



5 Focus on child health

The 2004 edition of *Australia's health* contained a special chapter that focused on an issue of growing interest, the health of older Australians. In 2006, the special topic is one of equal importance for Australia and its future – children and their health.

In many respects, children living in Australia today are healthier than previous generations. As for other ages, death rates for both infants (aged under one year) and children (aged 1–14 years) have fallen markedly over past decades and continue to fall. There have been large reductions in deaths and illness from specific conditions, including communicable diseases and injuries. General improvements in the health of mothers and in medical care during pregnancy and birth have also led to substantial gains in the health of Australian children, particularly as measured by lower death rates.

However, there are a number of areas of concern that can affect the health of children both during childhood and later in their life. One concern is the great increase in the proportion of children who are overweight and obese. Related to this but also having independent health impacts are reductions in numerous aspects of physical activity and increases in energy intake. Significant illnesses that are becoming more common or affect a large number of children include diabetes, asthma and mental health problems.

These and other health issues are examined in this focus chapter on child health. Children are defined here as boys and girls under the age of 15 years. In this evaluation of the health of Australia's children, particular emphasis has been placed on comparisons of health status and determinants of health over time, comparisons between population groups, and comparisons with other member countries of the Organisation for Economic Co-operation and Development (OECD) where possible.

Children are a priority

Childhood, particularly early childhood, has become a key priority for governments and non-government organisations across Australia. This is in response to emerging issues of concern about Australia's children in the context of rapid social change. This change has brought so-called 'new morbidities' such as rising obesity, and behavioural, developmental, mental health and social problems. A range of biological, family and social factors has been shown to be important for children's physical and psychological health, their behaviour and their educational achievements (Patton et al. 2005; Prior et al. 2000; Zubrick et al. 2000).

There is also evidence about the importance of the early years for laying the foundations for children's later health and wellbeing, and about the types of early interventions that can capitalise on this. This has prompted the government decision to work towards a National Agenda for Early Childhood, a collaborative effort by all levels of governments to coordinate efforts to achieve the best outcomes for children (ACCAP 2004).

Central to the National Agenda is the capacity to regularly monitor how Australia's children are faring generally, and how certain population groups are faring, such as Indigenous children and children from rural Australia (ACCAP 2004). As part of this

process, several states and territories have commissioned reports monitoring the progress of children within their jurisdictions (Centre for Epidemiology and Research 2002; NSW and Queensland Commissions for Children and Young People 2004; Tennant et al. 2003). In 2005, the Australian Institute of Health and Welfare produced a report, *A picture of Australia's children*, bringing together national data on a range of factors that the National Agenda recognised as affecting children's outcomes (see AIHW 2005a).

How many children are there in Australia?

In June 2004, there were approximately 4 million children aged under 15 years in Australia (20% of the total population) (ABS 2004a). As a proportion of the total population, the child population has been declining due to changing fertility patterns and increased life expectancy. It peaked at 30% in 1961 but fell to 20% in 2004, a figure well below a previous low point of 24% in 1943.

In 2003, 64% of children lived in major cities, 22% in inner regional areas and 11% in outer regional areas. Children living in remote or very remote areas accounted for about 3% of the child population. This is very similar to the distribution for the total population.

In 2001 there were 179,000 Indigenous children, making up 4.5% of all children (ABS 2003a). The Indigenous population has a much younger age structure than that of other Australians. In 2001, 39% of this population were children, compared with 20% of other Australians. This reflects both the higher birth rate and higher levels of mortality at younger ages among the Indigenous population (ABS & AIHW 2005).

The proportion of children born overseas was 6% in 2003 (ABS 2004b). Children born in Australia to overseas-born parents are not included in this figure. Of the 227,000 overseas-born children in the Australian population in 2003, the largest groups were those born in New Zealand (19%) and England (11%). Of those born in countries where English is not the main language, the largest groups were from the Philippines and India (4% each), China (3%), and South Korea, Indonesia, Iraq, Sri Lanka, Singapore, Malaysia and Vietnam (2% each).

The families they live in

With the changing social attitudes towards marriage and fertility choices, Australian families have changed in the last 30 years (ABS 2003b). The result has been an increasing diversity of family types in which Australian children are raised.

Although the dominant type of family in Australia is still the couple family, lone-parent families are becoming increasingly common (AIHW 2003a). According to 2001 Census counts, 47% of all Australian families were couple families with children, compared with 50.2% in 1971, and lone-parent families represented 15.4% of all families, a significant increase from 5.7% in 1971 (ABS 2003c).

In 2003, most Australian children (72%) aged 0–14 years lived in intact families; that is, a family consisting of both natural parents of the child. By contrast, nearly 20% lived in lone-parent families. Of the children living in lone-parent families, 88% lived with lone mothers (Table 5.1).

Data from the 2001 Australian Bureau of Statistics' (ABS) Census of Population and Housing showed that in households with Indigenous people, the proportion of children living in one-parent families (44%) was over double the 20% in other households, and also the proportion of children living in multi-family or group households (6%) was higher than in other households (2%) (ABS 2003a).

Table 5.1: The family structure of Australian children aged 0–14 years, 2003

Family structure	Number ('000)	Per cent
Couple families		
Intact families ^(a)	2,805.9	72.1
Step-families ^(a)	118.4	3.0
Blended families ^(a)	197.5	5.1
Other couple families	16.0	0.4
Lone parent families		
Lone mother	663.1	17.0
Lone father	88.6	2.3
Total children in all families^(a)	3,889.5	100.0

(a) Includes a small number of children without a natural parent living in the household (for example, foster children or other related children).

Source: ABS 2004c.

Summarising progress

National indicators of children's health, development and wellbeing have been developed and described in *Key national indicators of children's health, development and wellbeing* (AIHW 2004a). Table 5.2 summarises the trends over time for the health subset.

Table 5.2: Summary of progress: child health indicators

Broad indicator	Changing for better	No change	Unfavourable trend	No comparable trend data
Infant mortality rate	✓			
Mortality rate among children aged 1–14 years	✓			
Infant deaths from SIDS	✓			
Death rate from all types of injury	✓			
Hospitalisations from all types of injury		✓		
Prevalence of asthma		✓		
Incidence of Type 1 diabetes			✓	
Incidence of cancer		✓		
Five-year survival rate for leukaemia		✓		
Mental health of children				✓
Dental health of children	✓			
Children with severe/profound activity restriction				✓
Exclusive breastfeeding of infants				✓
Proportion of low birthweight babies		✓		
Proportion of children overweight or obese			✓	
Women smoking during pregnancy				✓
Children exposed to household tobacco smoking	✓			
Tobacco use among children	✓			
Alcohol misuse among children				✓
Infants & children fully vaccinated at ages 1, 2 & 6		✓		

Source: Adapted from AIHW 2005a.

5.1 Health status

Chapter 2 of this report outlines the health status of the whole population. This section covers similar material in more detail for children under the age of 15 years. The main sections are overall measures of health, illness, disability, and deaths.

Parent assessment of children's health

There is no single overall health measure available for children aged 0–14 years. *Growing up in Australia: the longitudinal study of Australian children* (AIFS 2005) provides parent-reported information on health status for children aged 4–5 years. Data from Wave 1 of the survey indicated that the vast majority of this age group were in good to excellent health, according to their parents. Over half (56%) of these children were in excellent health (54% boys and 59% girls). A further 40% were reported to be in good to very good overall health and less than 3% were said to be in fair or poor health.

Illness

While information is limited on the overall health of children in Australia, more is available on the illnesses they have. This section presents information on illness in children from parent reports, and from diagnosis data for hospitalisations and visits to general practitioners (GPs). In addition, there are also boxes included in this chapter with more detail on four specific conditions: mental health problems (Box 5.1), diabetes (Box 5.2), asthma (Box 5.3) and injury (Box 5.4).

Box 5.1: Mental health problems are relatively common among children

Mental health problems, mental disorders and emotional and behavioural problems are terms commonly used to describe changes in thinking, mood or behaviour that are associated with distress or impaired functioning. Although the data sources on mental health problems are limited, the problems appear to be common among Australian children.

Limited data on children's mental health problems were collected in the 2004–05 ABS National Health Survey. From parents' reports, nearly 7% of Australia's children aged 0–14 years had long-term mental or behavioural problems (ABS 2006).

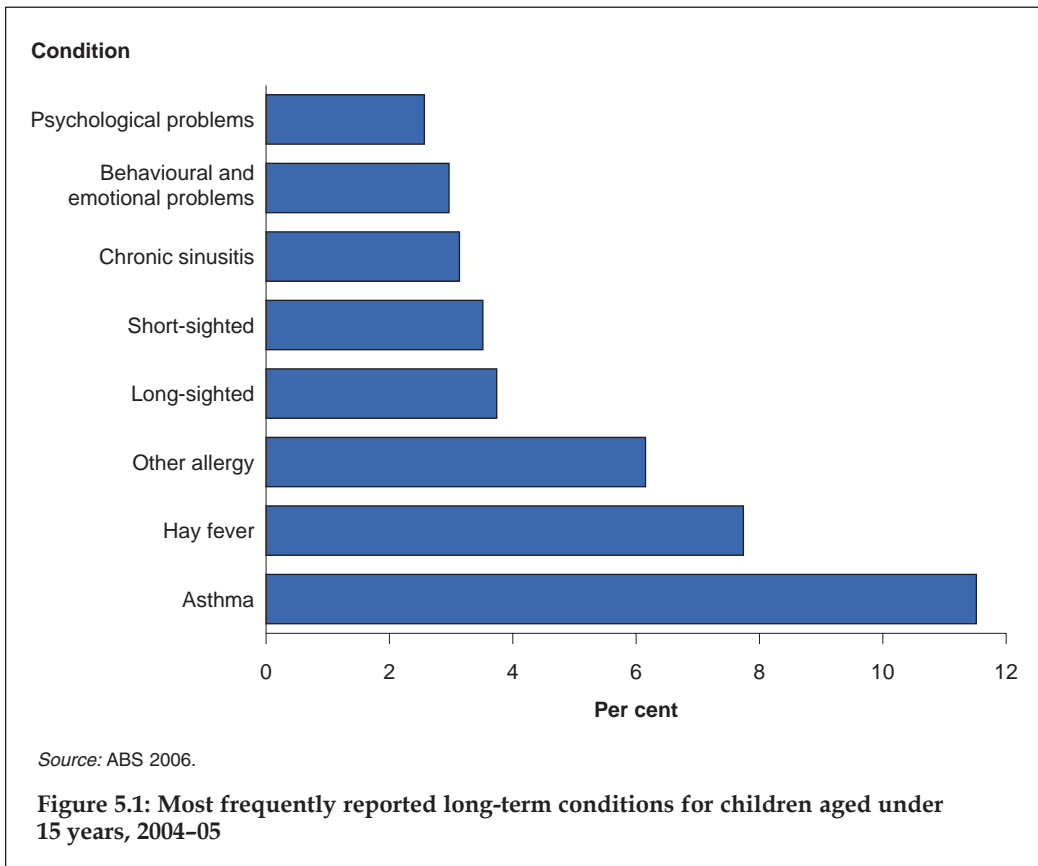
The only detailed study to assess the mental health of children at a population level is the National Survey of Mental Health and Wellbeing, which included a child component conducted in 1998. Although these data are now somewhat out of date, they are the best available national data to describe the level of mental illness among Australia's children.

The survey indicated that about 14% of Australian children aged 4–14 years had mental health problems: 15% of boys and 14% of girls (Sawyer et al. 2000). Of the specific disorders examined in the survey, attention deficit hyperactivity disorder (ADHD) was the most prevalent among children aged 6–14 years, reported for 13% of this age group. However, Sawyer and others (2000:20) suggest that the prevalence may have been overestimated, as some children reported to have ADHD 'may have been more appropriately diagnosed with another disorder not included in the survey'.

The Western Australian Aboriginal Child Health Survey indicates that Aboriginal children have higher rates of clinically significant emotional or behavioural difficulties: 24% compared to 15% of all children in Western Australia aged 4–17 years (Zubrick et al. 2005).

How many children have a long-term illness?

By most measures, the majority of Australian children do not suffer from serious illness. The 2004–05 National Health Survey indicates that around 41% of Australian children suffered from a long-term condition, though this included conditions such as vision problems that would not be considered serious. By comparison, around 86% of people aged 15 years or over reported that they had a long-term condition. The illnesses in children most frequently reported by their parents were allergy-related: asthma, hay fever, and other allergies (Figure 5.1). Chronic sinusitis was also common, as were vision disorders. The mental health conditions of behavioural and emotional problems, and psychological problems were the next most common.



What are children admitted to hospital for?

Although affected by access and admission practices, hospitalisation rates can be used to help indicate the level of serious illness in the Australian community. In the year 2003–04 there were almost 545,000 hospitalisations among children aged under 15 years, a rate of 14 per 100 children. This rate is low compared to other age groups, but the subset aged under one year have a hospitalisation rate higher than all 5-year age groups up to those aged 60–64 years (AIHW 2005b).

The main reasons for admission are shown for the three 5-year age groups in Table 5.3 (at the 'three-digit' diagnosis level). In the youngest of these age groups, perinatal conditions (short gestation and low birthweight) dominated. Respiratory conditions, including acute bronchiolitis and asthma, were also frequent reasons for hospitalisation in children under 10 years of age. Ear, nose and throat conditions were common in all age groups: middle ear infections in the youngest and middle groups, and chronic disease of tonsils and adenoids in the middle and oldest groups. Injuries were also important, with fractures of the forearm being in the top five for both the middle and oldest age groups.

Table 5.3: Top five principal diagnoses for children discharged from hospital, 2003–04

ICD-10-AM 3-digit level	Per cent of hospitalisations for age group
0–4 age group	
Disorders related to short gestation and low birth weight, nec	5.6
Acute bronchiolitis	4.3
Nonsuppurative otitis media	3.4
Asthma	3.3
Diarrhoea and gastroenteritis of presumed infectious origin	3.0
5–9 age group	
Chronic diseases of tonsils and adenoids	7.2
Dental caries	6.7
Fracture of forearm	5.5
Nonsuppurative otitis media	5.1
Asthma	3.4
10–14 age group	
Fracture of forearm	6.2
Chronic diseases of tonsils and adenoids	3.5
Embedded and impacted teeth	3.3
Abdominal and pelvic pain	3.2
Acute appendicitis	3.0

Source: AIHW National Hospital Morbidity Database.

For those aged 0–4 years, the five most frequent principal diagnoses accounted for almost 20% of their 317,000 hospitalisations. For those aged 5–9 years, the top five diagnoses accounted for 28% of the 121,000 hospitalisations, while for those aged 10–14 years they represented 19% of the 107,000 hospital episodes.

What problems do children see GPs about?

Children are frequent visitors to GPs, accounting for 12% of all visits in 2004–05 (Britt et al. 2005). The majority of these are for short-term conditions that children recover from, or for preventive reasons such as vaccinations.

During the period April 2004 to March 2005, 30% of the broad groupings of problems managed by GPs in children were respiratory conditions. Another 20% were in the

'general and unspecified' group, which includes check-ups and vaccinations. A further 15% were for skin disorders, 10% for ear problems, and 8% for digestive problems.

Of the specific problems managed by GPs, the most commonly managed problem was acute upper respiratory tract infections, which accounted for 13% of all problems managed in children (Table 5.4). The second most frequent was preventive; that is, vaccinations and preventive medications (11%). The next four on the list are all respiratory conditions, many of which would be acute conditions. Asthma, a chronic condition with acute episodes, represented 4% of all problems managed in children.

Table 5.4: Most frequent problems managed by general practitioners in children, April 2004 - March 2005

Problem label	Per cent of total problems managed
Upper respiratory tract infection	13.3
Immunisation/vaccination—all	11.0
Acute otitis media/myringitis	6.2
Asthma	4.1
Tonsillitis	3.1
Acute bronchitis/bronchiolitis	3.1
Viral disease, other (not otherwise specified)	2.9
Contact dermatitis	2.7
General check-up ^(a)	2.0
Infectious conjunctivitis	2.0

(a) Indicates multiple International Classification of Primary Care, 2nd edition rubrics.

Source: BEACH (Bettering the Evaluation and Care of Health) survey.

Disability

Disability is any or all of an impairment of body structures and function, activity limitations or participation restrictions, in the presence of a health condition (WHO 2001). The degree to which a person with a disability is able to participate in society is influenced by a range of environmental factors. Further information on this concept is provided in Chapter 2.

The ABS 2003 Survey of Disability, Ageing and Carers defined 'disability' as the presence of one or more of 17 limitations, restrictions or impairments which had lasted, or was likely to last, for at least six months and which restricts everyday activities (for example, loss of sight, incomplete use of arms or fingers, or difficulty learning or understanding) (ABS 2004d). An indication of the severity of a disability can be obtained using the four different levels of core activity limitations (limitations on the ability to perform self-care, mobility and communication tasks). The two most severe of the four levels are profound and severe core activity limitations.

How many children have a disability and what caused it?

According to the 2003 survey, about 8% of children had a disability, which equates to 317,900 children. Around half of them had a severe or profound core activity limitation. Boys had higher disability rates than girls, and the rates increased with age (AIHW 2005c).

Among all children with a disability, the largest group of ‘main disabling conditions’ was ‘physical/diverse’ conditions, with an estimated 122,000 children—or 3.2% of all children—falling into this group (Table 5.5). The next largest group was intellectual conditions (2.2% of all children), followed by sensory/speech conditions (1.6%) and psychiatric conditions (1.2%). A very small percentage of children had an acquired brain injury as their main disabling condition.

Table 5.5: Main disabling conditions for children with a disability, 2003

Main disabling condition	All children with a disability		Children with a profound or severe core activity limitation	
	Number ('000)	Per cent of all children	Number ('000)	Per cent of all children
Intellectual	85.0	2.2	50.2	1.3
Psychiatric	47.5	1.2	22.8	0.6
Sensory/speech	60.2	1.6	37.8	1.0
Acquired brain injury	*3.0	*0.1	**0.5	—
Physical/diverse	122.2	3.2	54.0	1.4

Note: Main disabling condition' is defined as the condition that caused the most problems compared with any other disabling conditions.

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

Less than half of the children whose main disabling condition was physical were at the more severe end of the disability spectrum, with a profound or severe core activity limitation. Nevertheless, this physical/diverse group was still the largest group (at 1.4% of children) for the subset of those with a more severe disability, though closely followed by the intellectual conditions (1.3% of children).

Mortality

How many children die in Australia?

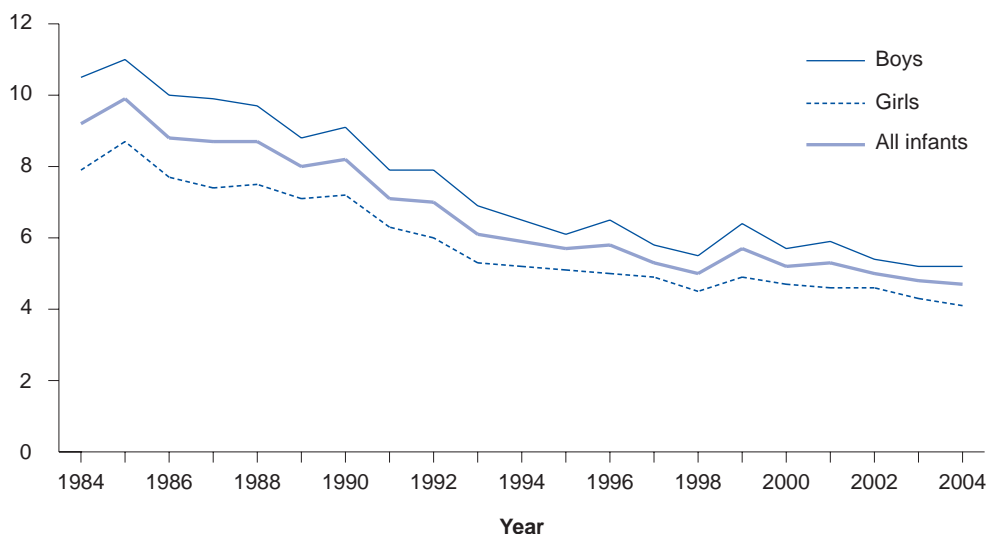
Deaths in children are now relatively uncommon events. In 2004, there were 1,753 deaths in children aged under 15 years, or less than one death in every 2,000 children. More importantly, the risk of death decreases substantially as children grow: 68% of the deaths were in babies under one year of age (and most of these in the early months of life), another 15% in the 1–4 age group, and the remaining deaths were fairly evenly distributed in the next two 5-year age groups.

Are death rates falling?

Death rates for infants and children have declined steadily over many years. Infant mortality rates fell by 94% between 1912 and 2003 (AIHW 2006a). Declines in child mortality rates have been equally dramatic, with falls over the same period of 95% among those aged 0–4 years and 94% among those aged 5–14 years.

These death rates have continued to decline over the last two decades, having approximately halved during the period for both infants and children. In 1984, fewer than 1 out of every 100 babies born alive died in their first year of life (Figure 5.2). By 2004, that figure had fallen to under 1 in 200 live births. The death rate for baby boys has remained higher than for baby girls throughout this period.

Deaths per 1,000 live births



Source: AIHW Mortality Database.

Figure 5.2: Infant mortality rates, 1984–2004

Box 5.2: Diabetes is increasing among the young

Diabetes is a condition in which the body cannot properly use its main energy source, the sugar glucose, due to a deficiency in the hormone insulin. Diabetes is marked by an abnormal build-up of glucose in the blood and it can have serious short- and long-term effects.

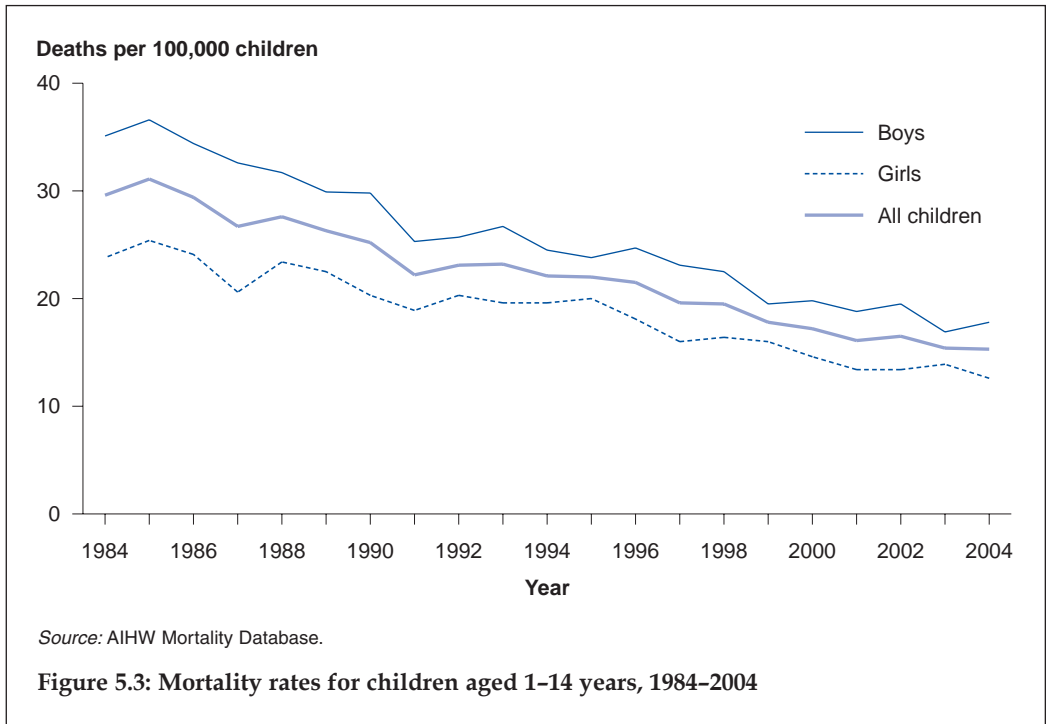
There are two main types of diabetes, Type 1 and Type 2. Type 1, marked by a total or near-total lack of insulin, mostly occurs before the age of 40 and accounts for the vast majority of diabetes cases in children. Type 2 cases have insulin that is reduced in its effect, amount or both. While Type 2 diabetes mostly begins after the age of 40, the condition is also now affecting children (McMahon et al. 2004).

Although diabetes only affects a small proportion of children, the impact of the disease on their health is often severe, both during childhood and later in life. The latest national data indicate that there were around 980 new cases of Type 1 diabetes in children under 15 years of age registered on the National Diabetes Register (NDR) in 2004, an incidence rate of 24.6 per 100,000 children (AIHW 2006b). Information on the prevalence of diabetes in children is limited. However, estimates based on parent reports in the National Health Survey indicate that around 0.1% of children in 2001 had diabetes (ABS 2006).

Evidence indicates that the incidence of Type 1 diabetes is increasing among children. The NDR is relatively new, and cannot yet be used to assess any trend in incidence. However, recent state-based studies show an increase (Haynes et al. 2004; Taplin et al. 2005).

While infant mortality rates have fallen substantially in Australia, our rates are only at about the middle of OECD countries (OECD 2005). In 2003, our rate of 4.8 per 1,000 live births was double the lowest rate of 2.4 in Iceland. Other countries with low rates included Finland, Sweden and Japan, where the rate is around 3 per 1,000 live births.

Child mortality rates have also continued to fall in recent decades. Just under 30 out of every 100,000 children aged 1–14 years died in 1984 (Figure 5.3). By 2004 that figure had fallen close to 15 per 100,000 children. Again, death rates for boys were higher than for girls.



What do children die from?

In 2004, the three leading single causes of death in children were related to complications of the baby’s birth or prematurity and low birthweight: 8% of deaths under the age of 15 years were due to maternal complications of the pregnancy, 6% due to disorders related to short gestation or low birthweight, and 5% due to complications of the placenta, cord or membranes (Table 5.6). The next two most frequent causes were sudden infant death syndrome (SIDS) (4%) and ‘other ill-defined and unspecified causes of mortality’ (4%). In total, the top eight leading causes of death in this age group accounted for 39% of their deaths.

There have been significant changes in the causes of death among children during the last century (AIHW 2006a). At the beginning of the 20th century, the two

largest cause-of-death groups for those aged 0–4 years were diarrhoea and perinatal conditions. By 2000, for both sexes, perinatal conditions were the leading cause of death, followed by congenital conditions. It should be noted that death rates from perinatal and congenital conditions both fell markedly during the century—it is just that rates from other causes fell even more, especially those from infections.

Table 5.6: Leading causes of death among those aged 0–14 years, 2004

Cause of death	Per cent of deaths
Fetus and newborn affected by maternal complications of pregnancy	8.4
Disorders related to short gestation and low birthweight, nec	5.8
Fetus and newborn affected by complications of placenta, cord, membranes	5.0
Sudden infant death syndrome (SIDS)	4.1
Other ill-defined and unspecified causes of mortality	3.9
Other congenital malformations of heart	2.7
Unattended death	2.5
Malignant neoplasm of brain	2.4

Note: Cause-of-death groups analysed at the three-digit ICD-10 level.

Source: AIHW Mortality Database.

Changes also occurred in the causes of death for those aged 5–14 years. Early in the 20th century, infectious diseases (mainly tuberculosis) accounted for by far the greatest proportion of deaths, followed by injury and poisoning. Over the century, there was a large fall in death rates from infectious diseases. This left injury and poisoning the leading cause of death in this age group, even though there had been a marked fall in death rates from this cause as well.

Box 5.3: Asthma is a leading reason for hospitalisation

Asthma affects a large number of children in Australia. Estimates of the prevalence of current asthma in children range from 14% to 16%, based on self-report (ACAM 2005). A higher proportion report recent wheeze and a lower proportion have objective evidence of the airway abnormality that is typical of asthma. The prevalence of asthma in children in Australia is high by international standards.

Asthma is one of the leading reasons for children to visit GPs and to be admitted to hospital. It is the fourth most frequently managed problem by GPs in children. It was also the fourth most common reason for hospitalisation for those aged 0–4 years in 2003–04, and the fifth most common for those aged 5–9 years (see Table 5.3). For children under the age of 15 years, there were over 16,000 hospitalisations for asthma in 2003–04. These admissions represent severe episodes of the disease.

The proportion of GP encounters with children at which asthma is managed as a problem, and the rate of hospital admissions for asthma among children, have both declined since the late 1990s.

Box 5.4: Injury remains a leading cause of death and disability

Injury is the leading cause of death and a major cause of disability in children aged 5–14 years. The injury group is also the most common reason for hospitalisation in that age group. In addition, many children are treated in hospital emergency departments for an injury or poisoning.

There were 276 injury and poisoning deaths in 2003 in children aged under 15 years, which is one in six of all deaths in children. While death rates from injury remain an important cause of death in children, it is important to note that the death rate has declined substantially over time and continues to fall – by 64% between 1982 and 2003.

Injury and poisoning is one of the main reasons children were hospitalised in 2003–04, accounting for over 67,000 or 12.4% of hospital episodes for this age group. The most common external causes of these hospitalisations are falls, accidents to cyclists and accidental poisonings.

Childhood mortality, morbidity and disability resulting from injuries and poisonings are highly preventable. Strategies for preventing childhood injury include child-resistant closures to prevent accidental poisoning, compulsory use of seatbelts in private vehicles, and pool fencing to prevent drowning.

5.2 Determinants of health

There are many factors that influence the health of children, both during their childhood and also later in life. This section focuses on the main determinants of children's health, and hence parallels Chapter 3 of this report, which examines determinants for the whole population.

Nutrition

The types and quantity of food children eat have an important influence on their health. While the choices of food available have increased over time, it is not clear whether this has improved children's diet overall. One area of particular concern is the increase in energy intake which has also accompanied a decrease in many areas of physical activity. The combination of these two factors has led to a rise in the proportion of children who are overweight or obese.

Breastfeeding

Breastfeeding is one of the most important health behaviours to promote the survival, growth, development and health of infants and young children. Breastfeeding helps protect against many conditions, such as diarrhoea, respiratory infection, middle ear infections, SIDS, diabetes, and allergic diseases such as eczema and asthma (American Academy of Pediatrics 1997; NHMRC 2003a).

Australia's national dietary guidelines strongly recommend breastfeeding for the sake of children's health. The recommendation is that breastfeeding should be the only food necessary for infants up to about six months (NHMRC 2003a).

Data from the ABS 2001 National Health Survey show that, in 2001, 87% of children aged 0–3 years had been breastfed to some extent, with or without milk or milk substitutes. The survey's information on exclusive breastfeeding shows a different picture: 54% of babies were exclusively breastfed for at least the first three months. However, only 32% of babies were fed according to the dietary guidelines of being exclusively breastfed to the age of six months.

Nutrition during childhood

There is evidence in Australia that children's intake of energy has increased in recent times (Cook et al. 2001; Magarey et al. 2001). This increase may have occurred for a number of reasons. First, there are factors changing the diet of the whole population that also affect children. For example, there are many foods available now that are highly refined and calorie dense. These foods are often more convenient and pleasurable to eat. However, they are often less filling than more nutritious foods, prompting children and adults to eat more in order to feel full. In parallel, fresh fruit and vegetables may be difficult to obtain or more expensive to buy in some areas (especially in regional and remote parts of Australia), and are less aggressively marketed. Second, there are a number of factors that affect children in particular. Highly refined foods are often marketed specifically towards children (Zuppa et al. 2003) and children may be more vulnerable to such marketing.

Physical activity

A whole-of-population shift to more sedentary lifestyles has occurred in many developed countries, including Australia (AIHW 2004b). In particular, children are far less likely than children of previous generations to use walking or cycling as a means of transport or to play outdoors.

Changes in children's entertainment choices have also contributed to an increase in sedentary behaviour. Playing console and computer games and watching television and DVDs/videos are very popular leisure pursuits among children (ABS 2001a). Coupled with increased access to the Internet and mobile phones, children need not even leave home to maintain contact with their friends outside school hours.

The Australian Government has recently developed Physical Activity Recommendations for Children and Young People. These are that they should:

- participate in at least 60 minutes (and up to several hours) of moderate- to vigorous-intensity physical activity every day
- not spend more than two hours a day using electronic media for entertainment (for example computer games, Internet, TV), particularly during daylight hours.

National data on levels of physical activity in children are not available. However, the NSW Schools Physical Activity and Nutrition Survey (SPANS) 2004 found that, based on self-reported data relating to the summer school terms, 87% of boys and 77% of girls in Year 8 (aged approximately 13–14 years) met the recommendation for at least one hour of moderate- to vigorous-intensity exercise each day (Booth et al. 2006). The results for the winter terms were about 10 percentage points lower. Encouragingly, these results suggest a large increase in physical activity levels compared to earlier data analysed against the same recommendation. The summer results in 1997 indicate that only 57% of boys and 51% of girls in Year 8 met the recommendation.

More concerning are the results from SPANS on the proportion of children who are spending more than the recommended two hours per day using electronic media for entertainment: 61% of boys and 45% of girls in Year 6 (aged approximately 11–12 years) were engaging in more than two hours per day of small-screen recreation. The proportions increased even further in the older age groups: in Year 10, 78% of boys and 67% of girls fell into this group. No information over time is available from SPANS for this measure.

Body weight

For children, there are two key – and contrasting – determinants related to body weight. The first is low birthweight, as the increased risk of health problems associated with low birthweight is well documented. The second is excess body weight, where the increased risk is again well established.

How many babies are born with a low birthweight?

As mentioned in Chapter 4 of this report, a key indicator of infant health is the proportion of babies with a birthweight of less than 2,500 grams. Low-birthweight babies have a greater risk of poor health and are more likely to develop significant disabilities.

In 2003, 6.3% of all Australian babies born alive were of low birthweight. Compared to other OECD countries, Australia's rate is about in the middle. The lowest rates for OECD countries in 2002 were in the range of 4–4.5%, compared to Australia's rate in that year of 6.4%.

Children are becoming heavier

The increasing prevalence of overweight and obesity in Australian children is a serious public health problem (Catford & Caterson 2003; Waters & Baur 2003). Rates of obesity are rising alarmingly in many parts of the world, and this trend is not restricted to adults. In Australia, the prevalence of obesity in children has jumped markedly in all age groups and for both boys and girls over the past few decades (Booth et al. 2003; Booth et al. 2006; Magarey et al. 2001). Obesity in children is a major concern, not only because of health problems in the short term, but also because there is a high risk it may continue into adulthood and affect long-term health.

In the short term, children who are overweight or obese frequently experience psychosocial problems such as poor body image, disordered eating and low self-esteem. Such children may also develop a range of health problems, including asthma, sleep apnoea and early development of risk factors for heart disease such as raised blood pressure (Royal College of Physicians of London 2004). Even Type 2 diabetes – a chronic disease traditionally diagnosed only among adults – is now increasingly being detected among Australian children. Research also shows that young people who were overweight or obese as children are likely to be overweight as adults (Whitaker et al. 1997). This in turn can lead to a number of serious chronic conditions and even premature death, as discussed in Chapter 3 of this report.

How many children are overweight or obese?

Overweight and obesity are measured by the body mass index (BMI), which is the ratio of weight in kilograms to the square of height in metres (kg/m²). BMI is used to categorise people into one of four groups: underweight, normal weight, overweight or

obese. In contrast to adults, where individuals are allocated to these four groups based on fixed BMI points, children are considered to be overweight or obese if their BMI exceeds the cut-off point for their particular age (NHDC 2003).

BMI can be derived from self-reported or measured data, with the latter being preferred whenever possible (AIHW 2003b). There are limited national measured data on overweight and obesity in Australian children. The most recent come from measurements taken in the 1995 ABS National Nutrition Survey. From that survey, an estimated 4.7% of boys and 5.5% of girls aged 7–15 years were obese, and a further 15.3% of boys and 16.0% of girls were overweight but not obese (Magarey et al. 2001).

Booth and others (2003) analysed BMI from measured data collected in various state surveys between 1967 and 1997. They showed that from the mid-1980s to the mid-1990s the prevalence of obesity tripled and that of overweight (including obesity) doubled among those aged 7–15 years, compared with a much smaller rate of increase over the preceding 16 years. More recently, results from the 2004 SPANS survey in schools in New South Wales show a continued increase in overweight and obesity among children (Booth et al. 2006). Between 1997 and 2004, the percentage of boys in school years 2, 4, 6, 8 and 10 (aged up to approximately 16 years) who were obese increased from 5.0 to 7.7%. For girls, the increase was from 4.4 to 6.3%. Results for the overweight but not obese over the same period show an increase from 15.2 to 18.4% for boys, and from 16.1 to 17.4% for girls.

Tobacco smoking

Tobacco use is the risk factor associated with the greatest disease burden in Australia, responsible for about 10% of the total burden (AIHW: Mathers et al. 1999). The detrimental health effects of tobacco smoking are well established and are outlined in Chapter 3. Smoking can reduce health and fitness during childhood, but children who become smokers are also faced with a significant health disadvantage in adulthood unless they are able to give up smoking. Unfortunately, many will go on to become lifelong smokers. Not only are smokers at much greater risk of lung cancer than non-smokers, but the risk also increases markedly the younger they started smoking (Chen & Boreham 2002).

How many children smoke?

The latest national data show that only a small proportion of children aged 12–14 years are current smokers—less than 2% (Table 5.7). The proportion of this age group who have never smoked is over 97%. There is very little difference in smoking patterns between girls and boys of this age.

There is evidence of declines in smoking rates among those aged 12–14 years over the years 1984 to 2002 (AIHW 2005a). Results from the Australian Secondary Schools Alcohol and Drug survey show an encouraging decline from around 17% of this age group having smoked at least once in the week before being surveyed in 1984, to around 9% in 2002. Note that these survey results are not comparable with those presented in Table 5.7, but they do provide an indication of the trend in smoking among children.

How many children are exposed to tobacco smoking in the home?

The health effects on children of inhaling second-hand smoke, or passive smoking, are well documented. Passive smoking is associated with respiratory infections, middle ear infections and more frequent colds, onset and severity of asthma, decreased lung

function, eye and nose irritation, and SIDS (ACAM 2005; DiFranza et al. 2004; NHMRC 1997). Children in households with a smoker are more likely to take up smoking themselves (Darling & Reeder 2003).

Table 5.7: Tobacco smoking among children aged 12–14 years, 2004 (per cent)

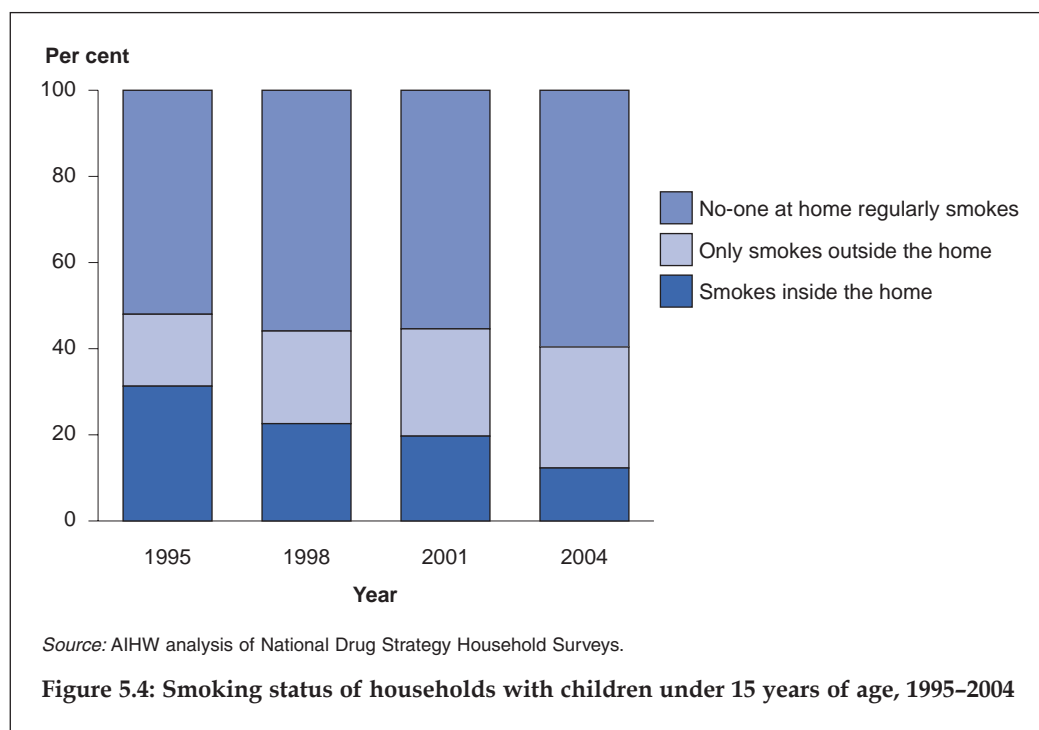
Smoking status	Boys	Girls	Children
Current smokers			
Daily	1.0	1.4	1.2
Less than daily	0.5	0.4	0.5
<i>Total current</i>	<i>1.5</i>	<i>1.8</i>	<i>1.6</i>
Ex-smokers ^(a)	1.2	0.6	0.9
Never smoked ^(b)	97.2	97.6	97.4

(a) Smoked at least 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life, and no longer smoke.

(b) Never smoked 100 cigarettes (manufactured and/or roll-your-own) or the equivalent amount of tobacco in their life.

Source: AIHW analysis of 2004 National Drug Strategy Household Survey.

Results from the National Drug Household Surveys over the decade 1995–2004 show that the proportion of households with dependent children which also have a member who smokes inside declined from 31% in 1995 to 12% in 2004 (Figure 5.4). This indicates that children are now less exposed to tobacco smoke in the home. However, the proportion of such households that include a smoker, whether they smoke inside or out, has remained fairly constant at around 40–45%.



Alcohol use

Risky drinking in the short term, which may also be referred to as binge drinking, is when a person drinks heavily over a short period of time. This behaviour can have several undesirable effects on the health and wellbeing of children, including alcohol poisoning, accidents, violence and unprotected sex (Grant & Dawson 1997; NDARC 2004). Long-term excessive use of alcohol can lead to a number of physical, emotional and social problems, including alcohol addiction, liver, heart and brain damage, depression, and family and relationship problems (NDARC 2004).

The most recent national data on risky drinking by those aged 12–14 years indicate that around one-quarter of this age group drink alcohol to some extent (Table 5.8). The vast majority of these children fall in the low-risk groups for both short- and long-term harm. However, 1.7% of those aged 12–14 years drink at levels that put them at risk or high risk for short-term problems; and 0.4% in the long-term risky or high-risk group (0.3% were in both of these higher risk groups).

Table 5.8: Alcohol-related long- and short-term risk, children aged 12–14 years, 2004 (per cent)

Long-term risk	Abstainer	Short-term risk		Total
		Low risk	Risky or high risk	
Abstainer	75.9	75.9
Low risk	..	22.5	1.3	23.8
Risky or high risk	..	—	0.3	0.4
Total	75.9	22.5	1.7	100.0

Note: Numbers may not add to totals due to rounding.

Source: AIHW analysis of 2004 National Drug Strategy Household Survey.

Vaccination status

Childhood vaccination has been routinely used for over 50 years in Australia and has had a significant impact on the morbidity and mortality associated with many diseases (Gidding et al. 2001). Diseases targeted by the Australian childhood vaccination program in 2005 were diphtheria, tetanus, whooping cough (pertussis), poliomyelitis, measles, mumps, rubella, *Haemophilus influenzae* type b (Hib) and hepatitis B. A schedule of vaccination is provided in the Australian Immunisation Handbook (NHMRC 2003b) and sets out the time frames (from birth) for administering the vaccine for each disease.

How many children have been vaccinated?

For Australia as a whole, vaccination coverage (see Box 5.5) at one year of age calculated at 31 December 2005 was 91.0% (Table 5.9). Western Australia had the lowest proportion of children fully vaccinated at one year of age at 88.8% and the Australian Capital Territory had the highest at 93.7%. Vaccination coverage for Australia at one year of age was highest for the hepatitis B vaccine (94.8%) and the Hib vaccine (94.4%) and lowest for the poliomyelitis vaccine (92.3%).

The proportion of children fully vaccinated at two years of age was marginally greater at 92.1%. For the coverage of individual vaccines at two years of age, Hib vaccine was the lowest at 93.6%, and hepatitis B vaccine was the highest at 95.9%. Diphtheria, tetanus and pertussis coverage for this age group increased substantially in all jurisdictions from earlier reports due to the removal of the 4th dose of diphtheria, tetanus, pertussis (due

at 18 months) from the immunisation schedule from the December 2003 quarter onwards. Vaccination coverage at six years of age was considerably lower at 84.0%, and was almost identical for all three individual vaccines due at this time.

Recorded coverage at all three milestone ages is less than 100% due to both under-reporting of vaccinations to the Australian Childhood Immunisation Register (ACIR; see Box 5.5) by providers and incomplete vaccination uptake. The main reason for the latter is parents disagreeing with or having concerns about vaccination (Hull et al. 2002).

Box 5.5: Monitoring vaccination rates

Vaccination coverage in Australia is monitored through the Australian Childhood Immunisation Register (ACIR), operated by Medicare Australia with the cooperation of the state and territory health departments. The basis of the ACIR is vaccination data since 1 January 1996 for Australian children under seven years of age. The register is updated from Medicare enrolments to obtain the total number of children in Australia under seven years of age. The vaccination status of each child is updated when a vaccination provider administers the age-appropriate vaccination and notifies the ACIR of this vaccination encounter. Vaccination coverage estimates are reported as the percentage of a three-month birth cohort of children who are up to date for the relevant vaccinations by the time they are one year, two years, and six years of age (O'Brien et al. 1998).

Table 5.9: Proportion of children vaccinated at one year of age^(a), two years^(b) and six years^(c), assessment date 31 December 2005

	Age (years)		
	One	Two	Six
Number of children	65,709	66,700	68,743
Diphtheria, tetanus and pertussis (%)	92.4	95.2	85.1
Poliomyelitis (%)	92.3	95.2	85.2
<i>Haemophilus influenzae</i> type b (%)	94.4	93.6	..
Measles, mumps and rubella (%)	..	93.8	85.2
Hepatitis B (%)	94.8	95.9	..
Fully immunised (%)^(d)	91.0	92.1	84.0

(a) Aged 12–15 months at 30 September 2005.

(b) Aged 24–27 months at 30 September 2005.

(c) Aged 72–75 months at 30 September 2005.

(d) Fully immunised = no. children vaccinated/no. children in register × 100.

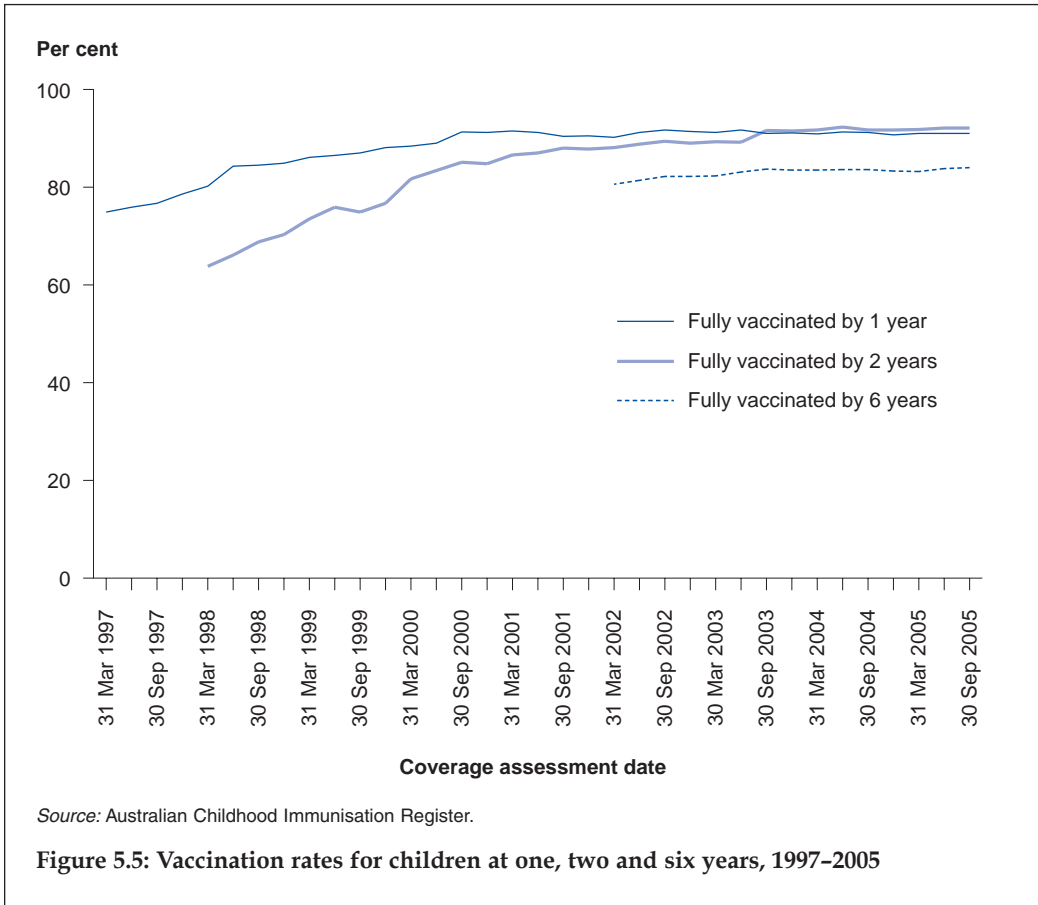
Source: Australian Childhood Immunisation Register.

Figure 5.5 shows the trends in vaccination coverage from the first ACIR-derived published estimates in 1997 to September 2005. There is a clear trend of increasing vaccination coverage over time for children aged one, two and six years; however, the rate of increase has slowed dramatically over the past three years, especially for children in the one-year and two-year age groups.

Family and social environment

Research has shown that a child's family and social environment can significantly influence their health and wellbeing. For example, living in a family with low income

can affect a child's nutrition, their access to medical care, the safety of their environment, the level of stress in the home, and the quality and stability of their care (Shore 1997). Another component of socioeconomic position, the education level of parents, has also been shown to be an important determinant of the health of children (Spurrier et al. 2003). Compared with better-off children, those in lower income groups tend to have worse mental and physical health, social functioning, educational attainment and future employment prospects.



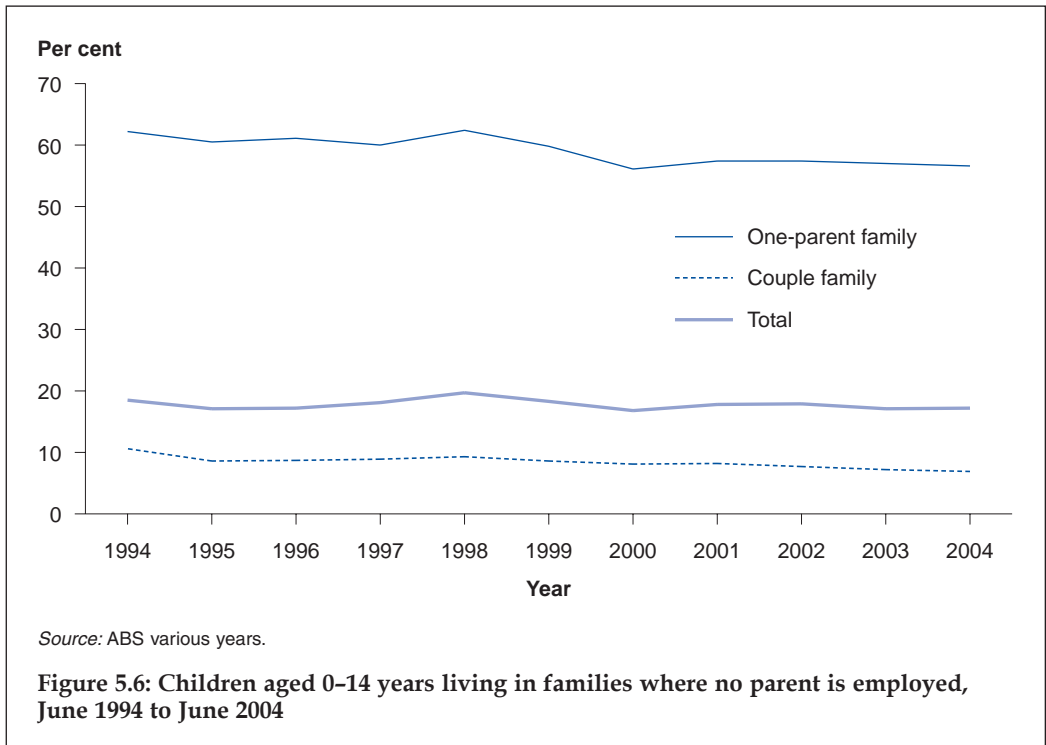
Current available data in Australia are not adequate to fully explain the influences these environmental factors will have on health and other outcomes for children. With the limited data available, it is possible to examine the family and community contexts that children are currently living in, but it is much more difficult to show how these contexts have influenced their health. One area of a child's family and social environment, parental unemployment, is discussed below.

Parental unemployment

Information on children living in families with no employed parent can be used as one indicator of disadvantage. Studies show that these children are at a disadvantage

compared to other children from two perspectives: not only is unemployment likely to produce immediate financial hardship, but the absence of a working role model may also reduce a child's long-term prospects for their own employment.

The proportion of all children under 15 years living in families without an employed parent fell from 19% in June 1994 to 17% in June 2004, although with some fluctuation (Figure 5.6). Over the period, the proportion was considerably higher for children in one-parent families than in couple families. In 2004, among children who lived in couple families, 7% lived in families where neither parent was employed. Of children who lived in one-parent families, 57% lived in families where the parent was not employed.



The actual number of children living in families with no parent employed has changed very little during this period (704,000 in 1994 and 690,000 in 2004). What has changed is the types of families these children live in. In 1994, 52% of these children lived in one-parent families. By 2003, this figure had increased to 68%.

5.3 Health of population groups

Previous sections of this chapter have covered the health of Australia's children in general terms. However, as with adults, we know that illness, disability, mortality and determinants are not evenly distributed among children—some groups fare worse than others.

This section examines this variation by presenting available information on the health of some specific groups of children. This parallels the information presented in Chapter 4 on the health of population groups for all ages. Since information on the

health of child populations is not comprehensive, the discussion here is confined to Aboriginal and Torres Strait Islander peoples, socioeconomic groups and children living in rural areas.

Aboriginal and Torres Strait Islander children

As for other age groups, Aboriginal and Torres Strait Islander children suffer worse health than other Australians of the same age. While information is not available for all areas presented earlier in this chapter, the pattern is clear from statistics on low birthweight, mortality, hospitalisation and disability.

Low birthweight

The proportion of live-born babies with low birthweight (less than 2,500 grams) born to Indigenous mothers in 2003 was 12.9%. This is more than double the percentage for babies of non-Indigenous mothers (6.0%) (AIHW NPSU 2005).

Infant mortality

During the period 1999–2003, there were 469 deaths (15 deaths per 1,000 live births) among Indigenous infants in Queensland, Western Australia, South Australia and the Northern Territory (the only areas for which coverage of Indigenous people in deaths data is considered complete enough for statistical reporting). The rate of deaths for Indigenous infants was about 3 times that of non-Indigenous infants (4.5 per 1,000 live births), and was higher than the rate in all except two of the 29 other OECD countries – Mexico and Turkey. Large differences between the death rates for Indigenous and non-Indigenous babies were found for perinatal conditions, ‘symptoms, signs and ill-defined conditions’, respiratory diseases and injuries (ABS & AIHW 2005).

Child mortality

According to data from Queensland, Western Australia, South Australia and the Northern Territory, Indigenous children aged 1–14 years died in 1999–2003 at a rate of 39.0 per 100,000 children, compared with 16.1 deaths per 100,000 among other Australian children – almost two and a half times as high.

Again, Indigenous children had higher death rates than non-Indigenous children for nearly all cause-of-death groups (Table 5.10). The exception was neoplasms (mostly cancers), where both groups had the same rate. The largest rate ratios (ratio of Indigenous rate to non-Indigenous rate) were for infectious and parasitic diseases (rate ratio of 5.0) and ‘symptoms, signs and ill-defined conditions’ (4.3). However, the largest rate difference (Indigenous rate minus non-Indigenous rate) was for injuries and poisonings, with 11.2 extra deaths per 100,000 in Indigenous children compared with non-Indigenous children.

Hospitalisations

Hospitalisation rates for Indigenous children in 2003–04 were higher than those for other Australian children. Based on data from Queensland, South Australia, Western Australia and the Northern Territory, the rate ratio for infants was 1.7 (874 compared to 515 hospitalisations per 1,000 infants). The discrepancy for children aged 1–14 years was less – a rate ratio of 1.4. However, although the identification of Indigenous patients in hospital statistics has been improving, these statistics are still likely to be affected by under-identification of Indigenous people.

Table 5.10: Causes of death for children aged 1–14 years, by Indigenous status, 1999–2003

Cause of death group	Deaths per 100,000 children		Rate ratio	Rate difference
	Indigenous	Non-Indigenous		
Injuries and poisonings	18.5	7.3	2.5	11.2
Diseases of the nervous system	4.1	1.6	2.5	2.5
Neoplasms	2.8	2.8	1.0	0
Infectious and parasitic diseases	2.6	0.5	5.0	2.1
Congenital malformations	2.6	1.1	2.4	1.5
Diseases of the circulatory system	2.4	0.6	3.8	1.8
Symptoms, signs and ill-defined conditions	2.0	0.5	4.3	1.5
All other causes	2.0	0.6	3.5	1.4
Diseases of the respiratory system	1.8	1.1	1.7	0.7
Total	39.0	16.1	2.4	22.9

Note: Rate ratio is the ratio of the Indigenous rate divided by the non-Indigenous rate. Rate difference is the Indigenous rate minus the non-Indigenous rate. Data are for Qld, SA, WA and NT only.

Source: AIHW Mortality Database.

In keeping with higher overall hospitalisation rates, Indigenous children have higher rates than other Australian children for many diagnoses. For infants, the highest rate ratios were for respiratory diseases (3.9) and skin diseases (3.6). For children aged 1–14 years, the highest rate ratios were for circulatory diseases (2.7) and skin diseases (2.1).

Disability

Little is known about the level of disability among Australia’s Indigenous children, although it is believed that the rate of disability among Indigenous people generally is high (AIHW 1997). It is known that Indigenous children have a high rate of hearing problems due to middle ear infections (Couzos et al. 2001; Zubrick et al. 2004).

Vaccination rates

There are varying estimates of the level of vaccination coverage among Australia’s Indigenous children, from their being much lower than those for other Australian children to about the same. This variation arises from the difficulties or inadequacies in data collection. Among Indigenous Australian children, vaccination coverage tends to be higher in remote areas than in non-remote areas.

The National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases used the ACIR to produce coverage estimates for Indigenous children at 31 December 2003 (NCIRS 2004). These data indicated that, at one year of age, vaccination rates were lower in Indigenous children than among non-Indigenous children. However, by two years of age, the rates were very similar.

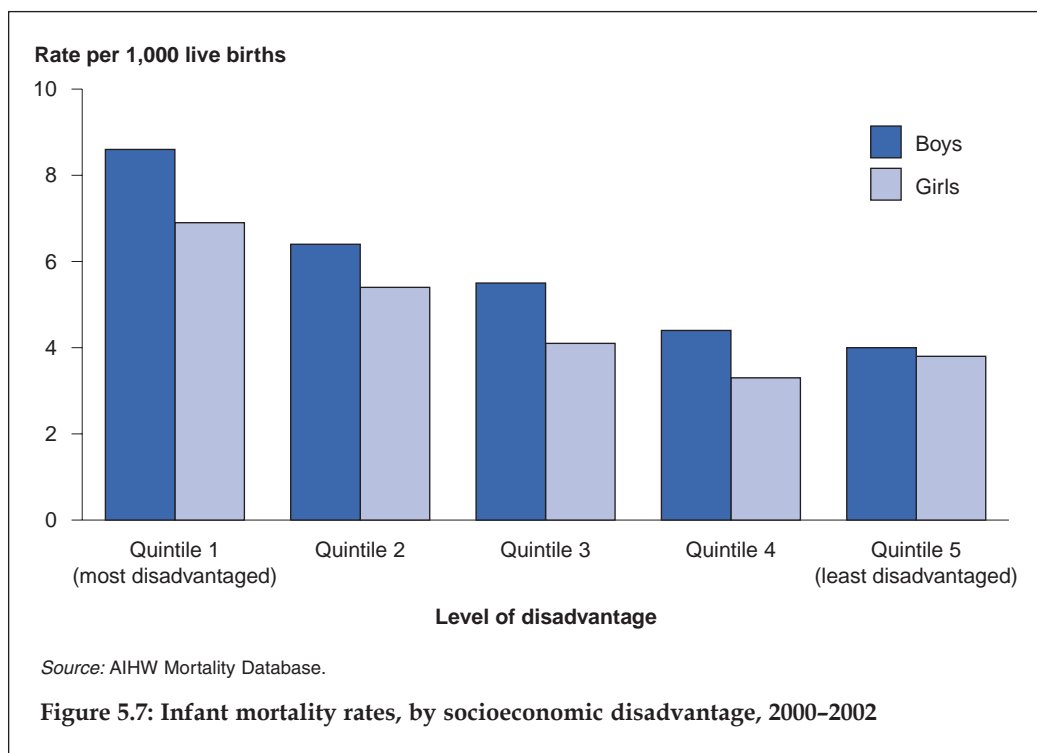
Socioeconomic groups

The socioeconomic gradient in health applies to children just as much as it does for the rest of the population. That is, children in lower socioeconomic groups generally have worse health than children in higher socioeconomic groups. The differences are not just apparent at the two socioeconomic extremes, but rather are evident between each step in socioeconomic position.

Information presented here uses an area-based measure of socioeconomic position. That is, children are grouped based on the socioeconomic characteristics of the area in which they live. The index used here is the Index of Relative Socioeconomic Disadvantage – one of the Socioeconomic Indexes for Areas, which is derived by the ABS using information collected in the Census. This index is derived from selected attributes of small areas, including the proportion of the population with low income, low educational attainment, jobs in relatively unskilled occupations or unemployed (ABS 2001b).

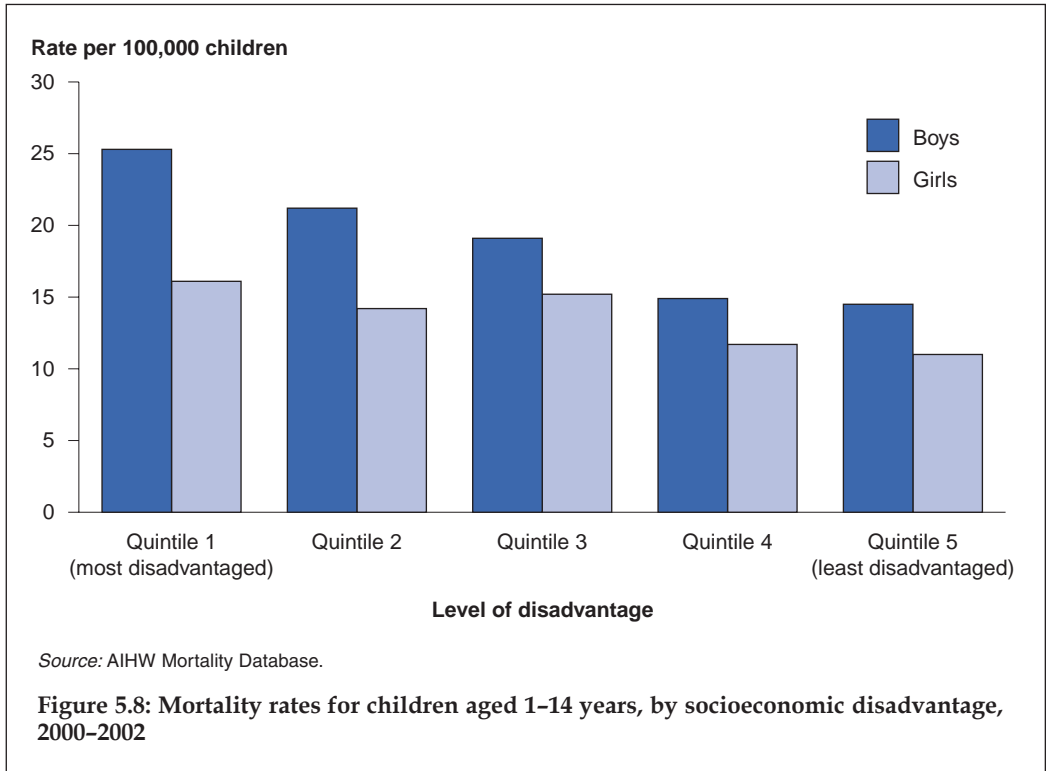
Infant mortality

The infant mortality rates for 2000–2002 were higher in areas that had higher levels of disadvantage (Figure 5.7). Infants from the most disadvantaged areas were twice as likely as those from the least disadvantaged areas to die before they reached their first birthday (7.8 deaths per 1,000 live births compared with 3.9 per 1,000). Rates were higher for boys than for girls in all socioeconomic groups. Further, the gap between the most and least disadvantaged groups was larger for boys than for girls, both in absolute and relative terms.



Child mortality

As was the case for infant (under one year) mortality, the death rates for children aged 1–14 years in the period 2000–2002 rose with increasing socioeconomic disadvantage: by about 75% for boys and 46% for girls (Figure 5.8). The difference in rates between the most and least disadvantaged groups was statistically significant for both boys and girls.



Exposure to tobacco smoke at home

Children in relatively disadvantaged households in 2001 were more likely than other children to be exposed to second-hand tobacco smoke (AIHW 2005a). For example, 26% of households in the most disadvantaged quintile had members who smoked inside compared with 10% of households in the least disadvantaged quintile.

Children in regional areas

The health of people living in geographically isolated areas of Australia is often poor compared with those living in major cities and other urban locations. The reasons for their poorer health status include limited availability and access to health services and exposure to different health and environmental risks (AIHW 2003c). The poorer health of the child population in remote areas is also at least partly a reflection of the large proportion of the population in those areas who are Indigenous, coupled with the poorer health of Indigenous children compared with other Australian children.

Mortality

Infant deaths classified by the ABS Australian Standard Geographical Classification remoteness categories (see Chapter 4) indicate that during the period 2000–2002, 2,303 infants died in Major Cities, 1,297 in regional areas, and 246 in Remote and Very Remote areas. The rate of infant mortality by these categories varied from 4.6 deaths per 1,000 live births in Major Cities to 13.6 per 1,000 in Very Remote areas. The high rate of infant mortality in Very Remote areas is a reflection of very high rates of infant mortality occurring among Indigenous people, who make up a large part of the population in these areas.

The age-standardised rate of child deaths rose in 2000–2002 with increasing remoteness: 14.6 deaths per 100,000 children in Major Cities and 41.7 per 100,000 in Very Remote areas for children aged 1–14 years. This pattern was most pronounced for children aged 1–4 years, where the rate in Major Cities was 22.2 deaths per 100,000 children compared with 59.5 in Remote and Very Remote areas combined.

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