indigenous mothers (59.9%). Caesarean section deliveries occurred in 23.3% of Indigenous mothers, compared with 28.8% of non-Indigenous mothers.

## **Assisted reproductive technology**

Almost 5% of Australian couples are affected by subfertility, where male or female conditions exist (Foran 2005). Causes of infertility include male sperm factors, ovulation disorders, tubal disease, endometriosis and some uterine abnormalities. A variety of assisted conception techniques has been developed, collectively referred to as assisted reproductive technology or ART.

In Australia, ART has been used since 1979. In addition to inducing ovulation, artificial insemination and fertility surgery, ART procedures used include:

- in-vitro fertilisation (IVF), where eggs and sperm are combined in the laboratory for fertilisation outside the body and then replaced in the uterus
- intra-cytoplasmic sperm injection (ICSI), where a single sperm is injected into an egg for fertilisation outside the body and then replaced in the uterus
- gamete intra-fallopian transfer (GIFT), where eggs and sperm are placed in the uterus for fertilisation inside the body.

The embryos arising from the IVF and ICSI methods can be frozen, and later thawed and used in subsequent ART treatment.

The success of ART varies by treatment procedure and whether fresh or thawed embryos or gametes are used. In 2003, with the transfer of fresh embryos or gametes, a viable pregnancy (a pregnancy of at least 20 weeks gestation) was achieved in 23.4% of all IVF egg retrieval cycles, 22.3% of ICSI cycles and 11.6% of GIFT cycles. With the transfer of thawed embryos, a viable pregnancy was achieved in 15.2% of all embryo transfer cycles. When all ART techniques involving embryo transfer or GIFT are combined, viable pregnancy was achieved in 19.5% of cycles.

The average age of women giving birth after ART treatment in 2003 was 34.3 years, 4.8 years older than the average age of all Australian mothers who gave birth. ART mothers had a higher incidence of caesarean section (50.8% of ART mothers compared with 28.5% of all mothers in 2003).

Of ART pregnancies resulting in delivery in 2003, 17.5% were twin and less than 1% were triplet pregnancies. These proportions are markedly different from those without the ART treatment, where only 1.7% of pregnancies resulting in delivery were twin and 0.03% were triplet or higher order pregnancies in 2003.

## Maternal mortality

Maternal deaths are rare in Australia (approximately 30 per year). They are classified into direct deaths (deaths from pregnancy complications), indirect deaths (deaths from pre-existing diseases complicated by pregnancy) and incidental deaths, where the pregnancy is unlikely to have contributed significantly to the death.

During the three-year period 1997–1999, there were 90 deaths, a 10% decrease from the previous three years when 100 deaths were reported. The main causes of maternal death in this period were obstetric haemorrhage, amniotic fluid embolism, hypertensive disorders, pulmonary thromboembolism, psychiatric causes and injury. Direct deaths accounted for 37.8% and indirect deaths for 31.1% of all maternal deaths during 1997–99 (AIHW NPSU: Slaytor et al. 2004).

## Induced abortions

There is no single comprehensive national data collection resulting from mandated notification of induced abortion in Australia. Legislation relating to induced abortion and the requirement to notify it varies among the states and territories (de Crespigny & Savulescu 2004; Petersen 2005). Notification is not required in New South Wales, Victoria, Queensland, Tasmania, the Northern Territory or the Australian Capital Territory.

Induced abortion may be defined as the termination of pregnancy through medical or surgical intervention (FIGO 1999; WHO 2005b). The number in Australia has been estimated using two different sources. The first is based on data from the AIHW National Hospital Morbidity Database for admitted patients in all states and territories. The second is Medicare data for out-of-hospital services for those states and territories in which abortion services are provided in non-hospital facilities as well as in hospitals (AIHW NPSU: Grayson et al. 2005).

There were an estimated 84,218 induced abortions in Australia in 2003, with a rate of 19.7 per 1,000 females aged 15–44 years. Females aged 20–24 years had the highest rate of induced abortions (32.7 per 1,000 females) and the lowest rate was for those aged 40–44 years (6.7 per 1,000 females).

## Use of health services

Statistics on hospital separations provide additional information on the extent of morbidity related to pregnancy. Complications of pregnancy, labour and delivery, the puerperium, and pregnancies with abortive outcomes, account for more than 8% of all hospital separations for women.

A further group of sexual or reproductive health conditions accounted for almost 8% of total hospital separations in 2003–04. The largest proportion, 5.7% of total separations, was for diseases of the female pelvic organs and genital tract; the remainder was for diseases of the male genital organs and of the breast (mostly female).

Among the reasons given by patients for a GP visit in 2003–04, sexual and reproductive health issues made up 6.5% of the total.

The reasons for GP encounters in relation to these issues are described in Table 2.12.

**Table 2.12: Reasons for GP encounters: sexual and reproductive health issues, 2004**

Reason for encounter	Per cent <sup>(a)</sup>
Female genital system	3.4
Check-up/Pap smear	1.2
Pregnancy/family planning	2.4
Oral contraception	0.7
Pre- postnatal checks	0.6
Male genital system	0.7

(a) Per cent of main reasons for encounter.

Source: BEACH survey.

The prescribing of oral contraception by GPs in 2003–04 showed a significant increase over the previous year. The authors suggest that the increase in oral contraceptive use may be partly explained by a move away from the use of injected forms of contraception following medical indemnity issues (AIHW 2004a).

## Health of reproductive organs

### Sexual difficulties

Almost one-fifth of 50–59-year-old male respondents to the Australian Study of Health and Relationships, and 12.5% of those aged 40–49 years, reported difficulty maintaining an erection during at least one month in the past year (Richters et al. 2003b). However, only 5.2% of the former and 1.4% of the latter had used treatment to aid erections.

Reports of vaginal dryness ranged from 7% among females aged 16–19 years to more than one-third of those aged 50–59 years. Pain during intercourse declined from 25% of females aged 16–19 years to 15.2% among those aged 50–59 years. Other sexual difficulties included lack of interest in sex or not finding sexual intercourse pleasurable, premature or non-orgasm, and lack of confidence in sexual performance or bodily attractiveness.

### Sexually transmissible infections

Some sexually transmissible infections (STIs) are notifiable through the National Notifiable Diseases Surveillance System (NNDSS). These include HIV and AIDS, hepatitis B and C, chlamydial infection, donovanosis, gonococcal infection and syphilis. Several diseases, commonly or usually spread by sexual contact, as well as parasitic infestations such as pubic lice, are not subject to national notification and until recently no information on their prevalence was available.

The two most common STIs in Australia are believed to be human papillomavirus and genital herpes, both chronic viral infections. However, they are not notifiable and their prevalence is unknown.

According to the NNDSS, notifications of chlamydia infections increased from 24,039 in 2002 to 36,225 in 2004. Over one-third of infections occurred among those aged 20–24 years. Gonorrhoea, the next most common STI, was reported in 7,193 cases. Antibiotic-resistant strains of gonorrhoea present an increasing problem in the Asia-Pacific region. In Australia, the Australian Gonococcal Surveillance Programme found

that the percentage of isolates resistant to penicillin had increased from 19.5% in 2000 to 22% in 2004, and resistance to other antibiotics was also increasing (AGSP 2005).

The bloodborne infections of HIV and hepatitis (B and C) may also be transmitted sexually as well as by other means. More than 85% of newly acquired HIV cases in 1999–2003 involved sex between males. New cases of HIV infection in 2003 totalled 277 (NCHECR 2005). There were 5,853 cases of hepatitis B and 12,938 of hepatitis C (NNDSS 2005). Further information from the NNDSS on STIs, and status reports on HIV/AIDS and hepatitis B and C, are presented in Section 2.8 of this chapter.

According to the Australian Study of Health and Relationships, 20.2% of males and 16.9% of females reported that they had been diagnosed with an STI or bloodborne infection at some stage of their life (Grulich et al. 2003a). The reported diagnoses of infections in the 12 months before the survey were 2.0% and 2.2%, in males and females respectively (Table 2.13). GP practices, rather than sexual health clinics, were the most common location of treatment.

Among those heterosexually active, 42.5% of males and 34.2% of females had used condoms within the year before the survey (de Visser et al. 2003). However, only 44.6% of men and 35.4% of women had always used condoms for vaginal intercourse in the past six months with casual partners. Heterosexual couples who used other forms of contraception were significantly less likely to use condoms as well. Condom use was higher among younger persons and among those with more than one sexual partner. The proportion of homosexual males using a condom was 58.9%. They reported being considerably more likely, at 86.8%, to always use condoms for anal sex with a casual partner.

**Table 2.13: Self-reports of being diagnosed with an STI or bloodborne virus, 2001–02**

Infection or virus	Ever (%)		Last 12 months (%)	
	Males	Females	Males	Females
Diagnosed with an STI	20.2	16.9	2.0	2.2
Pubic lice	9.8	4.2	0.3	0.1
Genital warts	4.0	4.4	0.5	0.3
Wart virus (on Pap smear)	..	5.1	..	0.8
Chlamydia	1.7	3.1	0.2	0.2
Genital herpes	2.1	2.5	0.8	1.1
Syphilis	0.6	0.1	< 0.1	0.0
Gonorrhoea	2.2	0.6	<0.1	<0.1
Non-specific urethritis	5.0	..	0.3	..
Pelvic inflammatory disease	..	2.3	..	0.2
Bacterial vaginosis	..	1.8	..	0.6
Trichomoniasis	..	0.8	..	<0.1
Candida or thrush <sup>(a)</sup>	6.6	57.6	1.3	17.5
Hepatitis A	1.9	1.6	<0.1	<0.1
Hepatitis B	0.7	0.5	0.0	<0.1
Hepatitis C	0.5	0.5	0.0	<0.1

(a) Not included when calculating lifetime or 12-month incidence of STIs.

.. Not applicable.

Source: Grulich et al. 2003b.

## Oral health

Oral health is an integral component of lifelong health and is much more than the absence of oral diseases. Oral health includes a person's comfort in eating and social interactions, their self-esteem and their satisfaction with their appearance. Importantly, even among people who have no oral diseases or disorders, some have better oral health than others.

Perceptions of oral health and positive or negative effects of oral conditions on the quality of life must necessarily be measured by people's self-reports. In the case of children, perceptions and effects may also be reported by parents.

Oral health can also be assessed objectively through oral examinations by dental clinicians. A widely used clinical measure is the index of decayed, missing or filled teeth, which represents the cumulative experience of treated and untreated dental decay.

### Oral health of adults

Three different measures (or 'dimensions') help provide a picture of oral health among adults:

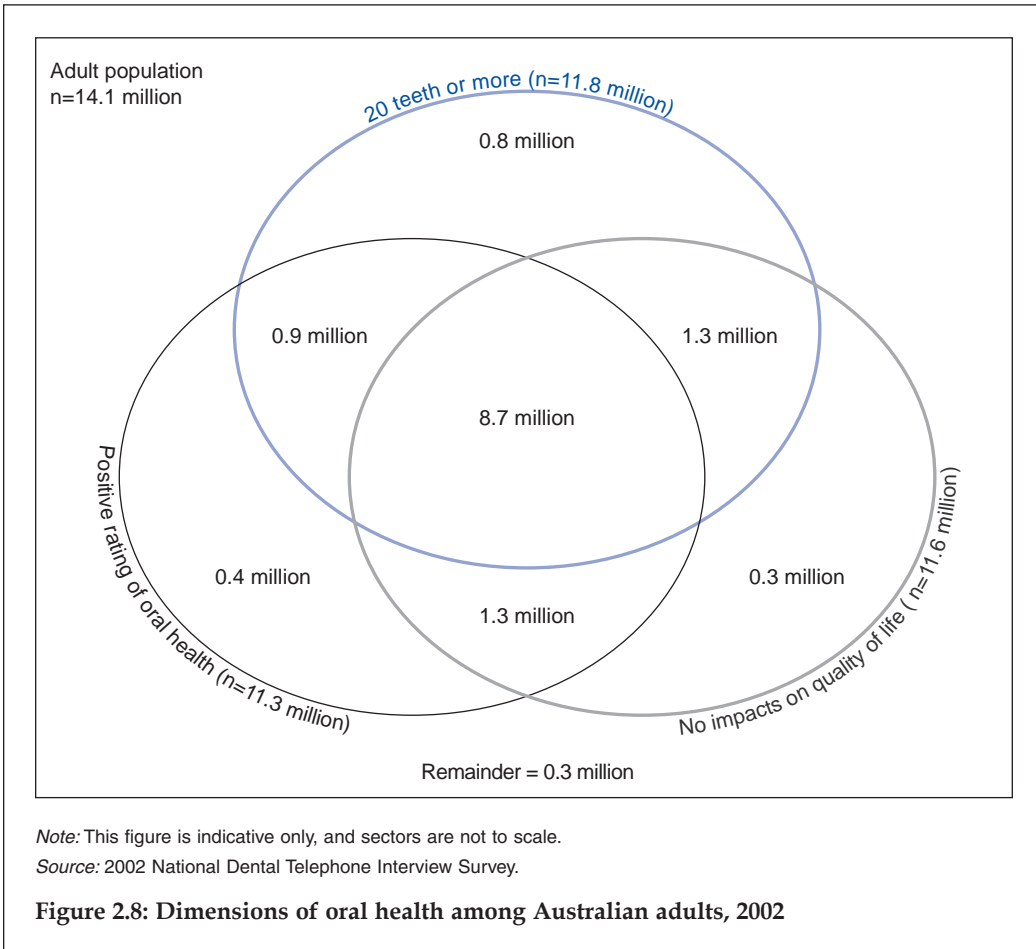
- The number of remaining natural teeth: good oral health may be described as having 20 or more teeth.
- Self-rated oral health: the response scale ranges from 'excellent' to 'poor'.
- Impaired quality of life due to oral conditions: this covers discomfort while eating, being self-conscious about teeth, and finding life less satisfying because of dental problems.

The 2002 National Dental Telephone Interview Survey, and a subsequent self-completed questionnaire that was mailed to interviewees, provide information about the oral health of Australians along these three dimensions. According to the survey, at least 84% of people had at least 20 teeth, 80% rated their oral health as 'good, very good, or excellent', and 83% experienced no adverse effects of oral conditions on quality of life.

However, there was considerable discrepancy among these perceptions in that only 62% of those interviewed reported relatively good oral health in all three dimensions. They are represented by the estimated 8.7 million people in Figure 2.8 who overlap on all three aspects. Examples of discrepancy included an estimated 1.3 million adults who would have had at least 20 teeth and no impact on the quality of life, but rated their oral health only as average, poor or very poor. A further 900,000 would have had at least 20 teeth and rated their oral health as good, very good or excellent, yet experienced one or more adverse effects on their quality of life.

### Oral health of children

Good oral health can have positive benefits for both children and their parents. It enhances children's confidence and self-esteem in ways that are valued by both them and their parents.



Conversely, oral diseases and disorders during childhood can negatively affect the life of children and their parents. Dental decay can cause toothache, which can be painful and distressing for children and worrying for parents. Dental caries is the single most common chronic disease among children.

Early prevention is the single most effective mechanism to reduce the effects of oral diseases and conditions. Parental counselling about diet, oral hygiene practices, appropriate uses of fluorides and avoidance of transmission of bacteria from parents to children—all establish practices and behaviours for good oral health.

### Water fluoridation and oral health of children

Studies conducted by the AIHW's Dental Statistics and Research Unit since 1990 have demonstrated that there are fewer teeth with decay among Australian children who drink water containing about 1 mg/L fluoride ions compared with children who drink water containing no fluoride. These and other studies have also shown that other

sources of fluorides, including toothpaste and professionally applied fluoride products, provide further benefits.

Although it helps protect against dental decay, fluoride consumed excessively in early childhood can cause dental fluorosis. This is a developmental disorder of dental enamel, the visible, outer layer of the teeth that creates its hard surface. In its mildest forms, dental fluorosis causes whitening of the enamel surface that is visible only when the tooth is dried. In its most severe forms, dental fluorosis creates a chalky white or brown appearance, and may cause pitting of the enamel surface.

Because dental fluorosis is caused by excessive consumption of fluoride, its severity in populations typically increases with increasing concentration of fluoride in drinking water, and when fluoride from other sources is ingested in early childhood. Examples of the latter include inappropriate consumption of fluoride supplements by children who additionally drink fluoridated water, and inadvertent ingestion of toothpaste containing fluoride.

The potential trade-off between fewer caries and the degree of fluorosis was studied by the AIHW's Dental Statistics and Research Unit in 2002–03. The study asked 677 South Australian children aged 8–13 years and their parents to rate the children's teeth on a scale ranging from 'poor' to 'excellent'. There was also a clinical assessment of caries and dental fluorosis. In addition, the children and their parents were asked various questions directed at their functional, emotional and social 'quality of life' in relation to their oral health, with the answers then compared with the degree of decay and fluorosis.

The study found that fluorosis in its mild and moderate forms was associated with a net benefit in how parents perceived the condition of the children's teeth and in the children's emotional and social dimensions of oral health. Based on these findings, it is evident that the population perceives being free of dental decay as the preferred oral health status, even when it is associated with mild or moderate levels of dental fluorosis. Fluoride programs in Australia seek to strike this balance by improving the oral health of children with a low level of perceived side-effects.

## 2.3 Morbidity and illness

This section and the rest of this chapter focus on aspects of ill health rather than on health in more general terms.

Information on the levels of ill health, or morbidity, in Australia is limited in scope and quality. There is no single source that can be used to describe the effects of ill health across the spectrum of disease severity. Administrative data sources such as hospital separations and visits to GP can be used to assess those aspects of disease that require medical attention. However, information on a variety of common self-limiting symptoms and minor complaints such as headaches, rashes and troubles with teeth does not easily become available through these sources.

A major source of this type of information in Australia is various health surveys, conducted by the Australian Government (National Health Survey; Survey of Mental Health and Wellbeing; Survey of Disability, Ageing and Carers; and many others), as