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**Australia's children**  
2009

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# Contents

<b>Foreword</b> .....	<b>v</b>
<b>Acknowledgments</b> .....	<b>vi</b>
National Child Information Advisory Group.....	vii
<b>Summary</b> .....	<b>viii</b>
Key findings.....	viii
Key national indicators of child health, development and wellbeing: quick reference guide.....	x
<b>Part I Background</b> .....	<b>1</b>
1 Introduction.....	1
2 Children in Australia: demographic overview.....	5
3 Australian families.....	8
<b>Part II How healthy are Australia's children?</b> .....	<b>11</b>
4 Mortality.....	12
5 Chronic conditions.....	17
6 Disability.....	24
7 Congenital anomalies.....	27
8 Mental health.....	30
<b>Part III How well are we promoting healthy child development?</b> .....	<b>33</b>
9 Breastfeeding.....	34
10 Dental health.....	38
11 Physical activity and nutrition.....	41
12 Early learning.....	44
<b>Part IV How well are Australia's children learning and developing?</b> .....	<b>47</b>
13 Attendance at early childhood education programs.....	48
14 Transition to primary school.....	51
15 Attendance at primary school.....	54
16 Literacy and numeracy.....	56
17 Social and emotional development.....	60
<b>Part V What factors can affect children adversely?</b> .....	<b>63</b>
18 Teenage births.....	64
19 Smoking in pregnancy.....	67
20 Alcohol use in pregnancy.....	69
21 Birthweight.....	72
22 Overweight and obesity.....	75
23 Environmental tobacco smoke in the home.....	77
24 Tobacco use.....	79
25 Alcohol misuse.....	81

<b>Part VI What kind of families and communities do Australia’s children live in?.....</b>	<b>83</b>
26 Family functioning.....	84
27 Family economic situation.....	86
28 Children in non-parental care.....	89
29 Parental health status.....	93
30 Neighbourhood safety.....	97
31 Social capital.....	99
<b>Part VII How safe and secure are Australia’s children?.....</b>	<b>101</b>
32 Injuries.....	102
33 School relationships and bullying.....	107
34 Child abuse and neglect.....	109
35 Children as victims of violence.....	112
36 Homelessness.....	114
37 Children and crime.....	117
<b>Part VIII How well is the system performing in delivering quality health, development and wellbeing actions to Australia’s children?.....</b>	<b>121</b>
38 Neonatal hearing screening.....	122
39 Childhood immunisation.....	124
40 Survival for leukaemia.....	127
41 Quality child care.....	129
42 Child protection resubstantiations.....	131
<b>Part IX Aboriginal and Torres Strait Islander children.....</b>	<b>133</b>
43 Health and wellbeing of Indigenous children.....	133
<b>Part X Children’s Headline Indicators.....</b>	<b>159</b>
44 Headline Indicators for children’s health, development and wellbeing.....	159
<b>Part XI Data gaps and developments.....</b>	<b>171</b>
45 Data gaps.....	172
46 New data developments relevant to children.....	174
<b>Appendix 1 Methods.....</b>	<b>177</b>
<b>Appendix 2 Data sources.....</b>	<b>182</b>
<b>Abbreviations.....</b>	<b>191</b>
<b>References.....</b>	<b>193</b>
<b>List of tables.....</b>	<b>207</b>
<b>List of figures.....</b>	<b>209</b>

# Foreword

For more than a decade, the Australian Institute of Health and Welfare (AIHW) has played a leading role in national indicator development, monitoring and reporting on children's health, development and wellbeing. *A picture of Australia's children 2009* is the fourth comprehensive national statistical report on Australia's children produced by the AIHW. This 2009 report builds on previous work and on work undertaken more recently on the ministerially endorsed Children's Headline Indicators. The AIHW has also produced a summary, indicator-based report, *Making progress*, that focused on a subset of indicators for both children and young people.

The importance of the early childhood years in laying the foundations for future health and wellbeing is indisputable. Childhood, and early childhood in particular, is therefore central to the Council of Australian Governments' reforms to healthcare, education and in closing the gap in Indigenous disadvantage. Information that supports a better understanding of the key issues affecting children and their families is critical to the success of these reforms.

This AIHW report draws together the latest available information on child health, development and wellbeing on a broad range of indicators, including health status, risk and protective factors

influencing health and wellbeing, early learning and education, family and community environments, safety and security, and system performance.

The key message from this report is clear: most children in Australia are faring well, but significant areas of concern remain, together with some areas where there is just not enough information to tell. Of particular concern are the poorer health, developmental and wellbeing outcomes for Indigenous children and children from remote and low socioeconomic status areas, and Australia's relatively poor performance on key international indicators such as infant mortality and teenage births. This suggests that a great deal remains to be done to ensure that all Australian children have the best possible start in life.

I would like to thank the National Child Information Advisory Group for their expert advice in the development of this report and the key national indicators, as well as the Australian Government Department of Health and Ageing for largely funding this report.

**Penny Allbon**  
Director

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# Summary

*A picture of Australia's children 2009* is the fourth in a series of national statistical reports on children aged 0–14 years. This report provides the latest available information on how Australia's children are faring according to key national indicators of health, development and wellbeing. Drawing on the advice of the National Child Information Advisory Group, it brings together a broad range of indicators that cover health status, risk and protective factors, early learning and education, family and community environments, safety and security, and system performance. The indicators include ministerially endorsed Children's Headline Indicators, published for the first time in this report.

The report contains nearly all of the indicators with specific relevance to children agreed by the Council of Australian Governments for monitoring performance under the National Healthcare Agreement, the National Education Agreement and the National Indigenous Reform Agreement. This report, however, provides a broader spectrum of indicators related to child health, development and wellbeing (see Box 2 for the indicator framework).

## KEY FINDINGS

Many Australian children are faring well, but there is much scope for further gains, particularly among Aboriginal and Torres Strait Islander children. The table on the following page summarises recent achievements and concerns, and identifies important data gaps. This is followed by statistics on the key national indicators presented in this report for quick reference.

### The good news

- Large declines in death rates (mostly due to a decline in injury deaths).
- Declines in asthma hospitalisations and improved survival for leukaemia.
- Favourable trends in some risk and protective factors, such as immunisation coverage, teenage births and smoking rates among older children.

- Most children meet national physical activity guidelines and achieve national minimum standards for reading and numeracy.

### Things to work on

- Rising rates of severe disability, diabetes and, among 6 year olds, dental decay.
- Far too many children spend more than the recommended time in front of a video screen (including television and computers), are overweight or obese, are not eating recommended amounts of vegetables, are homeless or at risk of homelessness, or are victims of assault.

### Aboriginal and Torres Strait Islander children

- are far more likely to be disadvantaged across a broad range of health and socioeconomic indicators—2–3 times as likely to die, be of low birthweight or have dental caries; 5 times as likely to be born to teenage mothers; 8–9 times as likely to be in the child protection system; and 24 times as likely to be in juvenile justice supervision.

### Children living in remote areas

- have higher death rates; higher rates of neural tube defects; lower rates of cancer survival; worse dental decay; and are less likely to meet minimum standards for reading and numeracy, than those in major cities.

## Summary table: achievements, concerns and the unknown

Indicator area	Achievements	Areas of concern	What we don't know
<b>Health status</b>	<p>Infant and child mortality rates halved between 1986–2006</p> <p>Asthma hospitalisations and general practice visits have declined</p> <p>Cancer survival continues to improve, especially for leukaemia</p>	<p>Poorer outcomes for Indigenous children in multiple areas (e.g. death rates 3 times as high)</p> <p>Infant and under 5 child mortality compares unfavourably with other OECD countries</p> <p>Incidence of diabetes and hospitalisations for diabetes increasing</p> <p>Prevalence of overall disability and severe disability increasing</p>	<p>Prevalence of mental health problems and disorders among children</p>
<b>Healthy child development</b>	<p>Dental decay among 12 year olds decreasing</p> <p>Almost three-quarters of children (9–14 years) meet physical activity guidelines</p>	<p>Dental decay among 6 year olds increasing</p> <p>Only one-third of children (9–14 years) meet guidelines for video screen viewing</p> <p>Most children do not consume recommended amounts of vegetables</p>	<p>How many infants are exclusively breastfed at 4 and 6 months</p> <p>How many infants are read to by an adult</p>
<b>Learning and development</b>	<p>Most children in Year 5 meet national minimum standards for reading and numeracy</p>	<p>Indigenous Year 5 students less likely to meet national minimum standards for reading and numeracy</p>	<p>How many children attend early childhood education programs in the 2 years before school</p> <p>Social and emotional development of children</p>
<b>Adverse factors</b>	<p>Teenage births and smoking among older children have declined</p> <p>Fewer children are exposed to tobacco smoke in the home</p>	<p>Teenage birth rate compares unfavourably with other OECD countries and 5 times as high among Indigenous women</p> <p>One in six women smoke and 60% consume alcohol during pregnancy</p> <p>Over one-fifth of children nationally are either overweight or obese</p>	
<b>Families and communities</b>	<p>Most parents of children rate their health as good, very good or excellent</p> <p>Most households with children have access to social support and perceive their neighbourhood to be safe</p>	<p>One-fifth of parents have poor mental health</p> <p>One-fifth of children live with a parent with disability</p>	<p>How many children live in healthy functioning families</p>
<b>Safety and security</b>	<p>Injury death rates fell by almost 40% over the decade 1997–2006</p> <p>Accidental drowning death rates almost halved between 1997 and 2006</p>	<p>Over one-third of child deaths are preventable as they are caused by injuries</p> <p>Almost 20,000 children are victims of physical or sexual assault</p> <p>Indigenous children overrepresented in child protection system (8–9 times as high) and juvenile justice supervision (24 times as high)</p> <p>Almost 65,000 children are homeless or at risk of homelessness, there are high unmet requests for SAAP accommodation for families with children</p>	<p>Prevalence of bullying in schools</p> <p>Prevalence of child abuse and neglect and whether this has changed over time</p>
<b>System performance</b>	<p>Immunisation coverage highest on record (93% for 2 year olds)</p> <p>Increased neonatal hearing screening</p> <p>Five-year relative survival for leukaemia has increased</p>	<p>Immunisation coverage at 6 years is lower than at 1 or 2 years of age</p>	<p>How quality child care should be defined</p>

## KEY NATIONAL INDICATORS OF CHILD HEALTH, DEVELOPMENT AND WELLBEING: QUICK REFERENCE GUIDE

How healthy are Australia's children?		Value	Trend
<b>Mortality</b>	Infant mortality per 1,000 live born infants (2006) <sup>(a)</sup>	4.7	✓
	Sudden infant death syndrome (SIDS) deaths per 100,000 live births (2006)	24	✓
	Deaths per 100,000 children aged 1–14 years (2006)	13	✓
<b>Morbidity</b>	Percentage of children aged 0–14 years with asthma as a long-term condition (2004–05)	12	~
	New cases of insulin-dependent diabetes per 100,000 children aged 0–14 years (2006)	23	✗
	New cases of cancer per 100,000 children aged 0–14 years (2001–2005)	14	..
<b>Disability</b>	Percentage of children aged 0–14 years with severe or profound core activity limitations (2003)	4.3	✗
<b>Congenital anomalies</b>	Rate of selected congenital anomalies among infants per 10,000 births (1998–2003):		
	neural tube defects	4.5	..
	Down syndrome	11	..
	abdominal wall defects	4.4	..
	orofacial clefts	17	..
<b>Mental health</b>	Proportion of children aged 4–14 years with mental health problems (2004–05)	No recent data available	
	Proportion of children aged 6–14 years with mental health disorders (ADHD, depressive disorder, conduct disorder) (2004–05)	No recent data available	
How well are we promoting healthy child development?			
<b>Breastfeeding</b>	Percentage of infants exclusively breastfed at 4 months of age <sup>(a)</sup>	National data not available	
<b>Dental health</b>	Percentage of children decay-free (2002):		
	at age 6 years	53	~
	at age 12 years	58	✓
	Mean number of decayed, missing or filled teeth (DMFT) at 12 years (2002) <sup>(a)</sup>	1.0	~
<b>Physical activity</b>	Percentage of children aged 9–14 years (2007):		
	meeting the National Physical Activity Guidelines	74	..
	not exceeding the screen time guidelines	33	..
<b>Early learning</b>	Proportion of children aged < 1 year old who are read to by an adult on a regular basis	National data not available	
How well are Australia's children learning and developing?			
<b>Attending early childhood education programs</b>	Proportion of children attending an educational program in the 2 years before beginning primary school <sup>(a)</sup>	Data not available	
<b>Transition to primary school</b>	Proportion of children entering school with basic skills for life and learning <sup>(a)</sup>	National data not available	
<b>Attendance at primary school</b>	Attendance rate of children at primary school, per cent (Year 5) (2007) <sup>(a)</sup>	85–95	..
<b>Literacy and numeracy</b>	Percentage of children in Year 5 who achieved at or above the national minimum standards (2008):		
	reading <sup>(a)</sup>	91	..
	numeracy <sup>(a)</sup>	93	..
<b>Social and emotional development</b>	Under development	Data not available	
What factors can affect children adversely?			
<b>Teenage births</b>	Age-specific birth rate per 1,000 15–19 year old women (2006) <sup>(a)</sup>	17	✓
<b>Smoking in pregnancy</b>	Proportion of women who smoked during the first 20 weeks of pregnancy <sup>(a)</sup>	National data not available	
<b>Alcohol use during pregnancy</b>	Percentage of women who consumed alcohol during pregnancy (2007)	60	✓
<b>Birthweight</b>	Percentage of live born infants of low birthweight (2006) <sup>(a)</sup>	6	~
<b>Overweight and obesity</b>	Percentage of children aged 2–12 years whose BMI score is above the international cut-off points for 'overweight' and 'obese' for their age and sex (2007) <sup>(a)</sup>	22	..
<b>Environmental tobacco smoke</b>	Percentage of households with children aged 0–14 years where someone smokes inside (2007)	8	✓
<b>Tobacco use</b>	Percentage of children aged 12–14 years who are current smokers (2005)	5	✓
<b>Alcohol misuse</b>	Percentage of children aged 12–14 years who have engaged in risky drinking on any one occasion (2005)	2.6	✗

What kind of families and communities do Australia's children live in?		Value	Trend
<b>Family functioning</b>	Under development	Data not available	
<b>Family economic situation</b>	Average weekly real equivalised disposable household income for households with children in the 2nd and 3rd income deciles (2005–06) <sup>(a)</sup>	\$347	✓
<b>Children in non-parental care</b>	Number of children per 1,000 aged 0–14 years in out-of-home care (2008)	7	✗
	Percentage of children aged 0–17 years in grandparent families (2006–07)	0.4	✓
<b>Parental health status</b>	Percentage of parents rating their health as 'fair' or 'poor' (2006)	13	..
	Percentage of children living with parents with disability (2003)	19	..
	Percentage of parents with mental health problems (2006)	21	..
<b>Neighbourhood safety</b>	Percentage of households with children aged 0–14 years where their neighbourhood is perceived as safe (2006)	86	..
<b>Social capital</b>	Percentage of households with children aged 0–14 years where respondent was able to get support in time of crisis from persons living outside household (2006)	94	~
How safe and secure are Australia's children?			
<b>Injuries</b>	Age-specific death rates from all injuries for children aged 0–14 years, per 100,000 (2006) <sup>(a)</sup>	6	✓
	Road transport accident death rate for children aged 0–14 years, per 100,000 (2007)	1.6	✓
	Accidental drowning death rate for children aged 0–14 years, per 100,000 (2006)	1.0	✓
	Assault death rate for children aged 0–14 years, per 100,000 (2006–07)	0.7	..
	Injury hospitalisation rate for children aged 0–14 years, per 100,000 (2006–07)	1,462	✓
	Assault hospitalisation rate for children aged 0–14 years, per 100,000 (2006–07)	20	✓
	Intentional self-harm hospitalisation rate for children aged 10–14 years, per 100,000 (2006–07)	41	✗
<b>School relationships and bullying</b>	Under development	Data not available	
<b>Child abuse and neglect</b>	Children aged 0–12 years who were the subject of a substantiation of a child protection notification received in 2007–08 <sup>(a)</sup>	7	✓
	Children aged 0–12 years who were the subject of care and protection orders, per 1,000 (2008)	7	✗
<b>Children as victims of violence</b>	Children aged 0–14 years per 100,000 who have been the victims of (2003):		
	physical assault	309	..
	sexual assault	187	..
<b>Homelessness</b>	Number of accompanying children aged 0–14 years attending agencies funded under the Supported Accommodation Assistance Program, per 1,000 (2006–07)	16	..
<b>Children and crime</b>	Number of children aged 10–14 years who are under juvenile justice supervision, per 1,000 (2006–07)	1.7	..
How well is the system performing in delivering quality health, development and wellbeing actions to Australia's children?			
<b>Neonatal hearing screening</b>	Proportion of children identified as requiring a hearing aid who are then fitted with a hearing aid by 6 and/or 12 months of age	Data not available	
<b>Childhood immunisation</b>	Percentage of children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age (2008) <sup>(a)</sup>	93	✓
<b>Survival of leukaemia</b>	Five-year relative survival rate for leukaemia in children aged 0–14 years (1998–2004) (per cent)	83	✓
<b>Quality of child care</b>	Under development	Data not available	
<b>Child protection resubstantiations</b>	Number of children aged 0–12 years who were the subject of a child protection resubstantiation in a given year, per 1,000	Data not available	

(a) Children's Headline Indicator.

Key: ✓ = favourable trend; ✗ = unfavourable trend; ~ = no change or clear trend; .. = no trend data presented.



# Part I

## BACKGROUND

### 1 Introduction

The health and wellbeing of Australia's children is at the centre of policy making in Australia today, in recognition that children are the key to Australia's future. Ensuring children get the best possible start in life is central to the health, social inclusion and productivity agendas of the Australian Government, with policy initiatives in these areas drawing on the principles of early intervention and prevention. Meeting this goal will involve reforms in the areas of education, early childhood development, preventive health care and housing, as well as strategies to address economic and social disadvantage (see Box 1 for government reforms relating to children). As the family is the environment in which children grow up, investing in families is essential for improving outcomes for children.

Childhood, defined in this report as 0–14 years, spans a number of major developmental phases in life—infancy, early childhood, 'school age' childhood and early adolescence.

In recent years, the focus on early childhood development has extended to the prenatal period, in recognition that high-quality antenatal care, education and support during pregnancy are essential in ensuring a healthy start to life for infants, resulting in improved health and developmental outcomes. Infancy and very early childhood are crucial periods in life—child development and experiences early in life determine the biological pathways that affect cognition, behaviour, capacity to learn, memory, and physical and mental health throughout life (Mustard 2006). It follows, then, that the early years of life (including the antenatal period) are important in setting the foundation of adult linguistic and social competence, coping skills, intelligence, and physical and mental health. A safe and nurturing family environment is particularly important for healthy child development during this time.

Early childhood is a period when many children will face their first major transition in life from the family home into other environments, such as child care, early education and full-time schooling. Transition times provide both opportunities and potential risks. This is a crucial time for learning, social and emotional development, social participation, and the acquisition of literacy and numeracy skills. It is also an important time for establishing good health. Both the behaviour and the physical and social environments of children during this time increase the risk of injuries, mental health and behavioural problems, and the development of risk factors and long-term health conditions that persist throughout life.

Early adolescence is a period of rapid emotional, physical and intellectual change, as children begin the transition from childhood to adolescence. Increasing independence during this time brings both challenges and risks. Early adolescence is an important time for the reinforcement of positive health and social behaviours, as behaviours at this age are strong predictors of future behaviour.

Due to the importance of promoting the physical, social, emotional and cognitive development of Australia's children at each of these developmental phases, childhood is a matter of national priority. The benefits of investing in children and families flow through to the entire population, with outcomes as diverse as greater productivity, lower burden of disease, stronger families, and safer and more connected communities.

Timely, accurate and comprehensive information on children's health, development and wellbeing is essential for monitoring the progress of Australia's children, and is critical for the development of evidence-based policy. Over the last decade, the Australian Institute of Health and Welfare (AIHW) has produced three comprehensive national statistical reports on

the health, development and wellbeing of Australia's children (in 1998, 2002 and 2005), as well as a summary, indicator-based report on measures of progress for children and youth, *Making progress* (AIHW 2008).

This report, *A picture of Australia's children 2009*, the fourth in the series, builds on work previously undertaken by the AIHW on the development and reporting of key national indicators of children's health, development and wellbeing. It presents information for children aged 0–14 years on a broad range of indicators in the areas of health status, risk and protective factors influencing health and wellbeing, early learning and education, family and community environments, safety and security, and system performance. The indicator framework has been broadened to include a new section on system performance and additional indicators in the following areas: alcohol use during pregnancy; teenage births; congenital anomalies; neonatal hearing screening; quality child care; transition to, and attendance at, primary school; school relationships and bullying; physical activity; and child protection resubstantiations. Included as a subset of these indicators are the ministerially endorsed Children's Headline Indicators, which are reported for the first time in this report.

### **Box 1: Government policy priorities and reforms relating to children**

*At the national level, the most important policies for early childhood and family support in the past few years have been the development of the National Agenda for Early Childhood, the National Reform Agenda on Human Capital of the Council of Australian Governments (COAG), and the Stronger Families and Communities Strategy (2004–2009).*

*The Australian Government has embarked on a number of new initiatives relating to children. The current policy environment has a strong focus on early childhood development and care, education and child protection. The Social Inclusion Agenda and the Australian Government's Closing the Gap on Indigenous Disadvantage initiative cut across a number of these areas. Many of these reforms are being progressed through the COAG process. Key priorities and objectives in relation to children include:*

#### **Early childhood**

- *improving access to, and quality of, early childhood education and care through improving the affordability of child care by increasing the child care rebate; establishing new early learning and care centres; universal access to early childhood education programs to all 4 year olds for 15 hours per week, for a minimum of 40 weeks per year, by 2013; a strong national quality standard and quality rating system; and developing a National Early Years Learning Framework*
- *national rollout of the Australian Early Development Index*
- *Healthy Kids Check for 4 year olds*

#### **Education**

- *developing and implementing a national curriculum in key learning areas by 2011*

#### **Child protection**

- *developing a National framework for protecting Australia's children that aims to increase coordination between governments and non-government organisations, with a focus on improving child protection through prevention, early intervention and best practice strategies*

#### **Closing the gap on Indigenous disadvantage initiative**

- *halving the gap in reading, writing and numeracy achievements for children within a decade*
- *halving the gap in mortality rates for children under 5 years within a decade*
- *ensuring access to early childhood education for all Indigenous 4 year olds in remote communities within 5 years*

#### **Social Inclusion Agenda**

- *ensuring that all Australians are able to play a full role in all aspects of Australian life. Priorities of particular relevance to children include addressing the incidence and needs of jobless and homeless families with children, delivering effective support to children at greatest risk of long-term disadvantage and closing the gap in disadvantage for Indigenous children.*

## KEY NATIONAL INDICATORS AND FRAMEWORK

This report is based on the key national indicators of children's health, development and wellbeing developed by the AIHW in consultation with the National Child Information Advisory Group. The key national indicators included in this report build upon extensive indicator development work in the areas of child health, development and wellbeing that was undertaken for the 2005 report *A picture of Australia's children* (AIHW 2005b). At that time, the reporting framework was broadened to include individual, family and societal factors that influence the health, development and wellbeing of children. This report continues to use this broadened indicator framework, with some modifications and refinements to the indicators and the inclusion of additional indicators (see Box 2). A detailed description of the process for developing the set of indicators for *A picture of Australia's children 2009* is provided in the bulletin *Key national indicators of children's health, development and wellbeing* (AIHW 2008j).

The key national indicators in this report overlap with the Council of Australia Governments' (COAG) performance indicators in the areas of healthcare, disability, education, affordable housing, and Indigenous reform. Of the 56 key national indicators, more than one-quarter are the same or are similar to COAG performance indicators. Four COAG performance indicators with specific relevance to children are not included in the key national indicators in this report. These are 4th year developmental health checks, under 5 hospitalisation rates by cause, and two indicators on antenatal care. These indicators will be included in future AIHW reports.

### Headline Indicators for children's health, development and wellbeing

The key national indicators presented in this report include a subset of ministerially endorsed Headline Indicators for children's health, development and wellbeing (Children's Headline Indicators). In 2006, 19 priority areas for children's health, development and wellbeing were endorsed by the Australian Health Ministers' Conference (AHMC), the Community and Disability Services Ministers' Conference (CDSMC) and the Australian Education Systems Officials Committee

(AESOC). These Headline Indicators are designed to focus government policy attention on identified priorities for children's health, development and wellbeing. This will be facilitated by the comparison of state and territory data, and data from subpopulations of children, including Aboriginal and Torres Strait Islander children, children living in remote and disadvantaged areas, and children from culturally and linguistically diverse backgrounds.

The establishment of the Headline Indicator reporting complements the national reporting previously undertaken by the AIHW, by presenting jurisdictional and subpopulation data on a selected set of identified priority indicators.

Sixteen priority areas that currently have defined Headline Indicators are discussed at the national level throughout the report, with *Part X* of the report presenting jurisdictional data for 11 of the priority areas where data are currently available. Further information on the background and implementation of the Headline Indicators can be found in *Part X*.

### Report structure

The key national indicators, including the Children's Headline Indicators, have been organised into a framework around questions considered vital to assessing the health and wellbeing of Australian children (Box 2). These questions form the basis of the structure of this report.

The key questions are:

- How healthy are Australia's children?
- How well are we promoting healthy child development?
- How well are Australia's children learning and developing?
- What factors can affect children adversely?
- What kind of families and communities do Australia's children live in?
- How safe and secure are Australia's children?
- How well is the system performing in delivering quality health, development and wellbeing actions to Australia's children?

Information on demographic and family characteristics is presented first, to provide the context for the information that follows. In order to highlight the disparities in health, development and wellbeing experienced among

child subpopulations in Australia, this report includes information on Aboriginal and Torres Strait Islander children, and children from regional, remote and socioeconomically disadvantaged areas (where robust data are available). In particular, the report includes a feature chapter on Aboriginal and Torres Strait Islander children

(Part IX), which explores the issues affecting the health, development and wellbeing of this population group.

Information on data gaps and data development activities relating to children are also discussed in the report (Part XI).

## Box 2: Indicator framework for *A picture of Australia's children 2009*

How healthy are Australia's children?							
Mortality <sup>(a)</sup> <i>Age-specific and condition-specific death rates</i>	Morbidity <i>Hospitalisations and chronic conditions</i>	Disability <i>Profound or severe core activity limitations</i>	Congenital anomalies <i>Selected congenital anomalies among infants at birth</i>		Mental health <i>Mental health problems</i>		
How well are we promoting healthy child development?							
Breastfeeding <sup>(a)</sup> <i>Exclusive breastfeeding of infants</i>	Dental health <sup>(a)</sup> <i>Children with decayed, missing or filled teeth</i>		Physical activity <i>Children meeting the National Physical Activity Guidelines</i>		Early learning <i>Children who are read to by an adult</i>		
How well are Australia's children learning and developing?							
Attending early childhood education programs <sup>(a)</sup> <i>Children attending early childhood education programs</i>	Transition to primary school <sup>(a)</sup> <i>Children entering school with skills for life and learning</i>		Attendance at primary school <sup>(a)</sup> <i>Children attending primary school each day</i>		Literacy and numeracy <sup>(a)</sup> <i>Children meeting reading and numeracy national minimum standards</i>		Social and emotional development <i>Under development</i>
What factors can affect children adversely?							
Teenage births <sup>(a)</sup> <i>Age-specific birth rate for females aged 15–19 years</i>	Smoking during pregnancy <sup>(a)</sup> <i>Mother's tobacco smoking during pregnancy</i>	Alcohol use during pregnancy <i>Mother's alcohol consumption during pregnancy</i>	Low birthweight <sup>(a)</sup> <i>Babies &lt; 2,500 grams at birth</i>	Overweight and obesity <sup>(a)</sup> <i>Children with acceptable/unacceptable BMI scores</i>	Environmental tobacco smoke in the home <i>Children in households where adults smoke inside</i>	Tobacco use <i>Current smokers</i>	Alcohol misuse <i>Children engaging in high-risk drinking</i>
What kind of families and communities do Australia's children live in?							
Family functioning <i>Under development</i>	Family economic situation <sup>(a)</sup> <i>Average real equivalised disposable household income in the 2nd and 3rd deciles</i>	Children in non-parental care <i>Children in out-of-home care and other non-parental care</i>	Parental health status <i>Parents with fair or poor health, disabilities, mental health problems</i>	Neighbourhood safety <i>Proportion who perceive their neighbourhood as unsafe</i>	Social capital <i>Children in households that are able to get support in a time of crisis</i>		
How safe and secure are Australia's children?							
Injuries <sup>(a)</sup> <i>Injury mortality and hospitalisations</i>	School relationships and bullying <i>Under development</i>	Child abuse and neglect <sup>(a)</sup> <i>Child protection substantiations, children on care and protection orders</i>	Children as victims of violence <i>Physical and sexual assault</i>	Homelessness <i>Accompanying children in SAAP</i>	Children and crime <i>Children under juvenile justice supervision</i>		
How well is the system performing in delivering quality health, development and wellbeing actions to Australia's children?							
Neonatal screening (hearing) <i>Children fitted with hearing aids at 6 and/or 12 months</i>	Childhood immunisation <sup>(a)</sup> <i>Children who are fully vaccinated</i>	Survival for leukaemia <i>Five-year relative survival for leukaemia</i>	Quality child care <i>Under development</i>	Child protection resubstantiations <i>Resubstantiated claims of child abuse and neglect</i>			

(a) Children's Headline Indicators exist in these areas.

## 2 Children in Australia: demographic overview

This chapter describes Australia's child population in terms of size, composition and growth as well as regional distribution and cultural diversity. It provides a context for exploring many issues influencing children's health, development and wellbeing. The size and composition of the child population, including changing demographic trends, is important for policy development and planning for the provision, delivery and accessibility of the range of services required by children, including child care, schools, and health and welfare services.

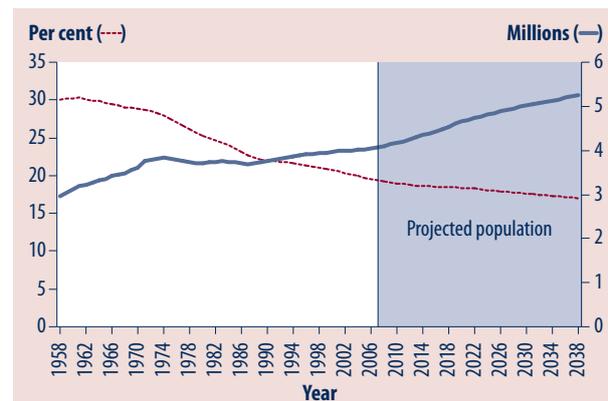
There are a number of ways to define children, depending on particular data collections or legal requirements. In this report children are defined as aged 0–14 years.

### CHARACTERISTICS OF CHILDREN IN AUSTRALIA

At 30 June 2007, there were an estimated 4.1 million children aged 0–14 years in Australia (2.1 million boys and 2.0 million girls), representing almost one-fifth of the total Australian population (Table 2.1). Boys made up a slightly higher proportion of the child population than girls (51% compared with 49%). Children aged 5–9 and 10–14 years each accounted for around one-third of the total child population; infants and 1–4 year olds accounted for 7% and one-quarter, respectively.

Although the number of Australian children has been increasing over the last four decades, the child population as a proportion of the total population has been steadily declining due to sustained low fertility and

increased life expectancy. As a result, the proportion of children in the population has fallen from 30% in 1958 to 19% in 2007, and is projected to fall even further to 17% by 2038 (Figure 2.1). Despite this, the number of children in Australia is projected to continue to grow, from 4.1 million in 2007 to 5.2 million in 2038.



Note: Population projections (2008 onwards) are based on ABS Projection Series B. See ABS 2008i for the assumptions on which Projection Series B is based.

Sources: ABS 2008b, 2008i.

**Figure 2.1: Number of children and children as a proportion of the total Australian population, 1958–2038**

### Aboriginal and Torres Strait Islander children

There were an estimated 194,200 Aboriginal and Torres Strait Islander children in Australia in 2006, comprising 4.8% of the total child population in Australia (Table 2.2). The gender distribution of Indigenous children was the same as for all Australian children (51% boys).

**Table 2.1: Children in Australia, June 2007**

Age group	Boys		Girls		Children	
	Number	Per cent	Number	Per cent	Number	Per cent
< 1 year	142,137	1.4	134,332	1.3	276,469	1.3
1–4 years	544,932	5.2	516,621	4.9	1,061,553	5.0
5–9 years	688,481	6.6	655,049	6.2	1,343,530	6.4
10–14 years	719,701	6.9	682,335	6.4	1,402,036	6.7
<b>0–14 years</b>	<b>2,095,251</b>	<b>20.0</b>	<b>1,988,337</b>	<b>18.8</b>	<b>4,083,588</b>	<b>19.4</b>

Note: Per cent refers to per cent of the total population.

Source: ABS 2008a.

**Table 2.2: Indigenous children aged 0–14 years, June 2006**

Age group	Boys		Girls		Children	
	Number	Per cent	Number	Per cent	Number	Per cent
0–4 years	32,753	4.9	31,673	5.0	64,426	4.9
5–9 years	33,335	4.9	31,801	4.9	65,136	4.9
10–14 years	33,254	4.6	31,433	4.6	64,687	4.6
<b>0–14 years</b>	<b>99,342</b>	<b>4.8</b>	<b>94,907</b>	<b>4.8</b>	<b>194,249</b>	<b>4.8</b>

Note: Per cent refers to per cent of all Australian children of that sex and age.  
Source: ABS 2008g.

In contrast to the non-Indigenous population, the Indigenous population has a much younger age structure (Figure 2.2). This reflects the higher birth rate among Indigenous women compared with all women (2.1 births compared with 1.8 in 2006), as well as the shorter life expectancy among Indigenous Australians. Although Indigenous children comprise a relatively small proportion of the total Australian child population, they represent more than one-third of the Indigenous population (38%)—twice that of children in the non-Indigenous Australian population (19%).

### Geographical distribution of children

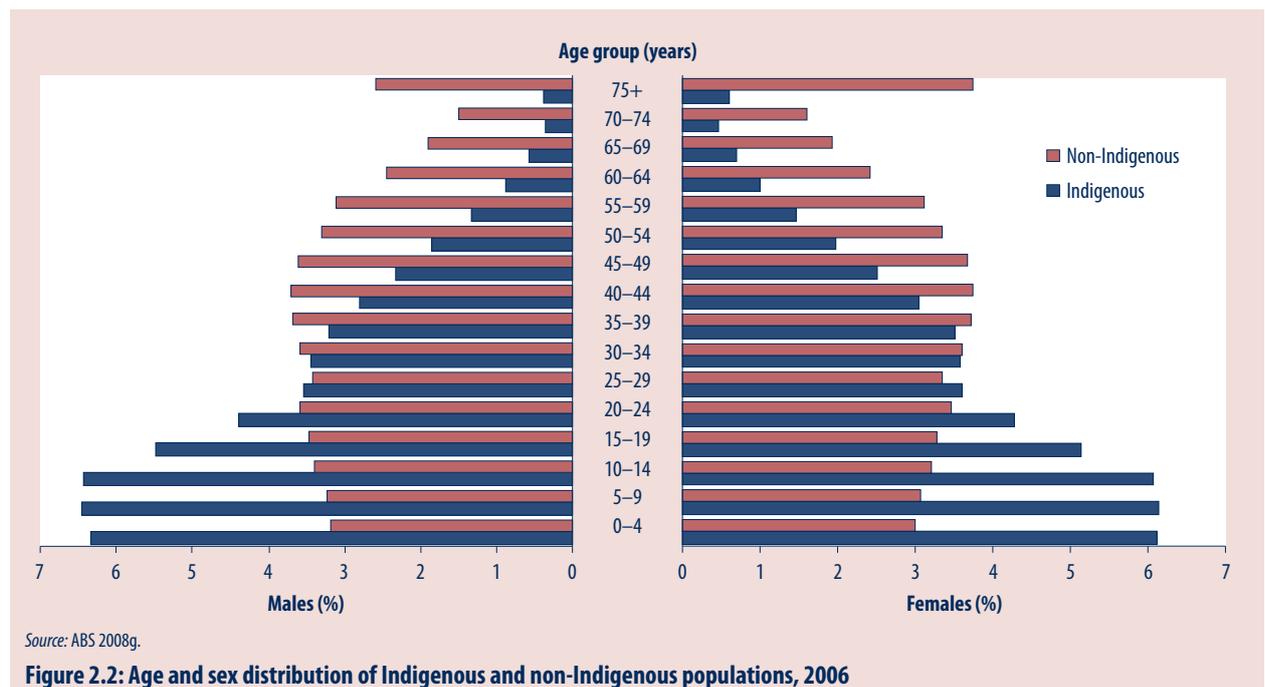
Almost one-third of Australian children aged 0–14 years lived in New South Wales in 2007; a further one-quarter and one-fifth lived in Victoria and Queensland, respectively (Table 2.3). This is similar to the population

distribution for all Australians across the states and territories.

Children made up the greatest proportion of the population in the Northern Territory, accounting for around one-quarter of the total population. This is largely due to the high proportion of Indigenous Australians living in the Northern Territory, and the younger age structure of this population group.

Two-thirds of Australian children aged 0–14 years lived in *Major cities* in 2006, and a further one-fifth lived in *Inner regional* areas (Table 2.4). Three per cent of children lived in *Remote and very remote* areas.

Although the majority of Indigenous children lived in *Major cities* and *Inner and Outer regional* areas (77%, or 149,400 children in 2006), they were 8 times as likely to live in *Remote and very remote* areas



**Table 2.3: Distribution of children across the states and territories, June 2007**

Age group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia <sup>(a)</sup>
<b>Per cent of state/territory population<sup>(b)</sup></b>									
0–4 years	6.4	6.2	6.6	6.4	5.8	6.3	6.4	8.3	6.3
5–9 years	6.4	6.2	6.7	6.5	6.0	6.4	6.0	8.1	6.4
10–14 years	6.6	6.5	7.0	6.8	6.4	6.9	6.3	7.8	6.7
<b>0–14 years</b>	<b>19.3</b>	<b>18.8</b>	<b>20.2</b>	<b>19.8</b>	<b>18.2</b>	<b>19.6</b>	<b>18.6</b>	<b>24.1</b>	<b>19.4</b>
<b>Per cent of Australian population 0–14 years<sup>(c)</sup></b>									
0–14 years	32.6	24.1	20.8	10.2	7.1	2.4	1.6	1.3	100.0

(a) Includes other Territories comprising Jervis Bay Territory, Christmas Island and the Cocos (Keeling) Islands.

(b) The denominator is the relevant total state/territory population.

(c) The denominator is the total Australian population aged 0–14 years.

Source: ABS 2008a.

as all Australian children (Table 2.4). Indigenous children accounted for 38% of all children in *Remote and very remote* areas, despite accounting for less than 5% of all children in Australia in 2006.

**Table 2.4: Distribution of Indigenous children and all children aged 0–14 years, by remoteness, 2006**

	Indigenous children		All Australian children	
	Number	Per cent	Number	Per cent
Major cities	61,486	31.7	2,673,650	66.0
Inner regional	44,125	22.7	842,279	20.8
Outer regional	43,782	22.5	417,259	10.3
Remote	17,280	8.9	73,066	1.8
Very remote	27,576	14.2	44,191	1.1
<b>Australia<sup>(a)</sup></b>	<b>194,249</b>	<b>100.0</b>	<b>4,050,445</b>	<b>100.0</b>

(a) Includes migratory and other Territories.

Source: ABS 2008g.

## CULTURAL AND LINGUISTIC DIVERSITY

With around one-quarter of the Australian population in 2007 born overseas, Australia is one of the most culturally diverse countries in the world. However, the proportion of children aged 0–14 years born overseas is considerably lower than for the general population—7.2% or 295,000 children in 2007 (ABS 2008j). More than half of these children were born in mainly non-English-speaking countries (56%).

Of children born in mainly non-English speaking countries, the largest groups were from India (9.4%), the Philippines (6.6%), China (excluding Special Administrative Regions and Taiwan Province) (6.3%), Republic of South Korea (5.1%), Singapore (3.7%) and Sudan (3.7%).

Of children born in mainly-English speaking countries, the largest proportions were from New Zealand and the United Kingdom (38% and 37%, respectively).

## Refugee children

At 30 June 2008, there were 31,200 children aged 0–14 years living in Australia who had arrived under the Humanitarian Program for refugees and others in refugee-like situations, accounting for almost 1% of all children. Around one-quarter of these children were Sudanese, and considerable proportions of children were African (not further defined) (12%), Iraqi (9%) and Afghani (8%) (Table 2.5).

In 2007–08, around 3,800 children aged 0–14 arrived under the Humanitarian Program, similar to the number in 1998–99 (3,900), although numbers varied considerably between these years, peaking at between 5,000 and 5,500 during 2004–05 to 2006–07.

**Table 2.5: Refugee children aged 0–14 years in Australia, by ethnicity, as at 30 June 2008**

Ethnicity	Number	Per cent
Sudanese	7,608	24.4
African (not further defined)	3,681	11.8
Iraqi	2,938	9.4
Afghani	2,628	8.4
Burman	1,218	3.9
Bosnian/Bosniac	1,016	3.3
Serbian/Serb	945	3.0
Other	9,112	29.2
Unknown	2,044	6.6
<b>Total</b>	<b>31,190</b>	<b>100.0</b>

Note: Sudanese includes Agaar, Bor, Dinka and Nuer/Neuer; Afghani includes Hazara and Pashtun; Burman includes Karen, Chin and Rohingya; Other includes other specified ethnicity, stateless, no specific ethnicity and none; Unknown includes inadequately described and not stated/refused.

Source: Australian Government Department of Immigration and Citizenship, unpublished data.

## 3 Australian families

Families play a crucial role in the lives of Australian children, as they provide the environment in which children are cared for. Research has shown that children brought up in stimulating and nurturing environments have better outcomes throughout life (McCain & Mustard 2002; Zubrick et al. 2000).

Governments also have a role in providing a supportive environment in which families can take responsibility for ensuring the wellbeing of family members. This includes providing support for the development of effective parenting and relationship skills, early intervention and prevention for at-risk families, and support for balancing work and family responsibilities, as well as enhancing the economic wellbeing of vulnerable families.

Many of the social, economic and technological changes occurring in society have direct effects on families, and Australian families have changed markedly over the last 30 years as a result. Changing social attitudes towards marriage and fertility have resulted in the increased prevalence of cohabitation, higher rates of partnership dissolution and re-partnership, and a trend towards parents delaying childbirth until later in life and having fewer children (Qu & Weston 2008).

As a result of these trends, the structure and composition of Australian families has become increasingly less static, and many families now experience a number of changes, such as family breakdown, re-partnership to form a step-family and, if children are born to the new couple, a blended family. Some children may therefore experience a number of family transitions before they reach adolescence, and these changes can have significant effects on children.

With family dissolution or the re-partnering of parents, children are faced with adjusting to new parent–child and sibling relationships, and consequent changes in parenting styles and discipline and disruption to family cohesion that may lead to increased stress (Deater-Deckard & Dunn 1999 cited in Wise 2003). Research suggests that children undergoing these transitions in family structure can encounter difficulties making these adjustments and are at an increased risk of poor mental health and overall wellbeing (Sawyer et al. 2000; Silburn et al. 1996; Vimpani et al. 2002). Children from

non-intact families, particularly one-parent families, may also experience adverse developmental outcomes such as low educational attainment, increased likelihood of engaging in antisocial behaviour, and substance use in adulthood (de Vaus & Gray 2003; DeLeire & Kalil 2002).

Changes in family structures do not always have negative outcomes for children. There are many intervening factors such as the quality of parent–child relationships, parenting style and supervision, parental care and levels of family discord that affect children’s vulnerability or resilience to the effects of change. Children who have been in a family environment of conflict or abuse may even experience positive outcomes following the transition.

This chapter describes the characteristics of Australian families in terms of family formation and dissolution, and family structure.

### FAMILY FORMATION AND DISSOLUTION

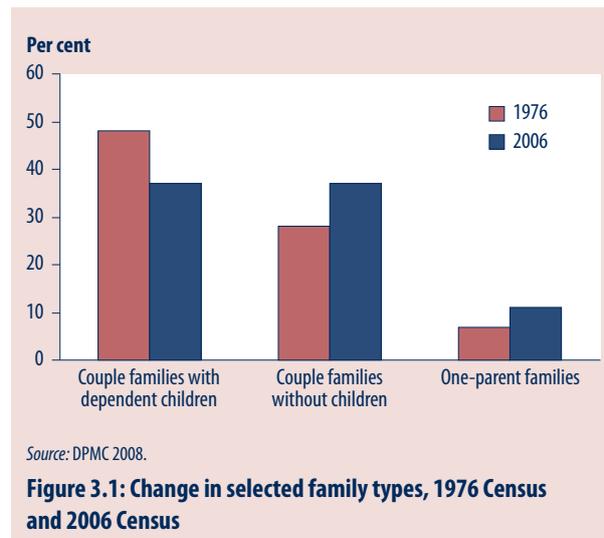
The profile of Australian families has changed considerably with regard to marriage and long-term relationships since the 1970s. Fewer Australians are entering a registered marriage, and those who do tend to marry at an older age—the crude marriage rate has fallen from 7.1 to 5.5 per 1,000 population between 1988 and 2007 and the median age at first marriage has increased by almost 4 years over this period (ABS 2008i). These lower rates of marriage are associated with an increase in de facto relationships, with rates more than doubling over the last two decades (from 6% to 15% between 1986 and 2006), although it is recognised that in many cases these couples will eventually marry (DPMC 2008). Relationship breakdown is also more common today, partly due to the increase in de facto relationships and the higher rate of relationship breakdown associated with these (Qu & Weston 2008). In terms of marriage breakdown, the divorce rate has fallen since 2000 to 2.3 per 1,000 people—after peaking at 4.5 per 1,000 people in 1976, following the implementation of the *Family Law Act 1975* (DPMC 2008).

## FAMILY STRUCTURE

In line with these trends in family formation and dissolution, there have been corresponding changes over the past decade in the types of families in Australia. Between 1976 and 2006, the proportion of couple families with dependent children has declined, while the proportions of one-parent families and couples without children (including couples who have no children and those whose children have left home) have increased (Figure 3.1).

Conversely, the types of families that children are living in have changed little over the decade 1997 to 2007. Most children aged 0–14 years lived in couple families (83% in 2007) and, of these children, the vast majority lived in intact families (90%), with small proportions living in blended families and stepfamilies (6% and 3%, respectively). Less than 1% of children in couple families lived in other arrangements, such as grandparent families or in families with foster children. Around one in six children lived in one-parent families (17%)—most (87%) of whom lived with their mother (Table 3.1; ABS unpublished data).

A higher proportion of infants and young children (1–4 years) lived in couple families in 2007 (88%)



**Figure 3.1: Change in selected family types, 1976 Census and 2006 Census**

compared with 5–9 and 10–14 year olds (82% and 79%, respectively). Conversely, in one-parent families a considerably higher proportion of children were aged 10–14 years than 0–4 years (21% and 12% respectively).

A small number of children live in adoptive families. In 2007–08, there were 407 adoptions of children aged 0–14 years in Australia (includes both local and intercountry adoptions) (AIHW 2009b).

**Table 3.1: Children aged 0–14 years by family structure, 1997, 2003 and 2007**

	1997		2003		2007	
	Number ('000)	Per cent	Number ('000)	Per cent	Number ('000)	Per cent
<b>Couple families</b>						
0–4 years	1,088	84.2	1,043	84.0	1,133	88.3
5–9 years	1,055	80.4	1,048	80.1	1,061	81.9
10–14 years	1,055	81.1	1,047	78.2	1,079	78.8
Total	3,198	81.9	3,138	80.7	3,273	82.9
<b>One-parent families</b>						
0–4 years	204	15.8	199	16.0	150	11.7
5–9 years	258	19.6	261	19.9	235	18.1
10–14 years	246	18.9	292	21.8	290	21.2
Total	708	18.1	752	19.3	675	17.1
<i>Lone mother families</i>						
0–4 years	196	15.2	183	14.7	139	10.8
5–9 years	232	17.7	234	17.9	200	15.4
10–14 years	201	15.4	146	10.9	248	18.1
Total	629	16.1	563	14.5	587	14.9
<i>Lone father families</i>						
0–4 years	8	0.6	16	1.3	*11	0.9
5–9 years	25	1.9	27	2.1	35	2.7
10–14 years	45	3.5	46	3.4	42	3.1
Total	78	2.0	89	2.3	88	2.2
<b>All children</b>	<b>3,906</b>	<b>..</b>	<b>3,890</b>	<b>..</b>	<b>3,948</b>	<b>..</b>

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

Notes

1. Denominator for all percentages is all children in the relevant age group in each survey year.
2. Children in couple families include children of same-sex couples.

Source: ABS 2008h.



# Part II

## HOW HEALTHY ARE AUSTRALIA'S CHILDREN?

Childhood, particularly early childhood, is a period in which the foundations for children's health and wellbeing are established. During this period, children acquire a vast range of skills and behaviours and, together with biological factors, these early experiences have a considerable influence on their physical and psychological health, their behaviour and their educational achievements.

Information on patterns and trends in child health, including which conditions represent the greatest disease burden, whether things are improving or getting worse, and the inequality between subpopulations within Australia, is essential to assess the health of Australia's children. This information helps to shape health policy, plan health service delivery and create strategies for improving the health of Australia's children.

*Part II* focuses predominantly on the presence or absence of disease, or activity and participation restrictions; however, it is well known that health needs to be defined more broadly. The World Health Organization (WHO) defines health as a 'state of complete physical, mental and social wellbeing and not merely the absence of disease and infirmity' (WHO 2006). This broader view of health is reflected in this report, with Parts III–VI

examining the health behaviours that place children at either risk or protection from serious illness, as well as the wider social, community and economic contexts in which Australian children are growing up.

The aim of *Part II* is to provide a comprehensive picture of the health of Australia's children using general measures of health status. *Part II* looks at the following areas:

- mortality
- chronic conditions (asthma, diabetes, cancer)
- disability
- congenital anomalies
- mental health.

In 2003, the leading broad causes of disease burden among Australian children were mental disorders, chronic respiratory conditions (including asthma) and neonatal causes (Begg et al. 2007). Each of these is discussed in *Part II*.

The following table shows how children fare across the indicators presented in *Part II*, and whether there has been any improvement over time.

Indicator	Value	Trend
<b>Mortality</b>	Infant mortality rate (2006)	4.7 per 1,000 ✓
	Sudden infant death syndrome (SIDS) rate (2006)	24 per 100,000 ✓
	Death rate for children aged 1–14 years (2006)	13 per 100,000 ✓
<b>Morbidity</b>	Children aged 0–14 years with asthma as a long-term condition (2004–05)	12% ~
	New cases of insulin-dependent diabetes for children aged 0–14 years (2006)	23 per 100,000 ✗
	New cases of cancer for children aged 0–14 years (2001–2005)	14 per 100,000 ..
<b>Disability</b>	Children aged 0–14 years with severe or profound core activity limitations (2003)	4.3% ✗
	Rate of selected congenital anomalies among infants at birth (1998–2003):	
<b>Congenital anomalies</b>	neural tube defects	4.5 per 10,000 ..
	Down syndrome	11 per 10,000 ..
	abdominal wall defects	4.4 per 10,000 ..
	orofacial clefts	17 per 10,000 ..
<b>Mental health</b>	Children aged 4–14 years with mental health problems (2004–05)	No recent data available ..
	Children aged 6–14 years with mental health disorders (ADHD, depressive disorder, conduct disorder)	No recent data available ..

Key: ✓ = favourable trend; ✗ = unfavourable trend; ~ = no change or clear trend; .. = no trend data presented.

## 4 Mortality

Infant and child death rates provide insight into the social and environmental conditions in which Australia's children grow and develop.

Death rates have halved for Australian infants and children over the last two decades. However, rates among Indigenous children and children from remote areas remain much higher than the national rate.

Mortality rates and causes of mortality are key indicators of the health of a population. They not only reflect circumstances around the time of death but also provide insight into changes in social and environmental conditions, medical interventions, lifestyles and trends in underlying risk factors.

Globally, deaths of children under 5 years have reached a record low, falling below 10 million per year in 2006 from almost 13 million in 1990. Much of the progress is a result of the widespread adoption of basic health interventions, such as early and exclusive breastfeeding, immunisation against once-common and deadly childhood infectious diseases, and improved nutrition (UNICEF 2007a). Australia has also shown significant progress in reducing infant and child deaths, particularly as a result of the work of neonatal intensive care units, increased community awareness of the risk factors for sudden infant death syndrome (SIDS), and reductions in vaccine-preventable diseases through national childhood immunisation programs.

High rates of infant and child mortality are strongly associated with social and economic disadvantage (Collison et al. 2007; CSDH 2008; Freemantle et al. 2006; Marmot & Wilkinson 2006; Yu 2008). Socioeconomic status affects infant and child survival through a number of proximate determinants including maternal factors (such as age, parity, birth interval), environmental contamination, nutritional deficiency, injury, personal preventive measures and access to medical treatment (Mosley & Chen 2003).

Australia's overall death rate compares well to other OECD countries, ranking 3rd lowest out of 25 countries in 2003 (AIHW 2008b). However, Australian children rank in the bottom third of OECD countries for infant and under 5 mortality, and Aboriginal and Torres Strait Islander children experience significantly worse

health outcomes compared to non-Indigenous children (ABS & AIHW 2008; Leeds et al. 2007). In 2008, the Australian Government committed to halve the gap between Indigenous and non-Indigenous mortality rates for 5 year olds within a decade (Rudd 2008).

Improvements in both access to quality antenatal healthcare and maternal health through improved nutrition and reduction in risk behaviours during pregnancy (such as alcohol and tobacco use), as well as annual health checks for children, may serve to reduce the risk of poor health outcomes among Indigenous children (AHMAC 2008; AIHW 2009a; CDC 2006; Drevenstedt et al. 2008).

This chapter looks at mortality differentials and the main causes of death of Australian infants and children.

### INFANT MORTALITY

A child's risk of death is greatest around the time of birth and in the first year of life. The infant mortality rate—the number of deaths of infants less than 1 year of age in a given year, expressed per 1,000 live births in the same year—reflects the impact of structural factors on population health more broadly (Reidpath & Allotey 2003).

For these reasons, the infant mortality rate is used internationally as a key measure of population and child health and has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information and state and territory data).

**Headline Indicator:** Mortality rate for infants less than 1 year of age

The infant mortality rate almost halved between 1986 and 1998 (from 8.8 to 4.7 deaths per 1,000 live births), but has remained comparatively stable to 2006 (Figure 4.1). In 2006:

- There were 1,262 infant deaths—a rate of 4.7 per 1,000 live births (5.3 and 4.1 for males and females, respectively). Infant deaths comprised 1% of all deaths, but almost three-quarters of deaths among children (0–14 years).
- Two-thirds of infant deaths occurred in the neonatal period (first 28 days after birth), and 60% of these occurred on the day of birth. The neonatal death rate has declined by 40% between 1986 and 2006—from 5.4 to 3.2 per 1,000 live births, respectively.
- Deaths of male infants accounted for more than half (58%) of all infant deaths. The predominance of male deaths is related to the greater number of male births—there are around 106 male live

births for every 100 female live births—but also reflects the greater vulnerability of male infants to infections and conditions related to prematurity and development (Drevenstedt et al. 2008).

### CAUSES OF INFANT DEATH

Between 1997 and 2006, the three leading causes of infant death have remained unchanged—perinatal conditions, congenital anomalies, and symptoms, signs and abnormal findings (which includes SIDS).

Among infants in 2006:

- Perinatal conditions were the leading cause of death, accounting for half of all infant deaths. Of these perinatal conditions, one-fifth each were related to short gestation and low birthweight, and maternal complications during pregnancy (Figure 4.2).
- Congenital anomalies accounted for around one-fifth of all infant deaths. Of these deaths, the leading condition was congenital malformations of the circulatory system, accounting for 6% of all infant deaths.
- Symptoms, signs and abnormal findings was the third leading cause of death (10%), with half of these due to SIDS.
- The death rate was higher for male than for female infants for almost all leading causes of death.

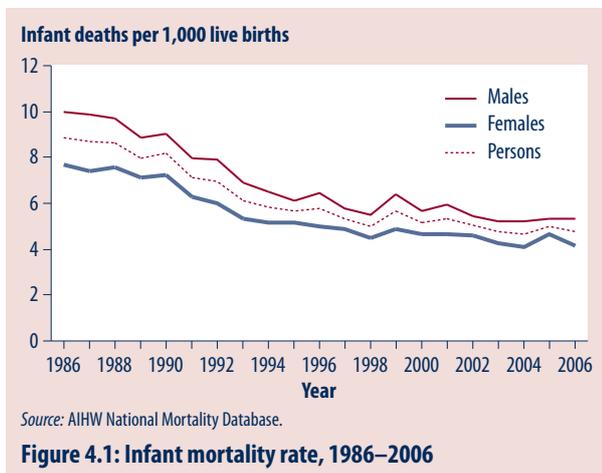


Figure 4.1: Infant mortality rate, 1986–2006

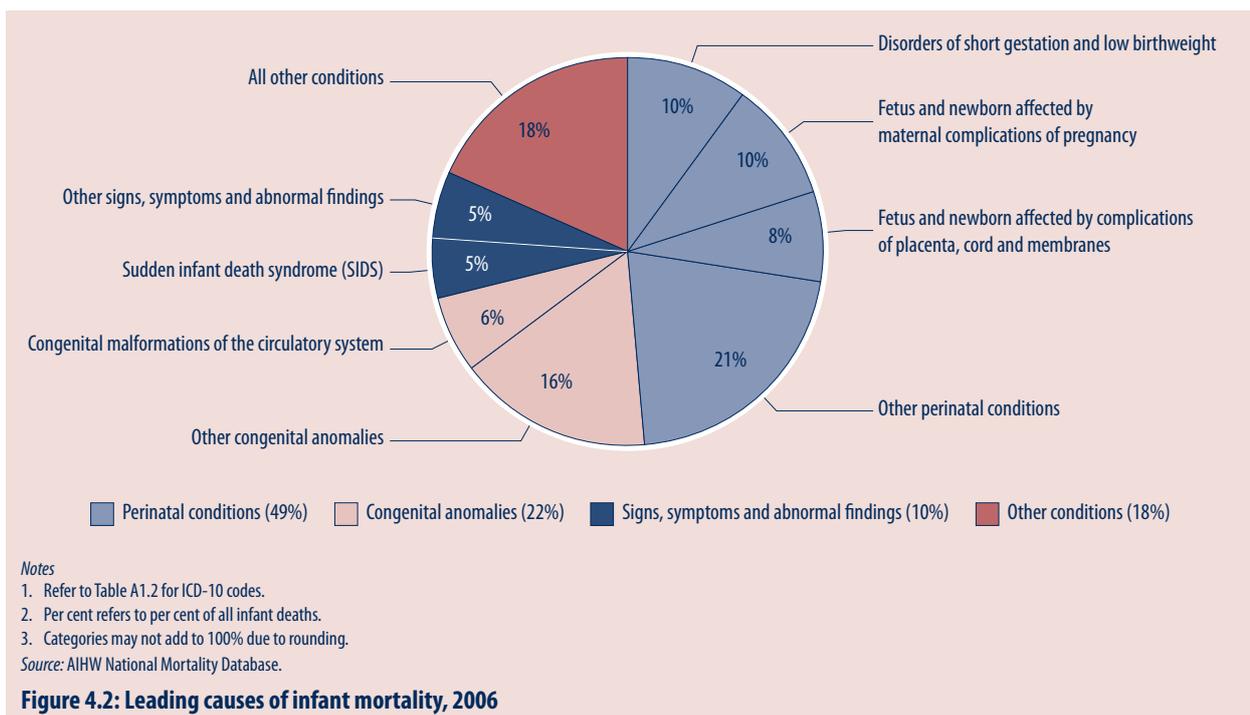


Figure 4.2: Leading causes of infant mortality, 2006

## Sudden infant death syndrome (SIDS)

SIDS refers to the sudden and unexpected death of an infant under 1 year of age during sleep, that remains unexplained after a thorough investigation (SIDS and Kids 2004). The incidence of SIDS peaks around 2–4 months of age, and affects more boys than girls (Moon et al. 2007).

The SIDS death rate—the number of SIDS deaths per 100,000 live births—has been shown to decline with public education campaigns about risk factors associated with SIDS. Risk factors for SIDS include front and side sleeping positions, soft sleeping surfaces and loose bedding, overheating, smoking and bed sharing (ABS & SIDS and Kids 2003; Byard 2001; Hunt & Hauck 2006). The reduction of SIDS deaths in Australia, since the beginning of national education campaigns in 1991, has been a major public health success (Figure 4.3). However, disparities between Indigenous and non-Indigenous infants show the potential for further reductions among Indigenous infants.

It is important to note that due to differences in the investigation and reporting of SIDS over time, the decline in SIDS deaths may not be as profound as this data indicates (ABS & SIDS and Kids 2003; Freemantle et al. 2005). This means that the number of SIDS deaths may be higher than reported. In 2004, a consensus was reached on the definition and investigation of SIDS deaths in Australia in response to this issue (SIDS and Kids 2004).

**Key national indicator:** Sudden infant death syndrome (SIDS) rate

In 2006, among infants aged less than 1 year:

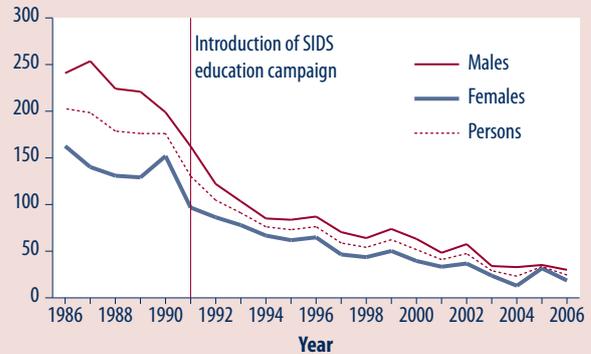
- There were 65 deaths due to SIDS—a rate of 24 deaths per 100,000 live births, and accounting for 5% of all infant deaths (Figure 4.3).
- Around 88% of SIDS deaths occurred in the post-neonatal period (between 29 and 364 days after birth). SIDS was the second leading cause of death in the post-neonatal period after deaths due to unknown causes (ICD-10 codes R95 and R96–R99, respectively).
- Males accounted for 63% of SIDS deaths.

Between 1986 and 2006:

- There was an 8-fold decrease in the SIDS death rate—from 203 per 100,000 live births to 24, representing an 88% reduction in the rate (Figure 4.3). Similar decreases were seen for male and female infants.

- The difference in the SIDS rate was statistically significantly higher for males than for females before 1993; however, in recent years the difference has not been statistically significant.

Infant deaths per 100,000 live births



**Notes**

1. Refer to Table A1.2 for ICD-10 codes.
2. A comparability factor of 0.94 has been applied to years 1986–1996 to align ICD-9 and ICD-10 coding practices.

Source: AIHW National Mortality Database.

**Figure 4.3: Trends in deaths due to sudden infant death syndrome, 1986–2006**

## CHILD MORTALITY

Child mortality is measured as the number of deaths of children aged 1–14 years per 100,000 children of the same age. Death rates among Australian children are declining, but further gains are possible for preventable causes of death such as injuries (28% of deaths were caused by transport accidents or other injuries between 2004 and 2006).

**Key national indicator:** Death rate for children aged 1–14 years

In 2006, among children aged 1–14 years:

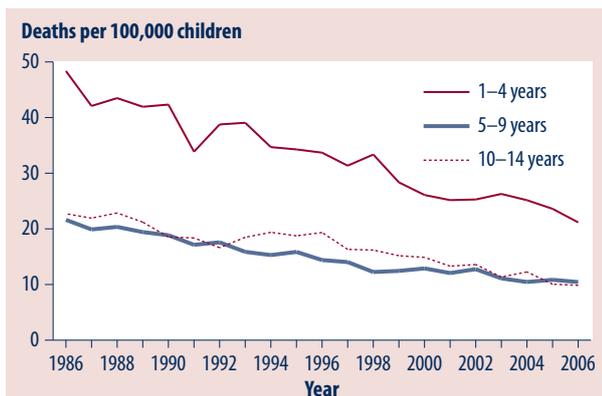
- There were 498 deaths—a rate of 13 per 100,000 children (15 and 12 deaths per 100,000 for boys and girls, respectively).
- The death rate for 1–4 year olds (21 per 100,000 children) was twice the rate for 5–9 and 10–14 year olds (each 10 per 100,000 children).
- Boys accounted for 56% of deaths.

Between 1986 and 2006, among children aged 1–14 years:

- Death rates halved from 30 to 13 deaths per 100,000 children, representing a 55% decrease.

This is largely due to a decrease in transport accident death rates over this period.

- The decline in death rates occurred across all three age groups: 1–4, 5–9 and 10–14 years (56%, 52% and 57% decline, respectively) (Figure 4.4).
- The death rate for boys decreased by a greater amount than for girls (58%, compared with 51%, respectively); however, the rate for boys remained between 20% and 60% higher.



Source: AIHW National Mortality Database.

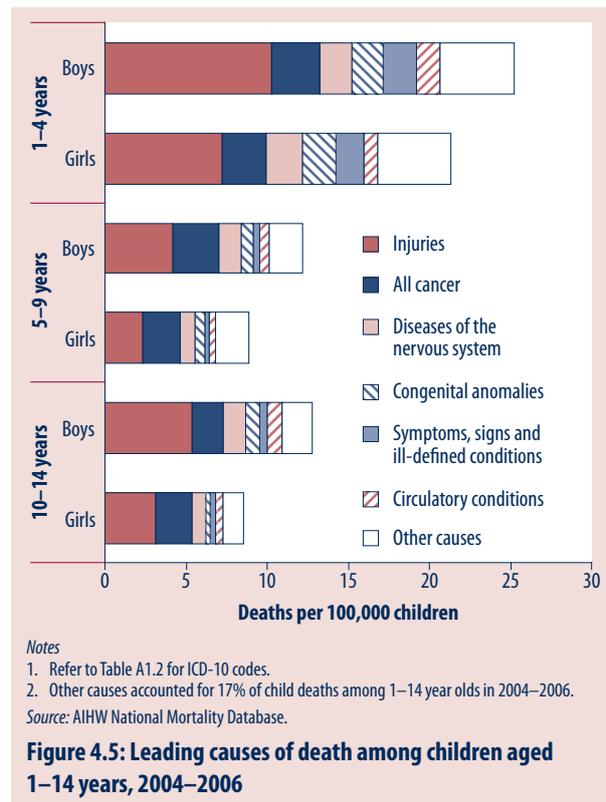
**Figure 4.4:** Death rates for children aged 1–14 years, 1986–2006

### CAUSES OF CHILD DEATH

Between 1997 and 2006, the three leading causes of child death have remained the same: injuries, cancer and diseases of the nervous system (see *Chapter 32* for further information on childhood injuries).

In 2004–2006, among children aged 1–14 years:

- The leading causes of death were injuries (37%), cancer (17%) and diseases of the nervous system (10%)—rates of 5.1, 2.6 and 1.4 per 100,000 children, respectively.
- Children aged 1–4 years had higher rates of injury, cancer and diseases of the nervous system than children aged 5–9 and 10–14 years (Figure 4.5).
- The injury death rate among boys was 60% higher than for girls.



Notes

1. Refer to Table A1.2 for ICD-10 codes.
2. Other causes accounted for 17% of child deaths among 1–14 year olds in 2004–2006.

Source: AIHW National Mortality Database.

**Figure 4.5:** Leading causes of death among children aged 1–14 years, 2004–2006

### How do rates of infant and child mortality vary across population groups?

While infant and child mortality rates are very low nationally, these rates mask significantly higher rates of mortality among some population groups within Australia, in particular Indigenous children and those living in remote areas and socioeconomically disadvantaged areas. The higher mortality rates experienced among these population groups are the result of a multitude of factors, but largely reflect increased disease prevalence due to reduced access to health care services, higher rates of disability and behavioural risk factors, and high levels of socioeconomic disadvantage (AIHW 2008b).

#### Aboriginal and Torres Strait Islander infants and children

Closing the gap between Indigenous and non-Indigenous mortality rates for under 5 year olds within a decade is a key priority for the Australian Government (Rudd 2008). In 2002–2006, based on deaths in Queensland, Western Australia, South Australia and the Northern Territory only:

- Infant mortality rates were 3 times as high for Indigenous infants than for non-Indigenous infants (12.5 and 4.3 deaths per 1,000 live births, respectively).

- Indigenous infants were significantly more likely to die of SIDS than non-Indigenous infants—the death rate was 5.4 times as high as for non-Indigenous infants (106 and 20 per 100,000 live births, respectively).
- Indigenous children aged 1–14 years were 2.9 times as likely to die as non-Indigenous children (39 deaths per 100,000 children compared with 13).

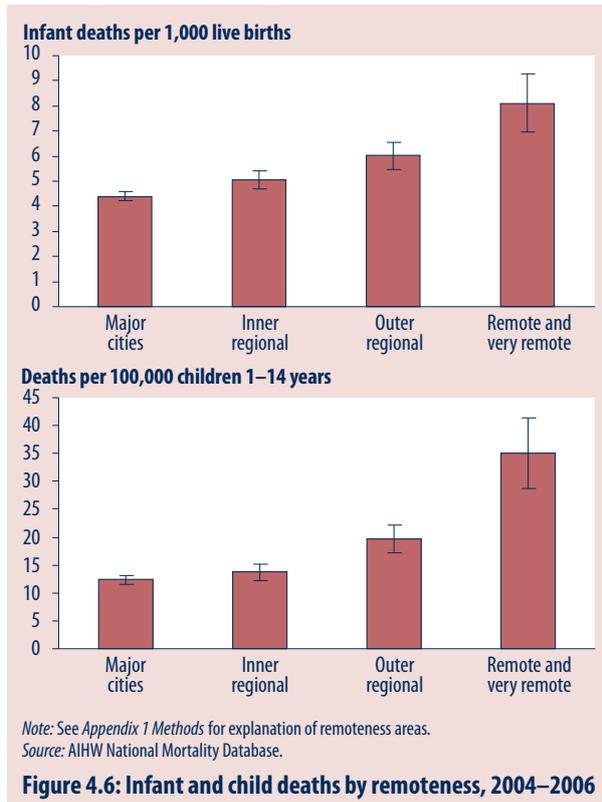
Refer to *Part IX* for further information on deaths among Indigenous infants and children.

### Remoteness

Infants and children living in *Remote and very remote* areas had significantly higher death rates than their peers in *Major cities* (Figure 4.6). This may be partly explained by the high proportion of Indigenous children living in *Remote and very remote* areas (38% of all children aged 0–14 years in these areas were Indigenous in 2006), and the higher death rates among these children.

In 2004–2006, when comparing *Remote and very remote* areas with *Major cities*:

- Death rates among infants were almost twice as high (8.1 and 4.4 per 1,000 live births, respectively).
- Among children aged 1–14 years, death rates were around 3 times as high (35 and 12 per 100,000 children).

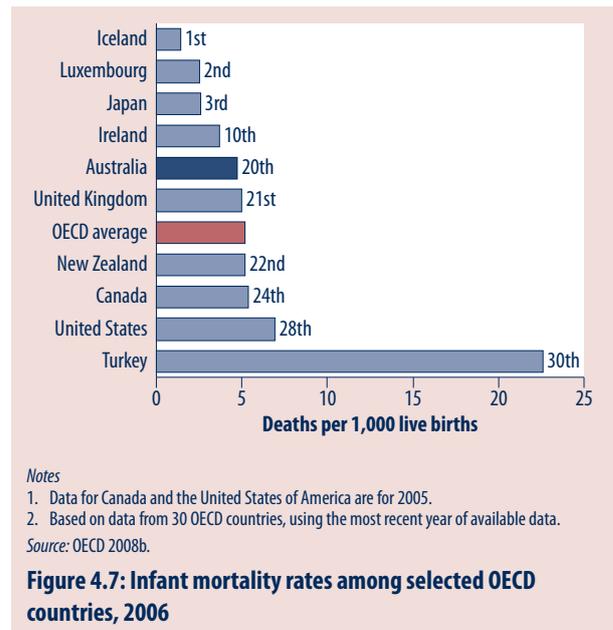


## How do Australia’s mortality rates for infants and under 5 year olds compare internationally?

### Infant mortality

Australia’s infant mortality rate ranked in the lowest third of Organisation for Economic Cooperation and Development (OECD) countries in 2006 (20th out of 30 countries). With a rate of 4.7 infant deaths per 1,000 live births in 2006, Australia performed slightly better than the OECD average (5.2), but had a rate 3 times as high as Iceland, the best performing country (1.4), and twice as high as Luxembourg (2.5) and Japan (2.6) (OECD 2008b) (Figure 4.7).

Excluding Indigenous infant mortality, Australia still ranked 18th among OECD countries with a rate of 4.4 per 1,000 live births.



### Mortality of under 5 year olds

Australia’s child mortality rate for under 5 year olds ranked equal 21st out of 30 OECD countries in 2006. With a rate of 6 deaths per 1,000 live births, Australia performed slightly better than the OECD average (7). Finland and Iceland, the best performing countries, had rates half that of Australia (both 3 deaths per 1,000 live births) (WHO 2008c).

## 5 Chronic conditions

Chronic conditions account for a large proportion of the burden of disease among children and can affect normal growth and physical, social and emotional development processes.

Asthma hospitalisations and visits to general practitioners are declining and cancer survival continues to improve; however, the incidence of Type 1 diabetes is rising.

Australia's children continue to grow and develop in an environment where death and communicable disease rates are in decline. However, chronic conditions continue to pose a significant challenge to the health and wellbeing of Australian children. A chronic condition is an ongoing impairment characterised by a physical or mental condition, functional limitation, and service use or need beyond routine care (AIHW 2007c). Chronic conditions can disrupt the normal growth and development processes of children either directly, or indirectly as a result of treatment. Chronic conditions can also affect the social and emotional development of children, for example, through fear of stigmatisation, school absences or inability to participate in age-appropriate activities, and through physical pain and suffering that can negatively affect future functioning (Dell'Api et al. 2007).

Chronic conditions can place children and their families under social, psychological and economic pressure. The impact depends on the severity of the condition, its effects on daily living, and how well it can be managed or treated. Mild to moderate asthma, for example, may be easily managed through preventive drug treatment, and is rarely fatal. Childhood cancer, on the other hand, requires intensive treatment, and may result in death.

This chapter focuses on three chronic conditions affecting Australia's children—asthma, diabetes and cancer. These conditions are National Health Priority Areas, due to their impact on health, the potential to reduce their burden and community concern. These conditions

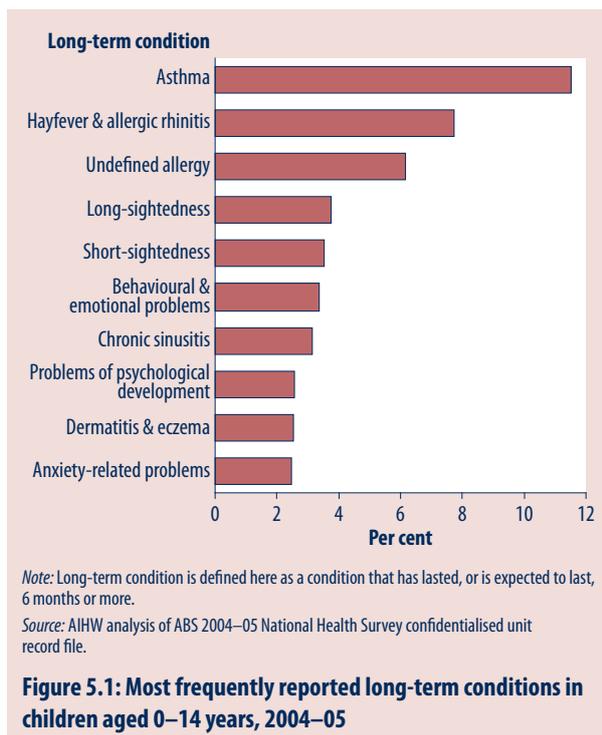
accounted for 20% of the burden of disease among children aged 1–14 years in 2003 (Begg et al. 2007). Other chapters in this report relating to chronic conditions are *Chapter 6 Disability* and *Chapter 8 Mental health*.

This chapter uses a variety of data sources, including hospital, mortality and survey data. Please refer to *Appendix 1* and *Appendix 2* for technical issues and information regarding these sources.

### HOW MANY AUSTRALIAN CHILDREN HAVE CHRONIC CONDITIONS?

According to the 2004–05 National Health Survey of the Australian Bureau of Statistics (ABS) (ABS 2006), among children aged 0–14 years:

- Forty-one per cent (1.6 million) were estimated to have at least one long-term condition, that is, a condition that has lasted, or is expected to last, 6 months or more.
- Boys were more likely to report a long-term condition than girls (55% and 45%, respectively).
- Asthma was the most frequently reported long-term condition (12%), followed by hayfever and allergic rhinitis (8%), and undefined allergies (6%) (Figure 5.1). Asthma and allergic rhinitis both occur more commonly in people with hypersensitivity to allergens. Hence, people with asthma have a relatively higher risk of also having allergic rhinitis, and vice versa.



## Asthma

Asthma is the most common long-term condition among Australian children. The disease is characterised by recurrent episodes of wheeze, chest tightness, cough and shortness of breath caused by narrowing of the airways and obstruction to airflow (GINA 2005). The underlying causes of asthma are still not well understood, but environmental and lifestyle factors, as well as a hypersensitivity to allergens, may increase the risk of developing asthma. A number of factors can trigger airway narrowing and asthma symptoms, including physical activity, viral infections, irritants, cold weather, specific allergies and certain food preservatives.

In 1999, asthma was made the sixth National Health Priority Area. This has resulted in activities to improve asthma management and care, and the monitoring of asthma in Australia. The National Asthma Strategy 2006–2008 provides a framework for a collaborative approach towards improving asthma care in Australia (AHMC 2006). For the majority of people with asthma, the condition can be effectively controlled with appropriate use of preventive and relief medication, as well as avoiding or controlling trigger factors. However, for some people, asthma can place considerable restrictions on their physical, social and emotional lives and their families.

Although asthma was the leading cause of disease burden for children in Australia in 2003 (Begg et al. 2007), deaths from asthma among children are rare (less than five deaths of children were due to asthma in 2006).

### Asthma prevalence

**Key national indicator:** Proportion of children aged 0–14 years with asthma as a long-term condition

According to the ABS 2004–05 National Health Survey:

- An estimated 12%, (around 451,500) of Australian children aged 0–14 years reported asthma as a long-term condition, similar to that in 2001 (13%, or 527,500 children).
- The prevalence of asthma among children was similar to the general population (10%); however, children represented around one-fifth of the two million Australians with asthma.
- Asthma prevalence was higher among boys (13%) than girls (10%); however, among 15–24 year olds this pattern is reversed, with the prevalence for girls higher than for boys (AIHW 2007c).
- Asthma prevalence among children peaked at 10–14 years (17%) for boys and at 5–9 years (12%) for girls.

It is difficult to accurately estimate the prevalence of asthma in the population due to differences in how asthma is measured, for example, by self-reported wheeze, diagnosis by a general practitioner based on symptoms, or a combination of symptoms and lung function tests (GINA 2005). Despite these difficulties, there is consistent evidence that asthma prevalence increased in the 1980s to early 1990s among children. In recent years, data from small-scale prevalence studies suggest that this trend has stabilised and may be declining (ACAM 2005, 2008).

### Health service use for asthma

#### HOSPITALISATIONS

In 2006–07, there were around 21,000 hospital separations for asthma among children aged 0–14 years—a rate of 520 per 100,000 children (accounting for 4% of all child hospital separations).

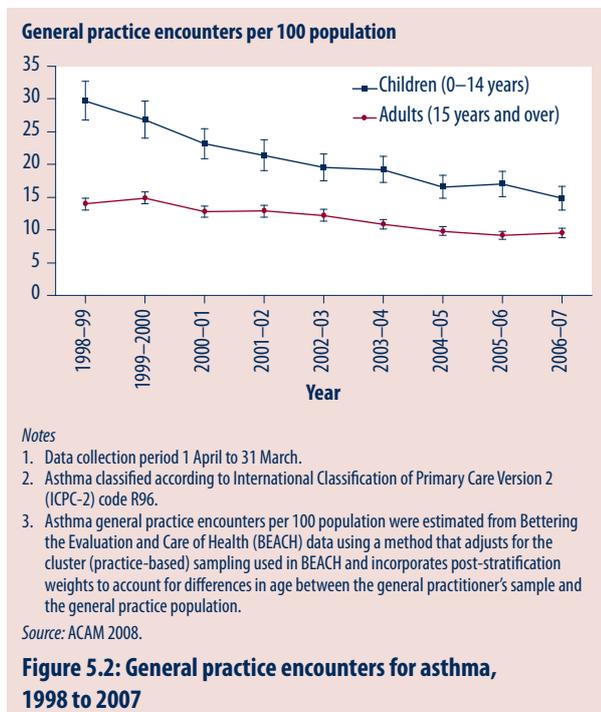
- The asthma hospital separation rate has declined significantly by one-third since 1996–97—from 796 per 100,000 children to 520. The largest reduction occurred among children aged 10–14 years (decline

of 55% for boys and 59% for girls). This decline may indicate improvements in asthma education, management and treatment in the community, particularly in managing severe exacerbations.

- Boys accounted for almost two-thirds of separations. The rates were of 637 per 100,000 and 397 for boys and girls, respectively.
- The highest rate for children was among those aged 0–4 years (1,000 per 100,000 children). The rate decreased with increasing age. However, due to difficulties in distinguishing asthma from other respiratory conditions such as viral respiratory illness, asthma hospital separations among children aged less than 5 years may be overestimated (GINA 2007).

#### GENERAL PRACTICE ENCOUNTERS

Asthma accounted for 4% of general practice encounters for children aged 0–14 years in 2006–07, according to the Bettering the Evaluation and Care of Health (BEACH) survey. The rate of general practice encounters for asthma among children halved between 1998–99 and 2006–07 (30 to 15 general practice encounters per 100 population, respectively). Despite this decline, the rate for children remained higher than for adults aged 15 years and over in 2006–07 (Figure 5.2).



## Diabetes

Diabetes is a chronic condition in which the body cannot properly use its main energy source, the sugar glucose. This is due to a relative or absolute deficiency in insulin, a hormone produced by the pancreas. Insulin helps glucose enter the body's cells from the bloodstream and then to be used by them. Diabetes is marked by an abnormal build-up of glucose in the blood and can have serious short- and long-term effects, including diabetic coma, kidney failure, loss of eyesight and limbs, disability, and premature death. People with diabetes can control and reduce their risk of complications by ensuring that blood glucose levels remain within the normal range. This can be achieved through a combination of physical activity and dietary changes. Death due to diabetes is extremely rare among children aged 0–14 years—in 2006 there were less than five deaths from diabetes.

There are two main types of diabetes, Type 1 and Type 2. Type 1 diabetes (also called juvenile-onset or insulin-dependent diabetes) most often appears during childhood or adolescence and is marked by a complete lack of insulin, requiring insulin replacement for survival. Type 1 diabetes is believed to be caused by an autoimmune condition that destroys the pancreatic cells that produce insulin; however, the reasons for this remain unknown. Research has suggested that the increase in the incidence of Type 1 diabetes among children has been too rapid to be caused entirely by genetic factors and is more likely to be related to environmental factors causing changes in the immune system that ultimately trigger the disease (Chong et al. 2007; Furlanos et al. 2008).

Type 2 diabetes is the most common form of diabetes among the Australian adult population and is marked by reduced, or less effective, insulin (AIHW 2008b). Type 2 diabetes is often linked to lifestyle factors, such as obesity and physical inactivity, and occurs most often among people older than 40 years. Although there are no reliable national estimates on Type 2 diabetes among children, smaller studies among children and youth suggest that Type 2 diabetes has increased and is becoming a significant health problem (Craig et al. 2007; McMahon et al. 2004).

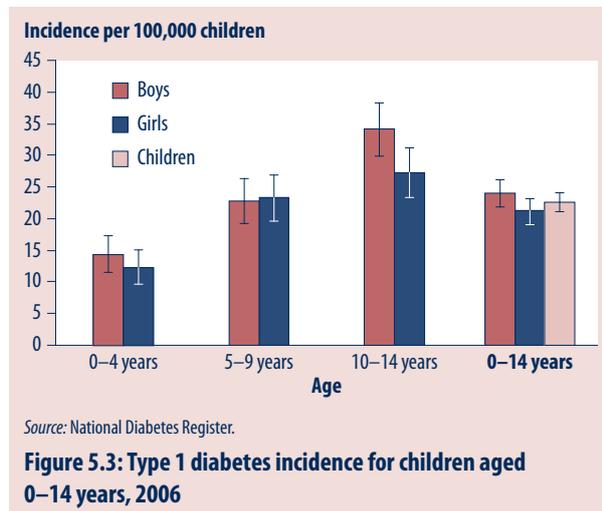
### Diabetes incidence

**Key national indicator:** New cases of insulin-dependent diabetes per 100,000 children aged 0–14 years

According to the National Diabetes Register in 2006, among children aged 0–14 years with insulin-dependent Type 1 diabetes:

- There were 916 new cases—a rate of 23 per 100,000 children, a significant increase from 2000 (19 per 100,000). This represents 155 new cases in 2006 compared with 2000.
- Incidence rates were similar for boys and girls (24 and 21 cases per 100,000, respectively).
- The incidence rate increased with age, with rates over twice as high among 10–14 year olds as 0–4 year olds (31 per 100,000 children compared with 13) (Figure 5.3).

The National Diabetes Register recorded 150 new cases of insulin-dependent Type 2 diabetes among children aged 0–14 years between 1999 and 2005 (AIHW: Catanzariti et al. 2007). This is an underestimate of all new cases of Type 2 diabetes among children as the register records only insulin-dependent diabetes, and the majority of Type 2 diabetes cases do not require insulin.

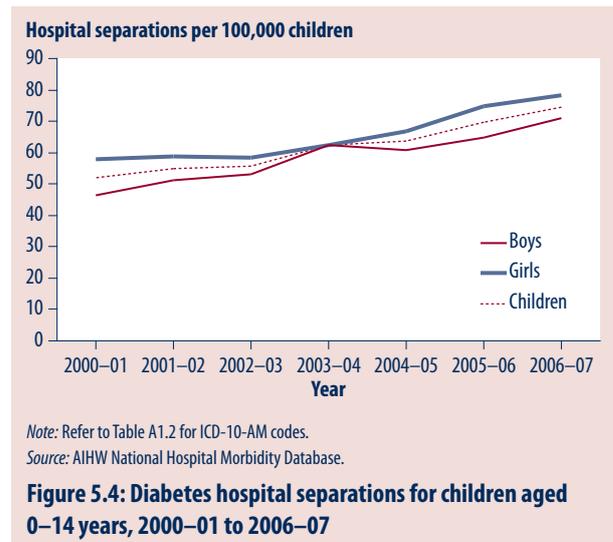


### Health service use for diabetes

#### HOSPITALISATIONS

In 2006–07, there were around 3,000 hospital separations for diabetes among children aged 0–14 years—a rate of 75 per 100,000 children.

- The rate increased for children by almost 43% since 2000–01. The increase was 53% for boys (46 to 71 per 100,000 boys) and 35% for girls (58 to 78 per 100,000 girls) (Figure 5.4).
- The rate for girls was 10% higher than for boys in 2006–07.
- The rate increased rapidly with age, from 3 per 100,000 for 0–4 year olds to 20 and 43 for 5–9 and 10–14 year olds, respectively.



### Cancer

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

The risk of most cancers increases with age and most types of cancers are uncommon in children. Cancers in children tend to differ from those observed in adults in appearance, site of origin and response to treatment.

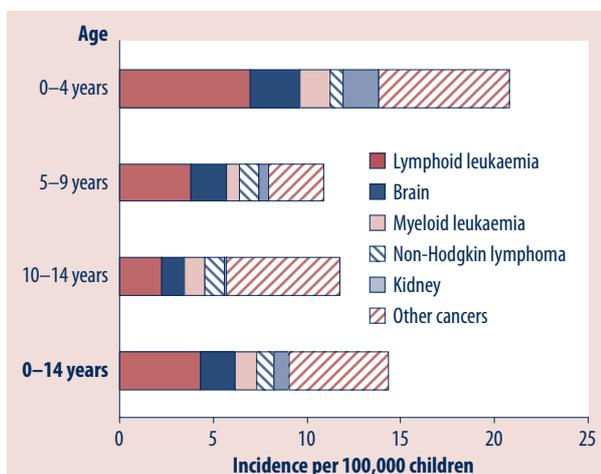
Cancer causes significant morbidity and mortality for children, and was a leading cause of death for 1–14 year olds in 2006 (see *Chapter 4*). However, over the last decade, medical advances and technological improvements in cancer diagnosis and treatment have resulted in improved survival and a clear decline in mortality among children, despite the cancer incidence rate remaining unchanged.

### Cancer incidence

**Key national indicator:** New cases of cancer per 100,000 children aged 0–14 years

Over the period 2001–2005, among children aged 0–14 years:

- An average of 575 new cases of cancer were diagnosed annually—a rate of 14 per 100,000 children (15 and 13 per 100,000 boys and girls, respectively).
- Over half of all new cancers (55%) were diagnosed among boys.
- The cancer incidence rate for those aged 0–4 years (21 per 100,000 children) was almost twice those of children aged 5–9 years and 10–14 years (11 and 12 per 100,000, respectively) (Figure 5.5).



Note: Refer to Table A1.2 for ICD-10-AM codes.

Source: AIHW National Cancer Statistics Clearing House.

**Figure 5.5: Most common types of new cancers among children aged 0–14 years, 2001–2005**

- The most common types of new cancer diagnosed were lymphoid leukaemia, cancer of the brain and myeloid leukaemia (4.3, 1.9 and 1.1 per 100,000 children, respectively) (Figure 5.5), similar to the previous 5-year period (1996–2000). In 2005, these cancers accounted for half of all cancers diagnosed among children.

### Health service use for cancer

#### HOSPITALISATIONS

There were around 6,500 hospital separations for cancer among children aged 0–14 years in 2006–07—a rate of 162 per 100,000 children.

- The majority of these separations were for boys (55%), a pattern consistent with previous years (1996–97 to 2006–07).
- Children aged 0–4 years had a separation rate nearly twice that of 10–14 year olds (227 compared with 118 per 100,000 children, respectively). This pattern is consistent with rates of cancer incidence among these age groups.
- There has been little change in the cancer hospital separation rate since 1997–98.

### Cancer deaths

In 2006, there were 90 cancer deaths among children aged 0–14 years—a rate of 2.2 per 100,000 children (Table 5.1).

- This accounted for around 5% of all child deaths. Cancer was the second leading cause of death for children aged 1–14 years (see *Chapter 4 Mortality*).
- Death rates from cancer have declined by 38% since 1997—from 3.6 per 100,000 children to 2.2 between 1997 and 2006 (Table 5.1).
- The most common cancers causing death among children in 2006 were malignant neoplasm of the brain (33%), lymphoid leukaemia (17%), malignant neoplasm of the adrenal gland (10%) and myeloid leukaemia (9%).

**Table 5.1: Cancer deaths among children aged 0–14 years, 1997–2006**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number	140	154	122	106	118	124	102	114	96	90
Deaths per 100,000 children	3.6	3.9	3.1	2.7	3.0	3.1	2.5	2.8	2.4	2.2

Note: Refer to Table A1.2 for ICD-9 and ICD-10 codes.

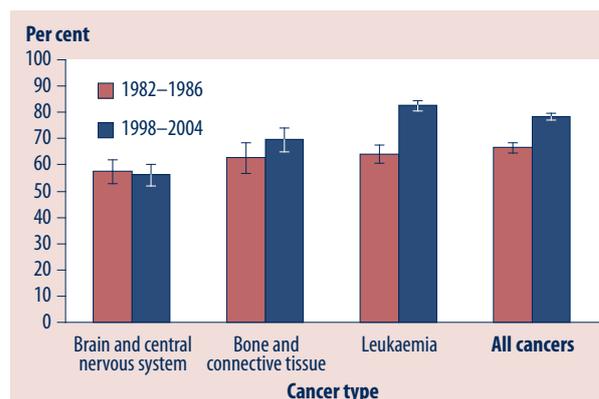
Source: AIHW National Mortality Database.

### Cancer survival

Survival after a diagnosis of cancer can be used to assess the effectiveness of early cancer detection, access to appropriate treatment services, collaboration between health care professionals, and ongoing medical research and clinical trials. Relative survival is the ratio between the observed survival among a group of people with cancer and the expected survival among the same group in the general population. For example, a relative survival of 100% indicates that the disease has made no difference to survival of the group over a given period. A relative survival of less than 100% indicates that cancer did reduce survival compared with the general population.

The 5-year relative survival among children aged 0–14 years diagnosed with cancer in 1998–2004 was:

- 79% for all cancers, an increase from 67% for those diagnosed in 1982–1986. The gains in survival have not been consistent across all cancers—leukaemia survival increased by 19 percentage points since 1982–1986 (from 64% to 83%) (see also *Chapter 40*), while there was no statistically significant change in survival for cancer of the brain and central nervous system, and bone and connective tissue (Figure 5.6)
- similar for boys and girls for all cancers
- higher for leukaemia (83%) than for cancer of the bone and connective tissue (70%), and brain and central nervous system (56%) (Figure 5.6).



Note: Refer to Table A1.2 for ICD-9 and ICD-10 codes.

Source: AIHW National Cancer Statistics Clearing House.

**Figure 5.6: Five-year relative survival for cancer among children aged 0–14 years, 1982–1986 to 1998–2004**

### How do chronic conditions vary across population groups?

#### Aboriginal and Torres Strait Islander children

- Asthma prevalence for Indigenous children was estimated to be 14% in 2004–05—3 percentage points higher than for non-Indigenous children (11%) (ABS & AIHW 2008). There are no reliable national estimates of diabetes or cancer incidence for Indigenous children aged 0–14 years.
- In 2006–07, hospital separation rates for asthma were similar among Indigenous and non-Indigenous children. However, diabetes and cancer hospital separation rates were 4 and 2 times as high as for non-Indigenous children, respectively (excludes data from Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory) (Table 5.2).

### Remoteness

- Asthma prevalence for children aged 0–14 years was lowest in *Outer regional and Remote and very remote* areas (10% combined) compared with *Major cities* (11%) and *Inner regional* areas (14%), according to the ABS 2004–05 National Health Survey.
- The rate of new cases of insulin-dependent Type 1 diabetes was twice as high in *Major cities* compared with *Remote and very remote* areas (22 compared with 11 per 100,000 children) during 1999 to 2005 (National Diabetes Register, unpublished data).
- 5-year relative survival for cancer among children aged 0–14 years was significantly higher in *Major cities* (81%) and *Inner regional* areas (80%) than in *Remote and very remote* areas (64%).
- Hospital separation rates for asthma and cancer were 70% and 80% higher in *Major cities* compared with *Remote and very remote* areas, respectively; however, there was little difference in the diabetes hospital separation rate (Table 5.2).

**Table 5.2 Hospital separations for children aged 0–14 years, 2006–07 (per 100,000)**

Population group	Asthma		Diabetes		Cancer	
	Rate	Ratio	Rate	Ratio	Rate	Ratio
Indigenous status						
Indigenous	559	1.0	273	4.0	361	2.2
Non-Indigenous	526		69		166	
Remoteness						
Major cities	569	1.7	70	1.0	168	1.8
Remote and very remote	336		67		94	
Socioeconomic status <sup>(a)</sup>						
Lowest SES areas	557	1.2	83	1.4	149	0.8
Highest SES areas	480		59		181	
<b>All children</b>	<b>520</b>		<b>75</b>		<b>162</b>	

(a) See Appendix 1 Methods for explanation of socioeconomic status (SES).

Note: The ratio for hospital separation rates is calculated as Indigenous divided by non-Indigenous, Major cities divided by Remote and very remote and lowest SES areas divided by highest SES areas.

Source: AIHW National Hospital Morbidity Database.

### Socioeconomic status

- Asthma prevalence was similar among children living in areas of lowest socioeconomic status (SES) and areas of highest SES (9% and 10%, respectively) according to the ABS 2004–05 National Health Survey.
- There was little difference in 5-year relative survival for cancer between children in the lowest SES areas compared with the highest SES areas (79% and 81%, respectively).
- Hospital separation rates for asthma and diabetes were higher for children living in the lowest SES areas compared with the highest SES areas (20% and 40% higher, respectively); however, for cancer, hospital separation rates were 20% lower among children living in the lowest SES areas compared with the highest SES areas.

### How does Australia perform internationally on chronic disease indicators?

#### Asthma

Australia's prevalence of childhood asthma compares unfavourably with other countries. According to phase III of the International Study of Asthma and Allergies in Childhood, out of 37 countries, the proportion of children aged 6–7 years with current wheeze was highest in Costa Rica (35%) and Australia (24%) and lowest in Indonesia (3.5%) (Pearce et al. 2007). Other countries such as New Zealand (23%), United Kingdom (20%) and Canada (16%) all ranked lower than Australia. The prevalence of current wheeze among Australian children aged 6–7 years decreased by 0.8% between phase I (conducted in 1993) and phase III (2002).

#### Diabetes

The incidence of Type I diabetes among Australian children aged 0–14 years is high compared with other OECD countries. In 2003, Australia ranked 7th worst out of the 30 OECD countries (IDF 2008). Finland had the highest incidence of Type 1 diabetes (37 per 100,000 children), while Australia had a similar incidence to the United Kingdom (19 and 18, respectively). Korea had the lowest incidence of Type I diabetes (0.7).

## 6 Disability

Children with disability can have diverse physical, sensory, intellectual and psychiatric impairments, resulting in activity and participation limitations that restrict their full involvement in society.

An estimated 8% of Australian children had a disability in 2003 and, of these, half had profound or severe core activity limitations (4%).

Disability is a characteristic that goes beyond the presence or absence of particular health conditions; it relates to the way in which an individual functions in society and is strongly influenced by environmental factors (AIHW 2007a). As a child grows and develops, new challenges come with each new learning and social environment they encounter. For a child with disability, this often means changes in the lived experience of disability throughout childhood. The United Nations Convention on the Rights of Persons with Disabilities recognises disability as an evolving concept: 'disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others' (UN 2006).

Typically, the disability spectrum is measured in terms of the level of difficulty (also expressed as need for assistance) that a person has in performing the core activities of daily living: self-care, mobility and communication, as well as difficulty in other activities. Schooling is a vital aspect of life for most children and a child's disability might be described in terms of both core activity limitation and 'schooling restriction'. Schooling restriction is often associated with a need for special assistance and/or equipment to participate in a mainstream class, or attendance at special classes or a special school (AIHW 2008e). At the severe end of the disability spectrum, there can be a need for lifelong support through specialist services and informal or formal care.

Children with disability can have diverse physical, sensory and/or intellectual impairments, some of which may result in activity and participation restrictions that restrict their full involvement in society, and that of their carers. Disability, particularly disabilities with physical characteristics such as birth defects

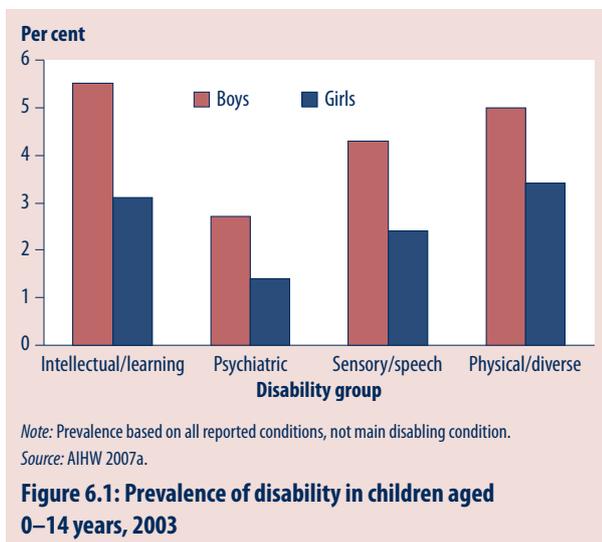
(see *Chapter 7 Congenital anomalies*), may be evident early in life, while others may occur as the result of an accident, or emerge during development in childhood. Individual variation in learning and development can complicate the identification of disability, yet early detection, along with intervention, has the potential to significantly reduce disability and its impact on the person's participation in all aspects of life over the life span (Kornhaber et al. 2007).

In addition to difficulties for the child, childhood disability has a significant impact on the family. Caring for a child with disability can place substantial strain on family relationships and is strongly associated with social and financial disadvantage. Parental employment may be difficult if a child requires intensive support, and financial stress from loss of income may be compounded by costs associated with managing disability and associated health conditions. There may be a significant impact for siblings if support and attention to their needs is diverted by the caregiving commitments of their parents (AIHW 2004). Disruption to family life may also occur due to the need to move house due to the child's disability or health condition—in 2003, one in eight families with a child with disability reported having to do so. Studies have also found children with disability to be more vulnerable to intra- and extra-familial abuse and neglect (Crosse et al. 1993; Sullivan & Knutson 2000), although Australian research in this area is limited (Chenoweth 2002).

### HOW MANY AUSTRALIAN CHILDREN HAVE A DISABILITY?

The ABS 2003 Survey of Disability, Ageing and Carers found that around 8%, or 317,900, children aged 0–14 years had disability (ABS 2004a):

- The prevalence of disability increased from 5.3% in 1981 to 8.3% in 2003 (AIHW 2008f).
- Boys were more likely than girls to report disability (10% and 7%, respectively).
- The most prevalent disabilities among children were intellectual/learning, reported for an estimated 166,700 children (4.3%), and physical/diverse (162,800 children or 4.2%).
- Intellectual/learning disability was the most prevalent disability among boys (5.5%), while physical/diverse disability was the most prevalent among girls (3.4%) (Figure 6.1).



### Children with severe disability

A person with a very high level of disability will usually need assistance (either sometimes or always) with self-care, mobility and/or communication. The ABS Survey of Disability, Ageing and Carers defines this level of disability as ‘severe or profound core activity limitation’, hereafter shortened to ‘severe disability’. Compared with other children, children with severe disability rely more heavily on parents, other family members and teachers for assistance, and many require formal intervention, including specialist health and disability services.

**Key national indicator:** Proportion of children aged 0–14 years with severe or profound core activity limitation

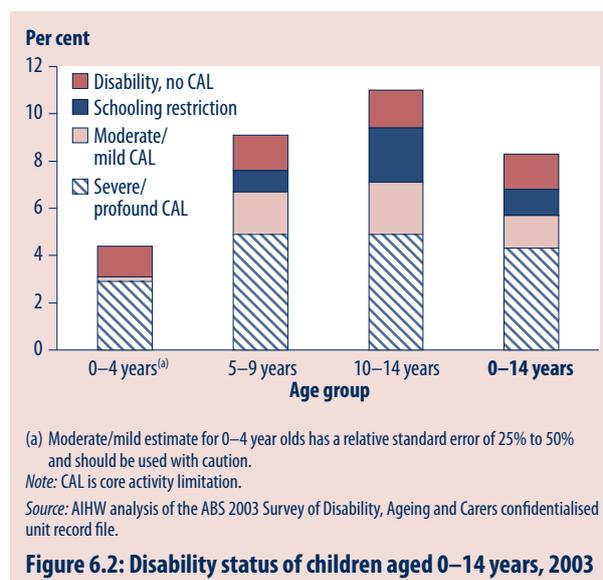
- In 2003, an estimated 4.3%, or 165,300, children aged 0–14 years had severe disability (Figure 6.2). Based on

2003 prevalence rates, in 2009 an estimated 168,500 children have severe disability (AIHW 2007b).

- The prevalence of severe disability in 2003 was higher than in 1981 (age-standardised rates of 4.3% and 1.6%, respectively). This is partially attributable to increased reporting of long-term health conditions in childhood, especially attention deficit hyperactivity disorder (ADHD) and autism-related disorders (AIHW 2008f).
- While the prevalence of disability generally increases with age, severe disability is more common among children aged 5–14 years than among 15–24 year olds (4.9% and 2.2%, respectively; ABS 2004a). Only for ages 55 and older does the prevalence of severe disability exceed that of the school-age years. Communication limitation may be particularly influential on childhood rates of severe disability (AIHW 2005a).

Different health conditions are associated with varying likelihood of severe disability in childhood. In 2003:

- Autism and intellectual impairment were strongly associated with severe disability—an estimated 87% and 75% of children with these conditions experienced severe disability, respectively.
- Epilepsy, speech difficulties, chromosomal abnormalities (for example, Down syndrome), hearing or middle ear disorders, and other mental and behavioural disorders were associated with between 50% and 75% likelihood of severe disability.
- Only 11% of children with asthma, the most commonly reported childhood health condition, had severe disability (AIHW 2006c).



**Figure 6.2: Disability status of children aged 0–14 years, 2003**

## Disability and schooling

Almost all children aged 5–14 years with disability attend school (97%), either a mainstream (89%) or special school (9%). Around one-third of school students with severe disability (that is, students who always need help with self-care, mobility or communication) attend a special school.

Disability impacts variously on a child's school life, depending on a range of factors such as the nature of the disability, school physical and social environments, and access to support and assistance. Around 63% of school-aged children with disability experienced difficulty at school. Learning difficulties, difficulty fitting in socially and communicating with others are the most commonly reported difficulties for students with a main disability of intellectual/learning, sensory/speech or psychiatric. For students with physical/diverse disability, participating in sports is the most common difficulty, followed by learning difficulties and fitting in socially. Overall, 43% of school-age children with disability experience learning difficulties and 30% have difficulty fitting in socially (AIHW 2006c). The level of schooling restriction is associated with the type of health condition that a child with disability may have. For example, all children aged 5–12 years with autism had schooling restrictions, while 93% of children with ADHD, 91% with intellectual disability and 69% with asthma experienced schooling restrictions (AIHW 2008l).

## How do rates of disability vary across population groups?

### *Aboriginal and Torres Strait Islander children*

Information about the prevalence and type of disability among Indigenous children nationally is limited. The ABS 2006 Census of Population and Housing asked questions about the need for assistance with the core activities of self-care, mobility and communication. Indigenous children aged 0–14 years were 30% more likely than non-Indigenous children to require assistance with a core activity (ABS & AIHW 2008).

The 2000–2002 Western Australian Aboriginal Child Health Survey found that between 1.2% and 2.2% of children aged 4 to 17 years required assistance with self-care and more than one in four (between 25% and 29%) were limited in one or more sensory functions (hearing, vision or speech), or experienced pain (Zubrick et al. 2004). The high rate of communication limitation suggests that the rate of severe disability would be much higher than the estimate based on self-care limitation alone.

See *Part IX* for more information on disability among Indigenous children.

### *Remoteness*

The geographical distribution of children with severe disability generally reflects that of all Australian children: 64% in *Major cities*; 23% in *Inner regional* areas and 12% in *Outer regional, remote and very remote* areas combined, according to the ABS 2003 Survey of Disability, Ageing and Carers. This highlights the need for access to services for families living inside and outside large population centres.

### *Socioeconomic status*

Disability is strongly associated with socioeconomic status, although the direction of this relationship is unknown. It may be that poverty contributes to the occurrence of a child's disability, due to increased exposure to environmental risks, lower rates of accessing health care or maternal risk factors associated with disability (for example, smoking or alcohol use during pregnancy). Alternatively, it may be that the associated costs of a child with disability, such as special aids, health service costs, modifications to the house, and reduced family income due to caring responsibilities, may lead to socioeconomic disadvantage and poverty (AIHW 2004).

Based on equivalised household income quintiles, the proportion of children with severe disability was highest among low-income households (29%) and lowest among high-income households (7%) in 2003 (AIHW 2005b).

## 7 Congenital anomalies

Congenital anomalies are a major cause of hospitalisation in infancy and childhood and a leading cause of infant mortality in Australia.

Indigenous infants and infants from remote areas are more likely to be born with selected congenital anomalies, particularly neural tube defects—a largely preventable condition.

A congenital anomaly, also known as a birth defect, is either a structural, functional, chromosomal or metabolic abnormality that is present at birth, even if not diagnosed until months or years later (Abeywardana et al. 2007).

In Australia and internationally, congenital anomalies are a significant health concern, usually requiring intensive health care management, and often resulting in disability and, in some cases, death. Congenital anomalies were the second leading cause of infant death in Australia in 2006 (22% of deaths) (see Chapter 4 Mortality), and accounted for 12% of the disease burden for Australian children aged 0–14 years in 2003 (Begg et al. 2007).

The causes of congenital anomalies are diverse, and include genetic disorders (single gene defects and chromosomal abnormalities) and partly genetic disorders (multifactorial congenital malformations); environmental factors, including agents that disturb normal growth and development of the embryo or fetus (such as maternal factors and prenatal behaviour); mechanical forces that deform the fetus; vascular accidents that disrupt the normal growth of organs and limbs; and other, as yet unknown, causes (Christianson et al. 2006). Czeizel (2005) estimates that around 25% of congenital anomalies are due to genetic disorders, around 15% are due to environmental factors, and around 60% are complex and multifactorial in origin.

Programs aimed at reducing the prevalence or impact of congenital anomalies include improved preconception knowledge and behaviour; high-quality maternal health care, including the management of labour; and health care for infants and children with acute and chronic disorders. Research into congenital anomalies has identified specific risk factors for some conditions, which has enabled public health interventions to be put in place to address these factors where appropriate. Interventions that have proved effective in addressing some of the risk factors for adverse birth outcomes include folic acid supplementation; the appropriate management of hyperglycaemia; vaccinations for rubella, influenza and hepatitis; antiretroviral medications to reduce the risk of HIV transmission from mother to child; and cessation of smoking and drinking alcohol.

This chapter looks at four congenital anomalies that are evident at birth, and for which reliable prevalence data are available: neural tube defects, Down syndrome, abdominal wall defects and orofacial clefts (see Box 7.1). These conditions contribute significantly to morbidity, are a major cause of short- and long-term disability, and have life-long implications for health and development.

### Box 7.1: Overview of selected congenital anomalies

#### Neural tube defects

Neural tube defects include anencephaly, spina bifida and encephalocele. They result from incomplete closure of the neural tube early in pregnancy and lead to damage of the brain or spinal cord. Research has proven that ingestion of folate protects against the development of neural tube defects—the National Health and Medical Research Council recommends 0.5mg of folic acid supplements for women at low risk and 5mg for women at high risk in the month preceding conception and in the first trimester (NHMRC 2005).

#### Down syndrome

Down syndrome is a genetic disorder caused by the presence of all, or part of, an extra chromosome 21. Down syndrome is associated with impairment of cognitive ability and physical growth as well as a characteristic facial appearance. Children with Down syndrome often require lifelong care and assistance with daily activities, and comorbid conditions are common.

#### Abdominal wall defects

Abdominal wall defects (includes exomphalos and gastroschisis) are a significant cause of infant morbidity and occur when the abdominal contents form outside of the body. Babies with abdominal wall defects require immediate surgery and may require long-term care depending on their response to treatment and the presence of other anomalies. The prevalence of abdominal wall defects has increased in a number of countries at a rate that implies environmental or maternal factors may be associated with the development of this condition (Feldkamp et al. 2008).

#### Orofacial clefts

Orofacial clefts are caused by abnormal facial development and include cleft lip and/or cleft palate. Although able to be corrected with surgery, babies with orofacial clefts have difficulty feeding, particularly with breastfeeding.

## CONGENITAL ANOMALIES IN AUSTRALIA

Data on congenital anomalies detected at birth (live births, still births, and terminations of pregnancy at or after 20 weeks gestation but not before 20 weeks gestation) are collected by all jurisdictions except the Northern Territory and are compiled into the Australian Congenital Anomalies Monitoring System.

**Key national indicator:** Rate of selected congenital anomalies among infants at birth (neural tube defects, Down syndrome, abdominal wall defects, orofacial clefts)

Over the 6-year period 1998–2003, the birth rates of selected congenital anomalies were:

- 5 per 10,000 infants for neural tube defects, or 688 births (Table 7.1). Of these infants, just over half (55%) were live births, reflecting the high rate of still births for neural tube defects. The prevalence of neural tube defects in Australia is similar to or slightly higher than other developed countries (Abeywardana & Sullivan 2008b)
- 11 per 10,000 infants for Down syndrome, or 1,725 births. Almost 90% of infants born with Down syndrome were live births
- 4 per 10,000 infants for abdominal wall defects, or 661 births. Around 83% of infants born with abdominal wall defects were live births. Between 1998–2000 and 2001–2003, there was a statistically significant increase of 20% in the birth rate for abdominal wall defects
- 17 per 10,000 infants for orofacial clefts, or 2,601 births. The majority of infants born with orofacial clefts were live births (94%).

Due to medical advances in prenatal diagnosis techniques, such as ultrasound and amniocentesis, congenital anomalies are being diagnosed earlier in pregnancy. The total prevalence for a congenital anomaly includes terminations before 20 weeks gestational age and estimates the prevalence of the condition inclusive of cases terminated in early pregnancy. However, these prevalence estimates are likely to be an underestimate because the number of spontaneous abortions due to congenital anomalies is unknown.

**Table 7.1: Selected congenital anomalies among infants at birth, 1998–2003**

	Neural tube defects		Down syndrome		Abdominal wall defects		Orofacial clefts		Total births
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	
Indigenous status									
Indigenous	48	10.9	50	11.9 *	29	6.6 *	111	25.3	43,947
Non-Indigenous	604	4.3	1,542	10.9 *	608	4.3 *	2,414	17.1	1,410,720
Remoteness <sup>(a)</sup>									
Major cities	433	4.5	1,091	11.5	382	4.0	1,668	17.5	952,480
Inner and outer regional	198	4.9 **	544	13.4	235	5.8	791	19.5	405,456
Remote and very remote	30	8.5	46	13.0 **	21	5.9 **	72	20.3 **	35,435
<b>Live births</b>	<b>382</b>	<b>2.5</b>	<b>1,517</b>	<b>10.1</b>	<b>547</b>	<b>3.6</b>	<b>2,451</b>	<b>16.3</b>	<b>1,503,824</b>
<b>All births<sup>(b)</sup></b>	<b>688</b>	<b>4.5</b>	<b>1,725</b>	<b>11.4</b>	<b>661</b>	<b>4.4</b>	<b>2,601</b>	<b>17.2</b>	<b>1,514,259</b>

\* The difference between Indigenous and non-Indigenous infants was not significant at the 5% level of significance.

\*\* The difference between the remoteness area indicated and *Major cities* was not significant at the 5% level of significance.

(a) Based on mother's usual place of residence.

(b) Includes live births and fetal deaths.

#### Notes

1. Rate is number per 10,000 births.

2. Data exclude the Northern Territory.

3. Neural tube defects include anencephaly, spina bifida and encephalocele; abdominal wall defects include gastroschisis and exomphalos; orofacial clefts include cleft palate without cleft lip and cleft lip with or without cleft palate.

Source: Australian Congenital Anomalies Monitoring System, unpublished data.

In 1998–2003, based on data from Victoria, South Australia and Western Australia (includes terminations due to congenital anomalies at less than 20 weeks gestational age), the total prevalence of:

- neural tube defects was almost 3 times the birth rate (13 and 5 per 10,000, respectively)
- Down syndrome was more than twice the birth rate (25 and 11 per 10,000, respectively).

### Does the rate of congenital anomalies vary across population groups?

Some groups of the population, such as Indigenous Australians and those living in remote areas of Australia, are disadvantaged in terms of access to quality maternal health care services, and may not have access to the information they require about prenatal health behaviours to reduce adverse pregnancy outcomes. These are important factors in the development of some congenital anomalies and may, in part, account for the higher rate of congenital anomalies observed among these populations.

During 1998–2003:

- Indigenous infants were more than twice as likely as non-Indigenous infants to be born with neural tube defects—a congenital anomaly that is largely preventable (see Box 7.1). Birth rates were also 50% higher among Indigenous infants for orofacial clefts and abdominal wall defects, although the latter was not statistically significant. Down syndrome rates were similar for Indigenous and non-Indigenous infants (Table 7.1).
- Compared with *Major cities*, the birth rate for neural tube defects was twice as high among infants from *Remote and very remote* areas. Birth rates for Down syndrome, abdominal wall defects and orofacial clefts were statistically significantly higher in *Inner and outer regional* areas than in *Major cities* (Table 7.1).

## 8 Mental health

Children with mental health problems experience suffering, functional impairment, exposure to stigma and discrimination, and increased risk of premature death.

There is a lack of recent national data on the mental health and wellbeing of children in Australia, making it difficult to ascertain the extent to which mental health problems affect children.

Mental health is a state of wellbeing in which individuals can realise their abilities, can cope with the normal stresses of life, can work productively and fruitfully, and are able to make a contribution to their community (WHO 2001). Conversely, mental health problems can affect perceptions, emotions, behaviour and social wellbeing. Mental disorders, as distinct from mental health problems, are characterised by a clinically recognisable set of symptoms or behaviours that interfere substantially with social, academic or occupational functioning (APA 1994; Sawyer et al. 2000). Different types of mental disorders consist of a different combination of symptoms that may differ in severity.

It is estimated that as many as 20% of children in modern societies are affected by mental health problems and, in Australia, mental health problems and disorders as a broad cause group accounted for the highest burden of disease among children in 2003 (Bayer et al. 2007; Begg et al. 2007). Children with mental health problems experience a number of adverse outcomes, including general suffering, functional impairment, exposure to stigma and discrimination, and increased risk of premature death (Patel et al. 2007).

There are a number of developmental factors that contribute to the onset of mental illness in children, including prenatal brain damage, genetic factors, low intelligence, difficult temperament, poor social skills and low self-esteem. Other contributing factors include those within the school context, such as bullying and failure to achieve academically; physical or psychological trauma, such as sustaining injuries, experiencing abuse or neglect, or loss of family; as well as community and cultural factors such as low socioeconomic status or discrimination (DHAC 2000).

Parenting and family factors are also important determinants of children's mental health. Those identified as increasing the risk of mental health problems in children include the lack of a warm, positive relationship with parents; insecure attachment between carers and infants; harsh, inflexible or inconsistent discipline; inadequate supervision of, and involvement with, children; marital conflict and breakdown; and parental psychopathology (particularly maternal depression and high levels of parenting stress) (Sanders 2002). These factors increase the risk of children developing major behavioural and emotional problems, including conduct problems, substance misuse, antisocial behaviour and participation in delinquent activities (Sanders 2002).

A number of mental disorders first manifest in childhood and adolescence, and many disorders that are diagnosed in adulthood have their origins in childhood. Disorders known as 'impulse-control' disorders have the earliest typical age of onset—7–9 years for ADHD, 9–14 years for conduct disorder and 7–14 years for some anxiety disorders (phobias and separation anxiety disorder) (Kessler et al. 2007).

### HOW MANY AUSTRALIAN CHILDREN HAVE MENTAL HEALTH CONDITIONS?

The most recent, comprehensive national information on the mental health and wellbeing of children comes from the 1998 Child and Adolescent component of the National Survey of Mental Health and Wellbeing (Sawyer et al. 2000). This survey estimated that as many as 14% (or around one in seven) children aged 4–14 years in Australia had mental health problems in 1998:

15% of boys and 14% of girls (AIHW analysis of 1998 Child and Adolescent component of National Survey of Mental Health and Wellbeing unit record file). Detailed information from this survey has been published in the previous edition of *A picture of Australia's children* and elsewhere (AIHW 2005b; Sawyer et al. 2000). This chapter, therefore, presents information from the ABS 2004–05 National Health Survey, and from states which have used the Strengths and Difficulties Questionnaire.

**Key national indicator:** Proportion of children aged 4–14 years with mental health problems

The ABS National Health Survey collects limited information on mental and behavioural problems as parent-reported long-term conditions among children. These conditions may not have been medically diagnosed.

According to the ABS 2004–05 National Health Survey, among children aged 4–14 years:

- An estimated 253,600 or 9% had a mental or behavioural problem as a long-term condition.
- The most commonly reported problems were
  - behavioural and emotional problems with usual onset in childhood or adolescence (3%)
  - problems of psychological development (3%)
  - anxiety-related problems (2%).

The Strengths and Difficulties Questionnaire collects information about children's mental health and behaviour (Goodman 2001). This questionnaire has been widely used within Australia and has good reliability and validity. Children are scored on each of five domains (emotional symptoms, conduct problems, hyperactive behaviour, peer relationships and prosocial behaviour) as 'normal', 'borderline' or 'of concern'. Children scoring 'of concern' are at substantial risk of developing a clinically significant behavioural problem. The questionnaire has been used on a representative sample of children in New South Wales and Victoria, and has been used in Western Australia for Indigenous and non-Indigenous children (see *Part IX*).

Results from the Strengths and Difficulties Questionnaire indicate that among children aged 4–12 years:

- In New South Wales, 7% of children had behaviour problems that were rated 'of concern' in 2005–06 (Table 8.1). Around 11% of children scored 'of concern' on both the emotional symptoms and hyperactivity scales, and 9% on the conduct disorders scale.

- In Victoria, 6% of children had behaviour problems that were rated 'of concern' in 2006. Around 11% of children scored 'of concern' on the hyperactivity scale, 9% on the conduct disorder scale and 8% on the peer problems scale.

**Table 8.1: Children scoring 'of concern' on the Strengths and Difficulties Questionnaire, New South Wales and Victoria, 4–12 years (per cent and 95% confidence intervals)**

	NSW (2005–06)		Vic (2006)	
	Per cent	95% CI	Per cent	95% CI
Emotional symptoms	10.6	9.1–12.0	7.8	6.7–8.9
Conduct problems	9.0	7.6–10.4	8.6	7.5–9.7
Hyperactivity	11.4	9.9–13.0	11.1	9.8–12.3
Peer problems	7.5	6.3–8.6	8.4	7.3–9.4
Prosocial behaviour	1.2	0.8–1.7	1.8	1.3–2.3
<b>Total</b>	<b>6.6</b>	<b>5.4–7.7</b>	<b>5.6</b>	<b>4.7–6.5</b>

*Note:* Children with missing data have been excluded from these results.  
*Sources:* NSW Department of Health 2006, unpublished data; Victorian Child Health and Wellbeing Survey 2006, unpublished data.

### Specific mental health conditions

ADHD, depressive disorder and conduct disorder have great significance for child and adolescent health in Australia (Sawyer et al. 2000), with ADHD and anxiety and depression among the leading specific causes of the disease burden among children in 2003 (Begg et al. 2007). These conditions have implications for a child's psychosocial growth and development, health-care requirements, educational and occupational attainment and their involvement with the justice system (Bhatia & Bhatia 2007; Eme 2007; Laurel & Wolraich 2007).

**Key national indicator:** Proportion of children aged 6–14 years with mental health disorders (attention deficit hyperactivity disorder [ADHD], depressive disorder, conduct disorder)

As with information on the mental health and wellbeing of children generally, there is a lack of recent national data on the prevalence of these specific conditions among Australian children.

Results from the 1998 Child and Adolescent component of the National Survey of Mental Health and Wellbeing estimated that 13% of children aged 6–14 years had ADHD and the prevalence of conduct disorder and depressive disorder was 3% each. The prevalence of each of these conditions was higher among boys compared with girls,

particularly for ADHD (18% of boys and 8% of girls) (AIHW analysis of 1998 Child and Adolescent component of National Survey of Mental Health and Wellbeing unit record file). Sawyer et al. (2000) suggest that the prevalence of ADHD could have been overestimated in this survey, as some children reported to have ADHD 'may have been more appropriately diagnosed with another disorder not included in the survey'.

## How does child mental health vary across population groups?

Access to primary health care services plays an important role in the prevention, identification and treatment of children experiencing mental health problems. These services may not be equally accessible to Indigenous children, and children in remote and socioeconomically disadvantaged areas, due to reasons such as physical access to services, cultural barriers and affordability.

Aboriginal and Torres Strait Islander children aged 4–14 years were statistically significantly more likely to have a mental or behavioural problem as a long-term condition, compared with non-Indigenous children (13% compared with 8%), according to the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey. See *Part IX* for more information on mental health among Indigenous children.

## HOW OFTEN DO CHILDREN ACCESS HEALTH SERVICES FOR MENTAL HEALTH CONDITIONS?

### General practice encounters

According to the 2007–08 Bettering the Evaluation and Care of Health (BEACH) survey of general practice activity in Australia, there were an estimated 340,300 general practice encounters with children aged 0–14 years where a mental health problem was managed. Mental health-related encounters comprised 2.2% of all general practice encounters for children, compared with 12% for those aged 15 years and over. The most common mental health problems managed for children were behaviour symptom/complaint (27%), ADHD (18%), sleep disturbance (14%) and depression/anxiety disorder (13%) (Table 8.2).

**Table 8.2: Mental health problems managed for children aged 0–14 years, 2007–08<sup>(a)</sup>**

Mental health problem managed <sup>(b)</sup>	National estimate of number of encounters <sup>(c)</sup>	Per cent
Behaviour symptom/complaint	93,000	27.3
ADHD	61,500	18.1
Sleep disturbance	48,000	14.1
Depression/anxiety	43,700	12.9
Other	94,100	27.6
<b>Total</b>	<b>340,300</b>	<b>100.0</b>

(a) Data collection period 1 April 2007 to 31 March 2008.

(b) Based on first recorded mental health problem managed per encounter. Mental health problems classified according to ICD-10 codes: behaviour symptom/complaint (P22–P23), ADHD (P81), sleep disturbance (P06), and depression/anxiety (P01, P03, P74, P76). Other mental health problems include all remaining P codes.

(c) The estimated number of encounters is based on the proportion of encounters in the BEACH survey of general practice activity that are mental health-related, multiplied by the total number of Medicare services for Non-Referred (GP) Attendances (excluding Practice Nurse Items) for children aged 0–14 years as reported by Medicare Australia (Medicare Australia 2009b).

Source: BEACH survey of general practice activity. Refer to *Appendix 2* for further information.

## Hospitalisations

In 2006–07, there were 6,600 hospital separations for mental and behavioural disorders among children aged 4–14 years—a rate of 221 per 100,000 children. This represents 2.5% of all hospital separations for this age group and 2.2% of all separations for mental and behavioural disorders. Around three-quarters of the mental and behavioural disorder separations among 4–14 year olds were same-day (that is, the patient was admitted and discharged on the same day), compared with just over half (55%) for all ages. The hospital separation rate for mental and behavioural disorders has declined from 247 per 100,000 children in 1998–99 to 221 in 2006–07—a statistically significant decrease of 11%.

The leading causes of hospital separation for mental and behavioural disorders among children aged 4–14 years in 2006–07 were:

- behavioural and emotional disorders with usual onset in childhood and adolescence (44%), such as conduct disorder and ADHD
- neurotic, stress-related and somatoform disorders (22%), such as anxiety disorders and adjustment disorders
- mood disorders (9%), such as depressive disorders.

# Part III

## HOW WELL ARE WE PROMOTING HEALTHY CHILD DEVELOPMENT?

*Part II* showed that there have been some key improvements in the health of Australia's children, according to health status measures, such as mortality and morbidity. It also showed that some children experience poorer health outcomes than others in the population. The health of children and populations is influenced and determined by the interaction of many factors, such as human biology, lifestyle, socioeconomic and environmental factors, and health interventions. These factors help to explain and predict patterns in health, and account for why some have better or worse health than others. The consideration of these health determinants is key to the prevention of disease, illness and injury.

*Part III* focuses on 'protective factors', which promote the positive health and development of children. Protective health factors play an important role in the prevention of chronic and infectious disease

both in the short and long term, resulting in better health outcomes. Similarly, positive early learning experiences stimulate brain development and improve developmental and learning outcomes for children.

The aim of *Part III* is to provide a comprehensive picture on key indicators for healthy child development:

- breastfeeding
- dental health
- physical activity and nutrition
- early learning.

The factors that increase the risk of ill health in children, commonly termed 'risk factors', are discussed in *Part IV*.

The following table shows how children fare across the various indicators presented in *Part III*, and whether there has been any improvement over time.

Indicator		Value	Trend
<b>Breastfeeding</b>	Infants exclusively breastfed at 4 months of age	National data not available	..
	Children decay-free (2002)		
<b>Dental health</b>	at age 6 years	53%	~
	at age 12 years	58%	✓
	Mean number of decayed, missing or filled teeth (DMFT) at 12 years (2002)	1.0	~
<b>Physical activity</b>	Children aged 9–14 years (2007):		
	meeting the National Physical Activity Guidelines	74%	..
	not exceeding the screen time guidelines	33%	..
<b>Early learning</b>	Children aged < 1 year old who are read to by an adult on a regular basis	National data not available	..

Key: ✓ = favourable trend; ~ = no change or clear trend; .. = no trend data presented.

## 9 Breastfeeding

Breastfeeding promotes the healthy growth and development of infants and young children and is also associated with economic benefits.

No national data are currently available on 'exclusive' breastfeeding of infants up to 4 or 6 months of age.

Breastfeeding is the normal way to feed infants and is important in promoting the healthy growth and development of infants and young children. Infants are born with an immune system that is not fully developed and breastmilk (containing mothers' antibodies) provides the best nutritional start for infants, reducing the risk of morbidity and mortality from infectious diseases.

There is a large volume of research on the health benefits of breastfeeding in infancy and childhood, but it has been difficult to establish a causal relationship. There is convincing evidence that breastfeeding protects infants against infectious diseases, including gastrointestinal illness, respiratory tract infections and middle ear infections. Other possible benefits include a reduced risk of SIDS, Type 1 diabetes and some childhood cancers; however, further research is required. There is conflicting evidence as to whether breastfeeding has a protective effect against asthma and other allergies in childhood (Kramer et al. 2007). There is some evidence that having been breastfed may reduce the incidence of high cholesterol, high blood pressure, obesity and diabetes later in life, and improve cognitive development (Horta et al. 2007). More exclusive and longer periods of breastfeeding show the strongest associations between breastfeeding, lower rates of infant illnesses and better cognitive development.

The benefits of breastfeeding also extend to the mother. These include quicker recovery after childbirth, reduced risk of ovarian cancer and possible reduced risk of breast cancer, post-menopausal hip fractures, osteoporosis and maternal depression, although further research is required (Ip et al. 2007; Productivity Commission 2008). Evidence is also accumulating to show that breastfeeding improves mother–infant bonding and secure attachment between mother and child (Allen & Hector 2005).

Economically, the benefits of breastfeeding relate to health-care costs, productivity and household expenses. Where an infant is not breastfed or is weaned prematurely, a number of studies have found an increase in health-care costs for associated infant illnesses (for example, gastrointestinal illness) (Productivity Commission 2008). Productivity may be reduced as a result of parental absences from work due to infant illness (León-Cava et al. 2002).

Breastfeeding has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information).

### RECOMMENDATIONS FOR BREASTFEEDING

The WHO recommends that all infants should be exclusively breastfed up to 6 months of age to achieve optimal growth, development and health (WHO 2002) (see Box 9.1 for breastfeeding definitions used in this chapter). Infants who are exclusively breastfed up to 6 months do not show any deficits in weight or length gain and thus there are no apparent risks associated with recommending exclusive breastfeeding for the first 6 months of life as a public health policy. The Australian Dietary Guidelines for Children and Adolescents (NHMRC 2003a) also recommend exclusive breastfeeding until around 6 months of age, and note that breastfeeding to 12 months and beyond has continuing value to both infant and mother. These recommendations are based on the nutritional, health, social and economic benefits of breastfeeding.

**Box 9.1: Definitions of breastfeeding**

**'Exclusive breastfeeding'** requires that the infant receive only breastmilk (including milk expressed or from a wet nurse), with the exception of oral rehydration solutions, drops or syrup (consisting of vitamins, minerals and medicines). This excludes non-human milk or formula.

**'Predominant breastfeeding'** requires that the infant receive breastmilk (including milk expressed or from a wet nurse) as the predominant source of nourishment. The infant may also receive water or water-based drinks, fruit juice, oral rehydration solutions, drops or syrup (consisting of vitamins, minerals and medicines), but not non-human milk or formula. Predominantly breastfed may also be referred to as 'fully breastfed' in some sources.

**'Complementary breastfeeding'** requires that the infant receive breastmilk (including milk expressed or from a wet nurse) and solid or semi-solid food. This means that the infant may receive any food or liquid, including non-human milk and formula, in addition to breastmilk. Complementary breastfeeding may also be referred to as 'partial breastfeeding' in some sources.

Source: WHO 2008a.

**HOW MANY AUSTRALIAN BABIES ARE BREASTFED?**

Difficulties in measurement arise in relation to the recommendation of exclusive breastfeeding to around 6 months of age, as solids are often introduced to the infant around this time. As such, issues around the age of infants in any sample need to be considered carefully in order to collect robust and policy relevant information on exclusive breastfeeding. For this reason, the age of 4 months has been specified for the Children's Headline Indicator until such a time as reliable national data can be collected on exclusive breastfeeding 'up to' 6 months of age (Vic DHS 2008). A further difficulty relates to maternal long-term recall of feeding practices.

**Headline Indicator:** Proportion of infants exclusively breastfed at 4 months of age

Currently, Australia has no reliable national data collection system to effectively monitor infant feeding practices, and the inconsistent use of definitions and terms makes it difficult to compare studies of breastfeeding rates (House of Representatives Standing Committee on Health and Ageing 2007; Webb et al. 2001). Information on breastfeeding is therefore patchy in Australia:

- Data on exclusive breastfeeding are currently available for New South Wales, Victoria, Queensland and Western Australia, but not at 4 months of age.
- National data are available at 4 months of age from the Growing up in Australia: the Longitudinal Study of Australian Children (LSAC). However, this is for predominantly (fully) breastfed infants, rather than exclusively breastfed.
- National data are available from the ABS 2004–05 National Health Survey, but this is for a combined measure of exclusive or complementary breastfeeding.

Information from these data sources are presented here, although none is currently suitable for reporting on the Children's Headline Indicator at the national level. The Australian Government is planning to conduct an Australian National Infant Feeding Survey in 2009.

**Exclusively breastfed**

Four Australian states have collected information on exclusive breastfeeding; however, none collected this information at 4 months of age. Due to different survey methods, the results between these states should not be directly compared.

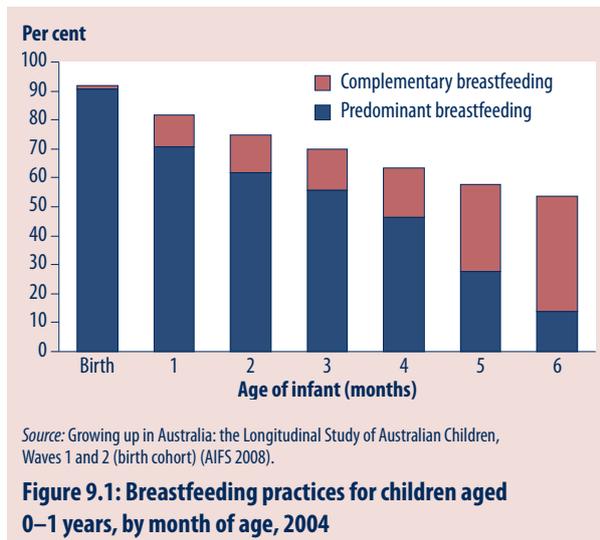
- In Queensland, according to the 2006–2007 Infant Nutrition Project, 38% of infants were exclusively breastfed at 2 months of age, declining to 10% at 5 months of age. This was based on mothers' 24-hour recall of infant-feeding practices (Queensland Health: Paul et al. 2007).
- Among Victorian children under 2 years in 2006, 48% were exclusively breastfed at 3 months of age, declining to 15% at 6 months of age (Vic DHS 2006).
- In New South Wales, 18% of children aged 0–4 years were exclusively breastfed at 6 months of age in 2005–06 (NSW Department of Health 2008).
- In Western Australia in 2006–07, 12% of children aged 0–4 years were exclusively breastfed for 6 months or more (Wood & Daly 2007).

### Predominantly breastfed

The LSAC provides information on predominant breastfeeding for a cohort of 5,000 infants aged 0–1 year in 2004 (AIFS 2008; see *Appendix 2* for further information on the LSAC).

For this cohort, the proportion of infants predominantly breastfed decreased from 91% at birth to 46% at 4 months and 14% at 6 months of age (Figure 9.1). Notably, the proportion of predominantly breastfed infants dropped by 11 percentage points between birth and 1 week of age.

As the proportion of infants predominantly breastfed declined with age, the proportion of infants receiving complementary breastmilk increased. At 6 months of age, 40% of infants were complementary breastfed, compared with 11% at 1 month.



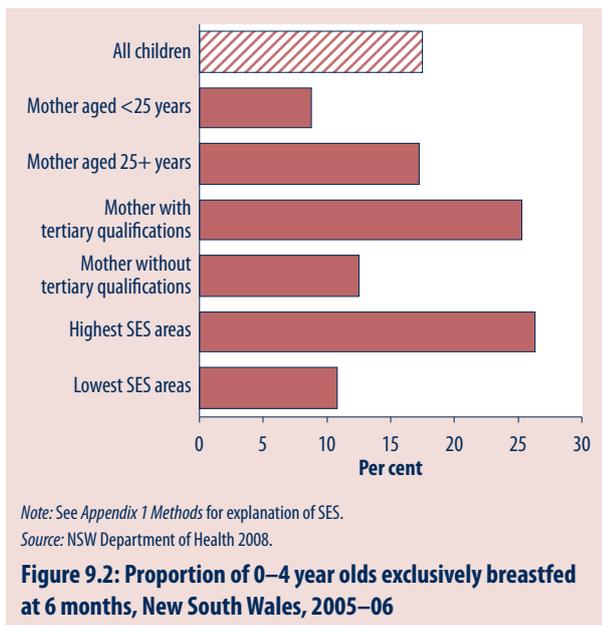
### Exclusive or complementary breastfeeding

Nationally in 2004–05, an estimated 88% of children aged 0–3 years had been breastfed at some point. However, the proportion that are breastfed (either exclusive or complementary) decreases as the age of the infant increases. Of children aged 1 year in 2004–05, 86% were reported to have been breastfed at less than 1 month of age, but only 57% were still being breastfed at 4 months and only half (51%) at 6 months of age (AIHW analysis of ABS 2004–05 National Health Survey confidentialised unit record file).

### Do rates of breastfeeding vary across population groups?

Currently, there are no national data available on exclusive breastfeeding for Indigenous infants or infants in remote or low socioeconomic status areas. National data on exclusive or complementary breastfeeding and state-based data for exclusive breastfeeding are presented here.

- Nationally, of Indigenous children aged 1 year in 2004–05 in non-remote areas, an estimated 80% were breastfed (either exclusive or complementary) at less than 1 month of age, dropping to 62% and 48% at 4 and 6 months of age, respectively. The corresponding proportions for non-Indigenous infants were 88%, 58% and 52% (AIHW analysis of ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey).
- With regard to exclusive breastfeeding, according to the 2000–2002 Western Australian Aboriginal Child Health Survey, over half (53%) of Indigenous infants aged less than 6 months were reported as being exclusively breastfed, dropping to 7% at age 6–11 months (Zubrick et al. 2004).
- According to the 2005–06 New South Wales Population Health Survey, exclusive breastfeeding of children at 6 months of age was statistically significantly lower for infants with mothers
  - without tertiary qualifications (13% compared with 25% for those with tertiary qualifications)
  - living in the lowest socioeconomic status (SES) areas (11% compared with 26% for those in the highest SES areas)
  - aged younger than 25 years (9% compared with 17% for mothers aged 25 years and over) (Figure 9.2) (NSW Department of Health 2008).



### Employment and breastfeeding

There is some evidence that a mother's employment status and number of hours worked influences the initiation and duration of breastfeeding. Studies from the United Kingdom and the United States have found that mothers who plan on returning to work while their infant is relatively young are less likely to start breastfeeding than mothers who either do not return to work, or who plan on returning to work when the infant is older (Chatterji & Frick 2005; Hawkins et al. 2007; Noble & The ALSPAC Study Team 2001). It has also been found that mothers who initiate breastfeeding and return to work while the infant is young have a reduced duration of breastfeeding (Chatterji & Frick 2005).

Australian research, based on the LSAC, found that women not in paid employment were more likely to breastfeed their infant at 6 months of age than employed women (56% compared with 39% and 44% of mothers working full and part time, respectively). The lowest rates of breastfeeding at 6 months were among those where the mother resumed full-time employment before 3 months (42%) or between 3 and 6 months (39%) (Cooklin et al. 2008). Data from the LSAC also show that the type of employment may influence breastfeeding. Infants were more likely to be breastfed at 6 months of age if their mother was self-employed (58%), compared with permanent or casual employment (45% and 49%, respectively) (AIFS 2008).

## 10 Dental health

Good oral health in childhood contributes to better dental outcomes in adulthood—less decay and the loss of fewer natural teeth.

Indigenous children and children living in *Remote and very remote* areas or in low socioeconomic status areas experience significantly worse dental decay than other children (for 6 year olds, on average, twice as many decayed teeth).

Australian children generally experience good oral health. Good oral health throughout infancy and early childhood can have positive effects for both children and their parents—it enhances children’s confidence, self-esteem, appearance, chewing ability and social activities (Okunseri et al. 2005). It also contributes to better dental health in adulthood, resulting in less decay and reduced loss of natural teeth (AIHW 2005b). Conversely, oral diseases and disorders during childhood adversely affect children’s health and wellbeing. Untreated dental caries facilitate abscess formation, cellulitis and the systemic spread of disease. Poor dental health can lead to failure to thrive and school absences that can negatively affect school performance (Berg & Coniglio 2006). Poor nutrition or a diet high in sugar may place children at an increased risk of developing dental health problems such as gum disease and dental caries (ADA 2008).

Early preventive strategies, including parental counselling about diet (such as limiting dietary sugar intake), oral hygiene practices (such as regular flossing and brushing with fluoride toothpaste), appropriate use of fluorides and avoidance of transmission of bacteria from parents to children, all help to establish practices and behaviours for good oral health (Berg & Coniglio 2006).

The dental health of Australia’s children has improved substantially since the mid-1970s (AIHW 2005b). This trend can be attributed to a number of factors, including increased access to fluoridated toothpaste and drinking water, improved dental hygiene, and provision of clinical preventive services and ongoing monitoring through the School Dental Scheme. However, in recent years, there has been a slight increase in tooth decay among children, which may be related to changes in dietary patterns, including less drinking of fluoridated mains water and increased sugar consumption, and changes in school dental programs.

Dental health has been endorsed by the AHMC, CDSMC and the AESOC as a Children’s Headline Indicator priority area (see *Part X* for further information and state and territory data).

### DENTAL HEALTH AMONG PRIMARY SCHOOL CHILDREN

The number of teeth decayed, missing or extracted due to decay, or with fillings is an indicator of oral disease in the population and an important indicator of dental health. The number of decayed, missing or filled teeth is expressed as a dmft (deciduous or ‘baby’ teeth) or DMFT (permanent teeth) score. Another indicator of dental health is the percentage of children who are decay-free.

The data source for this chapter is the 2002 Child Dental Health Survey, conducted by the AIHW Dental Statistics Research Unit (see *Appendix 2 Data sources*). This survey represents the only data routinely collected by all states and territories on child dental health. Data from the 2003–2004 survey was not available for this report (Armfield & Brennan in press).

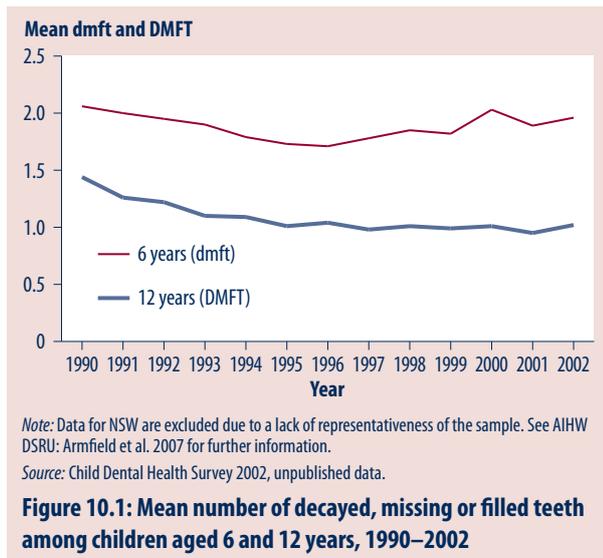
### Children with decayed, missing or filled teeth

**Headline Indicator:** Mean number of decayed, missing or filled teeth (DMFT) among primary school children aged 12 years

- The mean number of decayed, missing or filled teeth for 6 year olds was 2.0 (dmft) and among 12 year olds was 1.0 (DMFT) in 2002 (AIHW DSRU: Armfield et al. 2007). This suggests that the mean number of teeth

with caries was twice as high in deciduous (baby) teeth as in permanent teeth. The mean number of teeth with caries was similar among boys and girls at both ages.

- Mean decay experience of children aged 6 and 12 years declined in the early to mid-1990s; however, since 1997 dental decay among 6 year olds has increased, while among 12 year olds it has remained relatively stable (Figure 10.1).



## Children free from dental decay

**Key national indicator:** Proportion of children decay-free at age 6 years and at age 12 years

According to the 2002 Child Dental Health Survey:

- Over half of all children aged 6 and 12 years were decay-free in 2002 (53% and 58% respectively).
- The proportion of 6 year olds free from dental decay increased from 51% to 56% between 1991 and 1996, but has since declined to 53% in 2002, while among 12 year olds the proportion increased from 49% to 58% between 1991 and 2002.
- Boys were more likely than girls to be decay-free at age 12 (60% compared with 56%), while among 6 year olds the proportion was similar for boys and girls (52% and 53%, respectively).

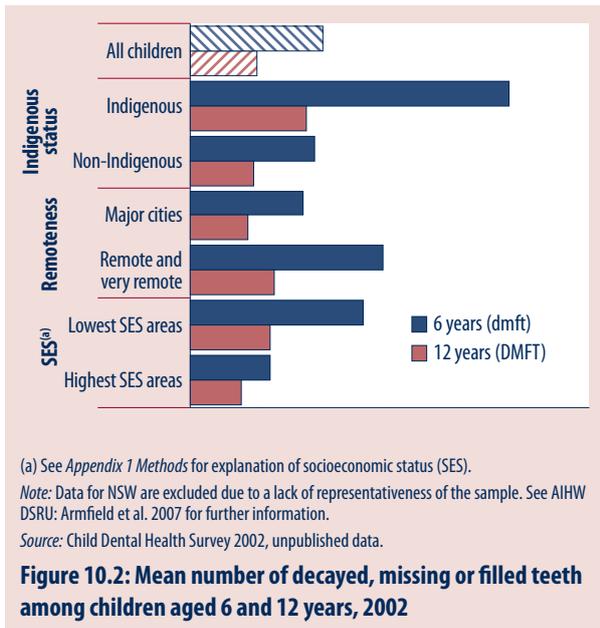
## Does dental health vary across population groups?

While most Australian children experience good oral health, some groups of Australian children have poorer dental health, in particular Aboriginal and Torres Strait Islander children and children living outside major cities and in the most socioeconomically disadvantaged areas. These groups of the population are at an increased risk of poor dental health, as they are more likely to reside in areas where drinking water is not of optimal fluoride concentration, and the accessibility and affordability of dental health services are critical factors (AIHW DRSU: Jamieson et al. 2007). Poorer outcomes for these population groups are reflected in both the mean decayed, missing and filled teeth scores and the proportion of children decay-free.

According to the 2002 Child Dental Health Survey:

- On average, Indigenous children had more decayed, missing or filled teeth than their non-Indigenous counterparts, based on data from Victoria, Queensland, South Australia and the Northern Territory (2.6 and 1.8 times as many for 6 and 12 year olds, respectively) (Figure 10.2).
- Children aged 6 and 12 years living in *Remote and very remote* areas had, on average, 70% and 44% more teeth with dental caries than those living in *Major cities*.
- Children living in the lowest socioeconomic status (SES) areas experience worse dental decay than those in the highest SES areas (2 and 1.5 times as many decayed teeth for 6 and 12 year olds, respectively).

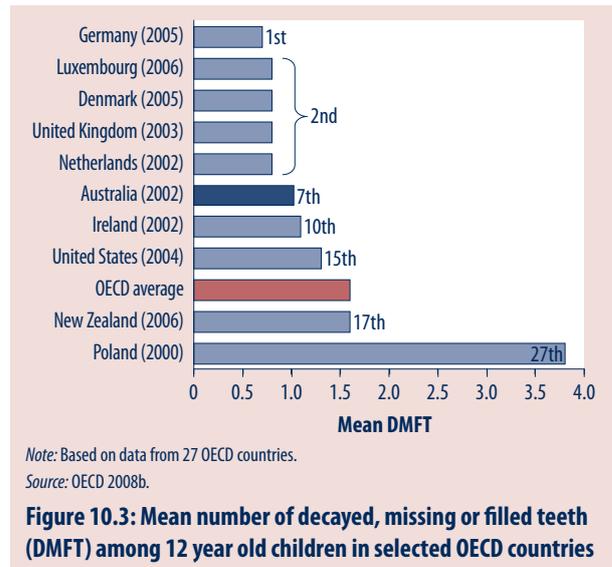
The proportion of children decay-free at age 6 years was much lower for Indigenous children (21% compared with 54% for non-Indigenous children); children living in *Remote and very remote* areas (39% compared with 57% for children in *Major cities*); and children living in the lowest SES areas (46% compared with 66% in the highest SES areas). While this pattern was also evident for children aged 12 years, the disparity between the population groups was not as great.



### How do Australia's rates of child dental decay compare internationally?

Australia compares favourably with other OECD countries in the mean number of decayed, missing or filled teeth among 12 year olds. Australia ranked 7<sup>th</sup> out of 27 OECD countries in 2002, with a mean of one decayed, missing or filled permanent tooth (DMFT)—better than the OECD average of 1.6 (Figure 10.3). Mean decay experience was lowest in Germany (0.7) and also in Denmark, Luxembourg, Netherlands and the United Kingdom (all 0.8); and was highest in Poland (3.8).

Internationally, reductions in caries and other dental problems have been achieved through numerous public health measures such as community water fluoridation, along with changed living conditions, and improved disease management and oral hygiene (OECD 2008a).



### Access to fluoridated water

Water fluoridation is an effective public health measure to prevent dental decay, and is an equitable way to achieve community-wide exposure to the caries prevention effects of fluoride. Fluoride can help to reduce half the number of cavities an individual will develop in their life, as it makes the enamel of the tooth more resistant to the acid attacks of plaque bacteria. It reduces dental disease, loss of teeth, time away from work or school, and anaesthesia-related risks associated with dental treatment (ADA 2001; US DHHS 1991). The prevalence of tooth decay is lower in areas where fluoride is naturally present in the water supply or where fluoride has been added (AIHW DSRU: Armfield et al. 2007).

Most children (over two-thirds) live in areas with access to fluoridated water, but there are some parts of Australia without fluoride in the public water supply. In Queensland, only 4.9% of children have access to optimum fluoride concentrations in the public water supply, compared with over 80% in most other jurisdictions (except for Victoria where the proportion is 74%) (Table 10.1). In 2007, the Queensland Government committed to providing more than 90% of Queenslanders with fluoridated water supply by 2012 (Qld DPC 2008).

**Table 10.1: Proportion of children aged 0–14 years residing in areas with optimum<sup>(a)</sup> fluoride concentration in the mains water, 2001**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Per cent</b>	89.2	73.5	4.9	88.9	80.6	94.1	100.0	80.8	68.4

(a) ≥ 0.7 parts per million (ppm) except Darwin, NT, where 0.6 ppm is considered optimal.  
 Source: Armfield 2006.

# 11 Physical activity and nutrition

Regular physical activity and good nutrition reduces cardiovascular risk factors, such as overweight, high blood pressure and Type 2 diabetes, and improves the psychosocial wellbeing of children.

The majority (74%) of children aged 9–14 years met the physical activity guidelines; however, only one-third met the screen time guidelines. Very few children aged 4–13 years consumed the recommended serves of vegetables; 50–60% met the recommendations for fruit.

Physical activity and good nutrition have many benefits for children's health and wellbeing and are important in maintaining good health. Regular physical activity and good nutrition reduces cardiovascular risk in its own right and also improves levels of cardiovascular risk factors such as overweight, high blood pressure and Type 2 diabetes; protects against some forms of cancer; and strengthens the musculoskeletal system (AIHW 2008b; NHMRC 2003b; Okely et al. 2008). Physical activity also improves children's psychosocial wellbeing by reducing symptoms of depression, stress and anxiety, and through improvements in self-confidence, self-esteem, energy levels, sleep quality and ability to concentrate (Hills et al. 2007).

Physical activity can include any activity that requires children to expend energy, including sports, domestic duties or simply playing. A child's participation in physical activity is shaped by individual preferences, in combination with cultural and family influences, and can be affected by the presence of disease or disability. It can also be influenced by environmental factors such as climate and the availability of suitable spaces and other resources for exercise or play.

Good nutrition is important in supporting the rapid growth and development that occurs during childhood. As with physical activity, children's eating choices are shaped by individual preferences, as well as cultural and family influences. For young children, diet is largely determined by their parents; however, children take on greater responsibility for their own food choices as they grow older. It is therefore important to establish healthy eating patterns at young ages.

Physical activity and nutrition are critical factors in determining a person's body weight. If energy intake (via food and drink) is not balanced by energy expenditure (via activity and internal body functions) on a sustained basis, the excess food energy is stored as body fat. Physical inactivity and poor nutrition may be important contributors to the rising levels of obesity in the general population (AIHW 2008b; see also *Chapter 22 Overweight and obesity*).

## PHYSICAL ACTIVITY AMONG AUSTRALIAN CHILDREN

In Australia, National Physical Activity Guidelines have been developed around the intensity, duration and frequency of physical activity that is necessary to obtain health benefits for children and youth. These guidelines recommend at least 60 minutes, and up to several hours, of moderate to vigorous physical activity (for example, a brisk walk or a game of netball or football), every day of the week for children aged 5–18 years (DoHA 2004). This is consistent with research showing that the health benefits of physical activity are often linked to the intensity at which an activity is performed (Ortega et al. 2008).

The guidelines also recommend that children not exceed more than 2 hours of non-educational screen time (for example, watching movies or playing computer games) per day. Evidence suggests that children who engage in more than 2 hours of screen time per day are more likely to be overweight; be less physically active; drink more sugary drinks; snack on foods high in sugar, salt and fat; and have fewer social interactions (CSIRO 2009).

The National Physical Activity Guidelines (including screen time guidelines) can be interpreted in a number of different ways, which results in a range of prevalence estimates depending on the method used (see Box 11.1). Each method has strengths and limitations; however, the ‘child x day’ method has been recommended as the preferred method, as it accounts for the characteristics of the randomly selected day (weather conditions, out-of-school activities) and compliance with the guidelines (Olds et al. 2007).

**Box 11.1: Methods for calculating physical activity prevalence estimates from the 2007 Australian National Children’s Nutrition and Physical Activity Survey**

**All days method:** Children are considered compliant if they met the guidelines on all 4 days.

**Most days method:** Children are considered compliant if they met the guidelines on at least 3 of the 4 days.

**Four-day average method:** Children are considered compliant to the moderate to vigorous physical activity guidelines if their activity, averaged over 4 days, was greater than or equal to 60 minutes per day; compliant to screen guidelines if their average daily screen time was less than or equal to 120 minutes per day; and compliant to both if both thresholds were met.

**Child x day method:** Prevalence was calculated as the probability that a randomly chosen child on a randomly chosen day would meet the guidelines. To calculate this prevalence estimate, it is simply a matter of calculating the proportion of all days that meet the guideline.

Source: Olds et al. 2007.

**Key national indicator:** Proportion of children meeting the National Physical Activity Guidelines and not exceeding the screen time guidelines

According to the 2007 Australian National Children’s Nutrition and Physical Activity Survey, among children aged 9–14 years, using the preferred ‘child x day’ method:

- The majority (74%) of children met the National Physical Activity Guidelines for moderate to vigorous physical activity (that is, at least 60 minutes of recommended activity) (Table 11.1).

- Only one-third of children met the guidelines for screen time use (that is, not exceeding 2 hours of non-educational screen time).
- Boys were more likely to meet the guidelines for physical activity, whereas girls were more likely to meet the guidelines for screen time.

**Table 11.1: Children aged 9–14 years meeting National Physical Activity Guidelines, 2007 (per cent)**

	Physical activity			Screen time <sup>(a)</sup>		
	Boys	Girls	Children	Boys	Girls	Children
All days method	43.7	29.9	37.0	4.9	8.5	6.7
Most days method	72.3	56.8	64.8	14.5	23.9	19.1
4 day average method	92.2	81.6	87.0	17.7	27.6	22.5
Child x day method	78.5	68.9	73.8	28.7	38.4	33.4

(a) For screen time, compliance with the National Physical Activity Guidelines was defined as less than 2 hours of any screen time outside school hours.

Note: See Box 11.1 for a definition of the methods used to interpret the guidelines.

Source: 2007 Australian National Children’s Nutrition and Physical Activity Survey, unpublished data.

## NUTRITION AMONG AUSTRALIAN CHILDREN

The Dietary Guidelines for Children and Adolescents in Australia provide dietary recommendations for 4–18 year olds (NHMRC 2003b). Children and adolescents are encouraged to eat plenty of vegetables, legumes, fruit and cereals; to include lean meat, fish, poultry, milk, yoghurt, cheese and/or alternatives in their diet; and to drink plenty of water. A healthy diet should also be low in saturated fat and salt, and contain only moderate amounts of sugar. In regards to the consumption of fruit and vegetables, the Guidelines recommend the following:

- 4–7 years: 1 serve of fruit and 2 serves of vegetables
- 8–11 years: 1 serve of fruit and 3 serves of vegetables
- 12–18 years: 3 serves of fruit and 4 serves of vegetables.

Information on children meeting the guidelines are available from the 2007 Australian National Children’s Nutrition and Physical Activity Survey; however, this survey collected data for different age groups to those on which the guidelines are based. This meant that the guidelines were interpreted differently for reporting these age ranges (see DoHA 2008).

**Table 11.2: Children aged 4–13 years meeting daily Dietary Guidelines, 2007 (per cent)**

		4–8 years			9–13 years		
		Boys	Girls	Children	Boys	Girls	Children
Fruit	≥ 1–3 serves (excluding juice)	63	59	61	50	52	51
	≥ 1–3 serves (including juice)	95	92	93	89	91	90
Vegetables	≥ 2–4 serves (excluding potatoes)	4	1	3	2	2	2
	≥ 2–4 serves (including potatoes)	22	22	22	17	11	14

Source: 2007 Australian National Children's Nutrition and Physical Activity Survey (DoHA 2008).

According to the 2007 Australian National Children's Nutrition and Physical Activity Survey:

- Over 60% of children aged 4–8 years and around half of children aged 9–13 years met the recommendations for daily serves of fruit (excluding juice). This increased to 93% and 90% respectively with the inclusion of juice (Table 11.2).
- Only a very small proportion of children met the recommendations for daily serves of vegetables (excluding potatoes)—3% of 4–8 year olds and 2% 9–13 year olds. Even with the inclusion of potatoes, the proportions remained low (22% and 14%, respectively).

## 12 Early learning

The early years are important for the acquisition of a range of skills across all developmental domains, including the foundations for literacy. Shared book reading contributes to the development of literacy skills and is the most important activity for later success in reading.

No national data are available on infants being read to by an adult.

The years from birth to age five are a critical period of development, as learning that occurs during this time has a lasting impact on health, future learning and life success. Learning involves many aspects of a child's functioning, including language development, literacy acquisition, cognitive processes, emotional development, self-regulation and problem-solving skills (CCCH 2008b). Research shows that early brain development in the first years of life lays the foundation for critical connections in language development. Early literacy activities, such as reading, rhyming, singing and storytelling, within the first few years of life are therefore crucial in stimulating early brain development (CCCH 2008a; Ravi 2007).

The Australian Government has formed a consortium of early childhood experts to develop a national Early Years Learning Framework. The framework will describe the broad parameters, principles and outcomes required to support and enhance children's learning from birth to 5 years of age, as well as their transition to school. The framework will have specific emphasis on play-based learning, communication and language (including early literacy and numeracy) as well as personal, emotional and social development. The framework will be implemented in July 2009 (DEEWR 2008b).

### THE IMPORTANCE OF SHARED READING

A child starts learning at birth, and the amount and quality of early language activities that children are exposed to is a key factor in early literacy success, particularly the development of the linguistic skills that are necessary for reading. Learning to read is a lengthy process that begins very early in children's development and affects wellbeing throughout life. If a child cannot read, their academic

achievement at school and vocational achievement upon leaving school can be adversely affected (Lyon 1999).

Strong predictors of children's early literacy success are parent's literacy and socioeconomic status, the number of books in the home and shared reading. In fact, studies have suggested that reading aloud to children is the single most important activity for building the knowledge required for eventual success in reading (Huebner & Meltzoff 2005).

The benefits of reading aloud to young children include the processing and acquisition of language and encouragement of phonological awareness; acquainting children with written language and the conventions of print; and providing opportunities for infants to begin to develop positive dispositions towards reading (CCCH & The Smith Family 2004; Klass et al. 2003; Makin 2006).

The frequency and length of reading sessions are important factors in language development. An evaluation of the Early Head Start program in the United States found that the frequency of reading to children was associated with children's vocabulary and cognitive ability at 14, 24 and 36 months of age, and also at later ages. Further, the more that mothers read to their children, the greater the gains—by age 3, children whose mothers had read to them daily during the preceding 2 years had significantly elevated language and cognitive scores (Raikes et al. 2006).

In recognition of the importance of developing early literacy skills, a number of book-based programs have been implemented in various countries to encourage early book reading to infants: Let's Read, Better Beginnings (Australia), Bookstart (UK), and Reach Out and Read (USA). These programs, which utilise a combination of book giveaways, parental guidance and baby story time sessions, have been found to have a positive effect on children (Vic DEECD 2006).

## HOW MANY INFANTS ARE READ TO BY AN ADULT?

**Key national indicator:** Proportion of children aged < 1 year old who are read to by an adult on a regular basis

This indicator requires further consultation and research to identify and clarify the measurement components. Measurement difficulties arise in the use of the term 'regular'. Some studies have defined 'regular' as being read to at least 3 times per week; however, further specification is possible. For example, on at least 3 separate days or on 3 separate occasions, as children may be read to more than once per day. The effects of frequency and duration of book reading on child outcomes in terms of language development, literacy and early brain development in general have not been determined.

A further difficulty with the indicator surrounds the use of the term 'adult', which may exclude being read to by siblings. Parents may also report what they perceive to be socially desirable responses on reading to children, or may have difficulty accurately recalling how often they read to their child.

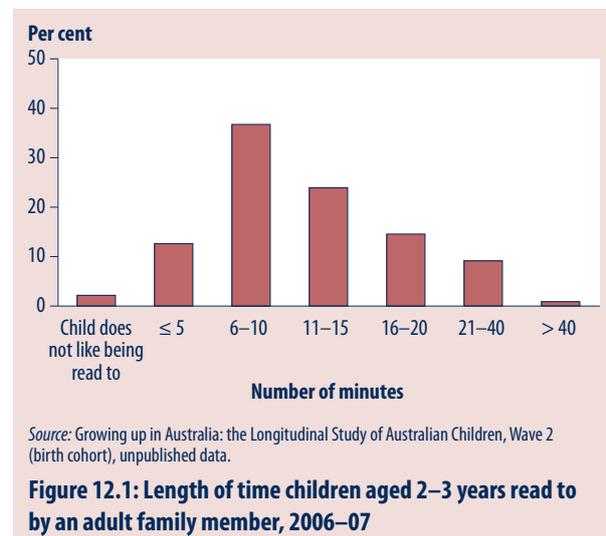
There are no national data available on infants read to by an adult; however, data for Victoria are available from the 2006 Victorian Child Health and Wellbeing Survey. This survey asked parents of children aged 6 months to 12 years how often they, or another family member, read to children from a book in the previous week (Vic DHS 2007a).

The survey found that for children in Victoria aged 6 months to less than one year in 2006:

- half were read to on 6 or 7 days in the preceding week
- around one-fifth each were read to on 1–2 days and 3–5 days
- almost one in ten (9%) were not read to at all in the preceding week, although this estimate should be interpreted with caution as it has a high relative standard error (between 25 and 50%).

Although no national data are available for infants, data are available for 2–3 year olds read to by a parent, or another adult family member, from the Growing up in Australia: the Longitudinal Study of Australian Children (LSAC).

According to the LSAC, more than half (58%) of 2–3 year olds were read to most days (6 or 7) in the preceding week. A further 22% and 13% of children were read to on 3–5 days and 1 or 2 days, respectively; 7% were not read to at all in the previous week. When asked how long their children were read to, the majority (61%) of parents reported that children were read to for 6–15 minutes per sitting. Very few children did not like being read to at all, or were read to for greater than 40 minutes (Figure 12.1).





# Part IV

## HOW WELL ARE AUSTRALIA'S CHILDREN LEARNING AND DEVELOPING?

A child's learning and development is integral to their overall health and wellbeing, as well as the future productive capacity of society. Current government priorities are geared towards developing an early childhood development strategy which focuses on ensuring that all 4 year old children have access to early childhood education programs in the year before full-time schooling. Attendance at early childhood education programs has been found to have beneficial effects on a child's readiness for school and their ability to transition to full-time schooling, particularly among disadvantaged children. Transition to primary school is also affected by other factors such as child health, family characteristics, and the home and community environment.

Successful educational outcomes during the primary school years and beyond are affected by a number of factors, including school attendance and the successful acquisition of literacy and numeracy skills.

The early childhood years are also crucial for social and emotional development which encompasses a broad range of skills that children need to develop in order to succeed at school, and in life generally.

The aim of *Part IV* is to provide a picture of children's development with regards to early learning, the primary school years, and their overall social and emotional development. Key indicators addressed are:

- attending early childhood education programs
- transition to primary school
- attendance at primary school
- literacy and numeracy
- social and emotional development.

The following table shows how children fare across the various indicators presented in *Part IV*.

Indicator		Value	Trend
<b>Attending early childhood education programs</b>	Proportion of children attending an educational program in the 2 years before beginning primary school	Data not available	..
<b>Transition to primary school</b>	Proportion of children entering school with basic skills for life and learning	National data not available	..
<b>Attendance at primary school</b>	Attendance rate of children at primary school (Year 5) (2007)	85–95%	..
<b>Literacy and numeracy</b>	Proportion of children in Year 5 who achieved at or above the national minimum standards (2008)		
	... reading	91%	..
	... numeracy	93%	..
<b>Social and emotional development</b>	Under development	Data not available	..

Key: .. = no trend data presented.

## 13 Attendance at early childhood education programs

Attendance at high-quality early childhood educational programs contributes to optimal child development, including cognitive development and successful transition to primary school.

National data are not available on children attending an early educational program in the 2 years before beginning primary school.

Many Australian children have access to formal early learning programs through attendance at child care or preschool. Preschool is a planned education and developmental program for children in the year (or sometimes 2 years) before they begin full-time primary education. The program is planned and delivered by a university-qualified early childhood teacher.

Attendance at early childhood educational programs is considered to have a number of benefits, including better intellectual development and independence, sociability and concentration, language and cognitive development, and preparation for the successful transition to formal schooling. It is also associated with a lower incidence of personal and social problems in later life, such as school dropout, welfare dependency, unemployment and criminal behaviour (Gorey 2001). The quality of early childhood education has an important effect on child outcomes—high-quality preschooling, including staff with higher qualifications, is related to better intellectual and social/behavioural development (Harrington 2008).

Preschool programs may be especially positive in the lives of children from disadvantaged backgrounds, where children may not be receiving the stimulation they require from the home environment. The Effective Provision of Pre-School Education study, which followed the developmental progress of over 3,000 preschool children across England, found that the increased risk of antisocial or worried behaviour among disadvantaged children at school entry can be reduced by high-quality preschool care at 3 and 4 years of age (Sylva et al. 2003). Studies in the United States have shown that children from low socioeconomic backgrounds attending focused, high-quality early education programs also have improved long-term outcomes. Campbell and

colleagues (2002) found that these children achieved high levels of emotional, intellectual and social development at age 21 and, in a separate study, Schweinhart and colleagues (2005) identified better performance over a range of outcomes, including education, economic performance, family relationships and health, at age 40 from the High/Scope Perry Preschool Program. Investing in good-quality preschool provision is therefore likely to be an effective means of developing children's social competency and emotional health (Boyd et al. 2005), and may narrow existing gaps in academic achievement, particularly among disadvantaged populations.

Attending early childhood education programs has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information). The Council of Australian Governments (COAG) has also committed to providing universal access to early childhood education programs to all 4 year olds for 15 hours per week, for a minimum of 40 weeks per year, by 2013; with a particular focus on Indigenous 4 year olds in remote Indigenous communities (DEEWR 2008e).

### HOW MANY CHILDREN ATTEND AN EARLY EDUCATIONAL PROGRAM?

It is difficult to estimate the number of children who participate in formal early childhood education programs in the years before the first year of primary schooling due to the varied nature of children's services throughout Australia and differences in data collection between states and territories. Currently, no comprehensive, national, comparable collection of information on early childhood education programs exists in Australia.

Preschool has various names in different Australian states and territories, including kindergarten, child-parent centres, and pre-primary. The age at which a child attends primary school differs between states and territories, and therefore the age at which a child attends an early childhood education program may also differ. Participation in early childhood education programs is usually for children in the year before school (generally 4 year olds), although it is open to 3 year olds in some jurisdictions.

Development of a Children's Services National Minimum Data Set (CSNMDS) has been completed with the publication of the final report in February 2007 (NCSIMG 2007). The CSNMDS, endorsed by the Community and Disability Services Ministers' Advisory Council (CDSMAC) in 2006, aims to provide nationally comparable and comprehensive data about the provision of child care and preschool services including information about the children who use the services, the service providers and their workers. The AIHW has examined the feasibility of implementing the CSNMDS and found that most states and territories have not incorporated the CSNMDS data items into their collections due primarily to cost and feasibility issues. However, all jurisdictions felt that the data items in the CSNMDS would be a useful start if there was an agreement to establish a national collection.

The AIHW and the ABS are currently working together to develop national data standards for the performance indicators of the National Partnership Agreement on Early Childhood Education. Data standards in the CSNMDS will be used as the basis for this work.

**Headline Indicator:** Proportion of children attending an educational program in the 2 years prior to beginning primary school

Information on children aged 3–4 years attending preschool or long day care is presented here, in the absence of available data to address the Headline Indicator of attendance at an educational program in the 2 years before beginning primary school.

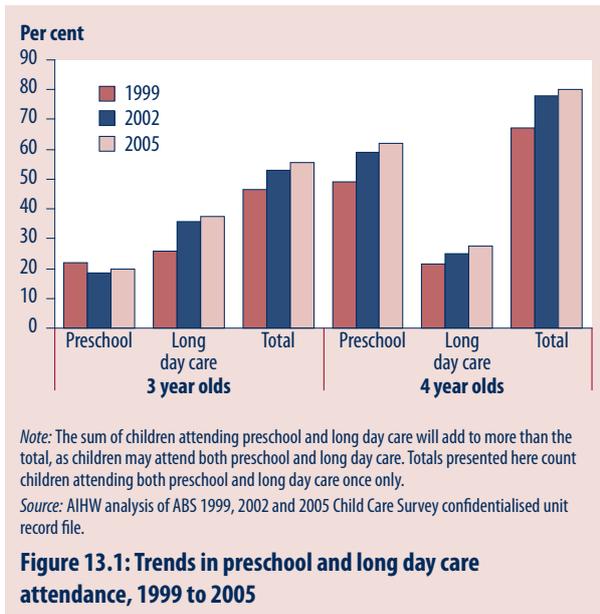
The ABS Child Care Survey, a population-based survey, is one of a number of sources of information on children attending early childhood educational programs across Australia. The major benefit of this survey is that it captures both government and private child care and preschool services. However, it has a number of limitations:

- The survey may undercount the number of children attending preschool due to differences in terminology and starting age of preschool in different states and territories.
- Data are reported by parents and may be affected by their ability to accurately recall or identify the type of setting or learning program in which children are participating.
- The term 'preschool', as used in the survey, encompasses a number of learning environments other than state-based preschools, but may not include all educational programs in long day care centres and other settings. While the ABS 2008 Childhood Education and Care Survey (not available for this report) will enable improved identification of these, it remains subject to the other limitations of the 2005 survey.

Data presented here give a broad indication of the number of children attending early educational programs planned and delivered by a university-qualified early childhood teacher, as well as a range of other structured programs across the various settings. However, it will overestimate the number of children attending an early childhood educational program.

According to the ABS 2005 Child Care Survey:

- In the survey reference week, 68% of children aged 3–4 years (343,100 children) attended preschool or a long day care centre—attendance at either preschool or long day care was greater for 4 year olds (80%) than for 3 year olds (56%) (Figure 13.1).
- A higher proportion of 3 and 4 year olds attended preschool or long day care than in 1999. Attendance increased by around one-quarter in both settings for 4 year olds, whereas attendance by 3 year olds increased in long day care (40% increase), but decreased in preschool (14% decrease).
- The most common reasons given by parents for using preschool or long day care were work-related (including work, looking for work and work-related study or training) (34%), to prepare child for school (23%) and because it was considered beneficial for the child (21%).
- Children in couple-parent families were more likely to attend preschool (43%) than children in one-parent families (31%). However, the reverse was true for long day care centres, (40% of children in one-parent families compared with 31% of children in couple families). These patterns may be explained by one-parent families requiring the longer hours of operation provided by long day care centres.



**Figure 13.1: Trends in preschool and long day care attendance, 1999 to 2005**

### Educational programs in long day care centres

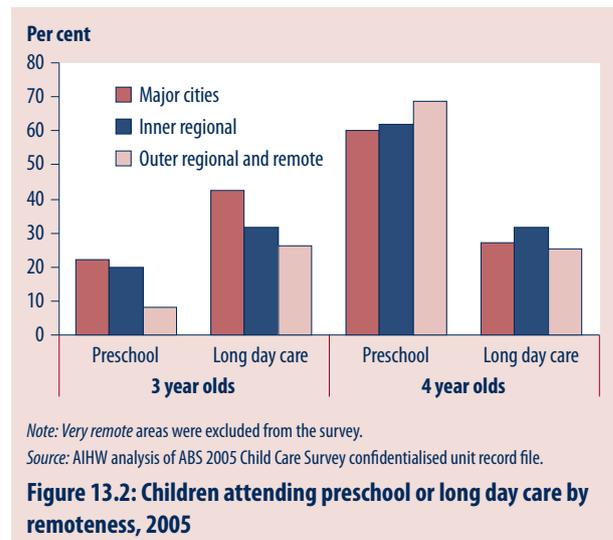
The Australian Government Census of Child Care Services collects information on children in Australian Government-approved and supported child care services who attend a preschool program run by a qualified early childhood teacher in long day care services. According to the 2006 Census of Child Care Services:

- Nearly half (48%) of long day care services offered a preschool program. Two-thirds of these programs were provided in-house, 28% of services took children to a preschool and 5% of services offered both an in-house program and took children to a preschool.
- Of the 186,000 children in an Australian Government-supported long day care service, 62% of children aged 3–4 years attended a long day care service that offered a preschool program (DEEWR 2008a).

### DO ALL CHILDREN ACCESS EARLY EDUCATIONAL PROGRAMS EQUALLY?

There were substantial differences in children’s attendance at preschool and/or long day care by geographical remoteness in 2005, particularly for 3 year olds. However, as the ABS Child Care Survey excludes those living in very remote areas, this information does not provide a full picture on children accessing programs in remote Australia. According to the ABS 2005 Child Care Survey:

- Attendance at preschool increases with remoteness for 4 year olds (from 60% in *Major cities* to 69% in *Outer regional and remote areas combined*), but declines considerably for 3 year olds (22% in *Major cities* and 8% in *Outer regional and remote areas combined*) (Figure 13.2).
- Long day care attendance for 3 year olds was higher in *Major cities* than in *Outer regional and remote areas combined* (43% compared with 26%), while there was no clear pattern for 4 year olds.



**Figure 13.2: Children attending preschool or long day care by remoteness, 2005**

## 14 Transition to primary school

Children entering school with basic skills for life and learning have higher levels of social competence and academic achievement, increasing their likelihood of achieving their full potential.

Based on data from 60 communities, one-quarter of children were developmentally vulnerable in one or more developmental areas of the Australian Early Development Index in 2004–2007. National data will be available in the future.

Children entering school with basic skills for life and learning are more likely to experience a successful transition to primary school. Schooling transition issues relate to emotional competence, capacity for engagement with others and resilience in meeting the demands of schooling. Children who make a successful transition to school have higher levels of social competence and academic achievement compared with those who experience difficulty making this transition (Shepard & Smith 1989). Conversely, children who enter school not yet ready for school-based learning have lower levels of academic achievement, and are at an increased risk of teenage parenthood, mental health problems, committing criminal activity and poorer employment outcomes (Farrar et al. 2007).

Issues around the transition to full-time primary school for children are discussed under a number of conceptual theories, including readiness for learning and readiness for school. Readiness to learn refers to the level of development at which a child is ready to undertake the learning of specific materials; readiness for school refers to the level of development at which a child can fulfil schooling requirements and understand the curriculum. School readiness can be described in terms of age, stage of development, a demonstrated set of skills, or relationships and interactions (Dockett & Perry 2007). In most countries school entry is based solely on age—in Australia some states offer school entry as early as 4 years and 7 months. Recently, the understanding of what constitutes school readiness has been broadened from focusing on these child factors, such as age or specific skills and competencies, to shared responsibilities of families, schools and communities in providing the

environments and experiences that support the healthy development of children (Farrar et al. 2007). Dockett and Perry (2007) discuss three dimensions of school readiness: a child's readiness for school; the school's readiness for children; and family and community supports and services that contribute to the child's readiness.

Factors that affect the school readiness of children at individual, family and community levels include socioeconomic status; child health; family characteristics such as family type, parental education and mental health; the home and community environment; and participation in a quality preschool program (Farrar et al. 2007). A number of studies, including the Effective Provision of Pre-School Education study in the United Kingdom and the High/Scope Perry Preschool Program in the United States, have demonstrated the effectiveness of high-quality, targeted preschool programs in reducing the effects of social disadvantage, developing children's social competency and emotional health, and preparing children for a successful transition to formal schooling (Boyd et al. 2005; Sylva et al. 2003; see also *Chapter 13 Attendance at early childhood education programs*).

Transition to primary school has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for more information). In addition, COAG has initiated a series of reforms to early childhood development through the Productivity Agenda, including increasing access to, and improving the quality of, early childhood education programs and early learning experiences in child care. These reforms are being progressed with the states and territories through the COAG process (COAG 2008a).

## CHILDREN ENTERING SCHOOL WITH BASIC SKILLS FOR LIFE AND LEARNING

There is currently no nationally consistent system for assessing children’s readiness for a successful transition to school; however, the Australian Government has committed to the national implementation of the Australian Early Development Index (AEDI), commencing in 2009. COAG has also endorsed the AEDI as a national progress measure of early childhood development in Australia.

The AEDI, a population measure of children’s development, collects information on five developmental domains: physical health and wellbeing; social competence; emotional maturity; language and cognitive skills; and communication skills and general knowledge of children at school entry (see also *Part XI* and *Appendix 2* for more information). The AEDI provides information on early childhood development, including how prepared children are to make the successful transition to school, and provides insight into the effects that communities and social environments have on children’s outcomes. The AEDI has the potential to measure progress over time in improving early childhood development outcomes. Between 2004 and 2007, the AEDI was implemented in 60 communities across Australia, and surveyed 37,420 children.

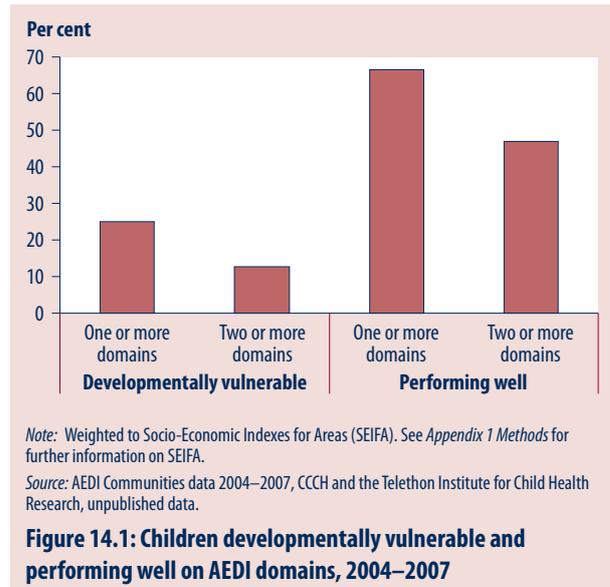
**Headline Indicator:** Proportion of children entering school with basic skills for life and learning

For each of the five developmental domains on the AEDI, ‘cut-off’ scores are developed below which children are considered to be developmentally vulnerable or ‘at risk’. Children scoring below these cut-offs demonstrate a much lower than average ability in the skills measured in that domain. Cut-off scores are also developed to identify children who are performing well, meaning that they demonstrate above-average ability in that domain.

Between 2004 and 2007, in the 60 communities in which the AEDI was implemented:

- The majority of children (two-thirds) were performing well on one or more domains, and almost half (47%) were performing well on two or more domains (Figure 14.1).

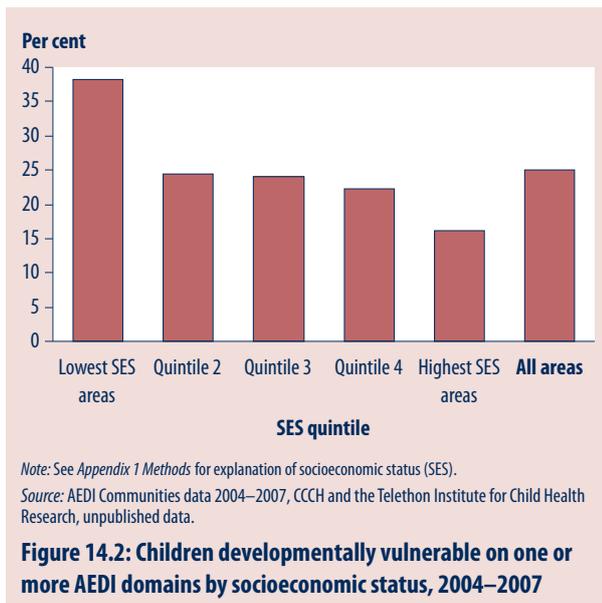
- One-quarter of children surveyed were developmentally vulnerable on one or more developmental domains. These children may have difficulty making a successful transition to school.
- About 13% of children were developmentally vulnerable on two or more developmental domains. These children are considered to be at particularly high risk developmentally.



### How do children from disadvantaged backgrounds perform on the AEDI?

Children from socioeconomically disadvantaged backgrounds generally do not perform as well academically as other children. High-quality, targeted preschool programs have been shown to reduce the effects of social disadvantage, and may narrow these existing gaps in academic achievement. The development of socially and culturally appropriate processes and programs is important for the success of transition programs for any child or group of children (Dockett & Perry 2007; Perry et al. 2007).

Between 2004 and 2007, in the 60 communities in which the AEDI was implemented, children in the lowest socioeconomic status (SES) areas were twice as likely to be developmentally vulnerable on one or more domains of the AEDI as those in the highest SES areas. However, in the highest SES areas, there were still 15% of children developmentally vulnerable on one or more domains (Figure 14.2).



## 15 Attendance at primary school

Attendance at primary school is a key national education goal, as children who are absent from school miss out on critical stages of development and are less likely to achieve educational and life success.

In 2007, the attendance rate across the states and territories for Year 5 students was between 85% and 95%. Indigenous students generally had a lower attendance rate than non-Indigenous students.

Primary school provides the first compulsory educational experience for Australian children, and regular school attendance is critical to successful student outcomes. School attendance helps children develop the basic building blocks for learning and educational attainment, and social skills, such as friendship building, teamwork, communication skills and healthy self-esteem. Regular attendance and participation in schooling is therefore an important factor in educational and life success. However, children who are regularly absent from school are at risk of missing out on these critical stages of educational development and may experience long-term difficulties with their learning, which may result in fewer educational and employment opportunities. Absenteeism can also exacerbate issues of low self-esteem, social isolation and dissatisfaction (Vic DHS 2007b).

The importance of all children attending primary school is not restricted to Australia or developed countries, but is increasingly being recognised worldwide as a crucial factor in children's development and wellbeing. Achievement of universal primary education (that is, enrolment, attendance and completion) has been identified as one of the eight United Nations Millennium Development Goals (UNICEF 2009).

A child's health affects whether or not they attend school, and their ability to learn and participate in school activities (MCEETYA 2001). A high proportion of Indigenous children experience chronic health problems, such as middle ear infection and nutritional deficiencies, which negatively affects their school attendance and learning outcomes (ABS & AIHW 2005). Further, Indigenous students have higher rates of absenteeism and suspension, and lower retention rates than non-

Indigenous students (Bourke et al. 2000), which limits their future life choices and ability to achieve their full potential. Increasing attendance at primary school for disadvantaged populations, particularly for Indigenous children, will help to reduce the considerable gap that currently exists in academic achievement between population groups within Australia. The Western Australian Aboriginal Child Health Survey has shown a direct relationship between the number of days absent from school and academic performance (Zubrick et al. 2006).

Attendance at primary school has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information).

### HOW OFTEN DO CHILDREN ATTEND PRIMARY SCHOOL?

School attendance is commonly measured in either of two ways: it can be determined using enrolments (that is, the children who have registered with a school) and by attendance (the children who are actually going to school). This chapter focuses on children who are attending school, as distinct from those who are enrolled, as enrolment at school does not necessarily reflect the child's attendance.

Data for this chapter are drawn from the *National report on schooling in Australia 2007* (MCEETYA 2009). This is relatively new information, and there is still some variation in how the information is collected between states and territories, and school sectors. Attendance data are available by year level and state and territory for each school sector (government, Catholic or independent). The data cannot currently be aggregated beyond this

level, and therefore the attendance of Year 5 students has been selected as the focus for this chapter, in line with data presented in *Chapter 16 Literacy and numeracy*.

**Headline Indicator:** Attendance rate of children at primary school

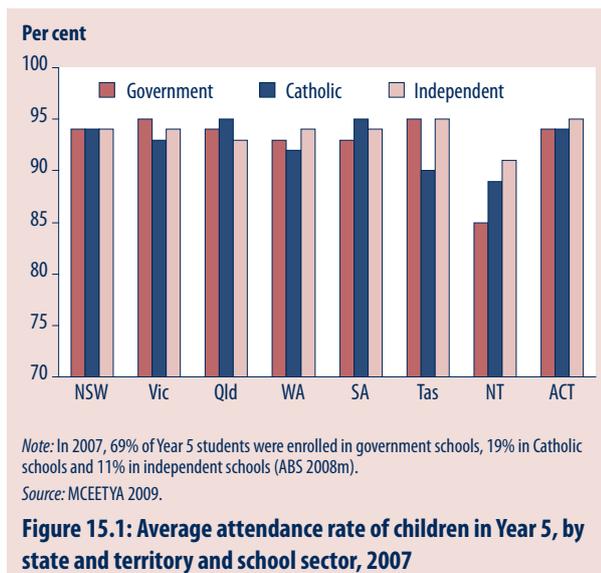
There was little variation in attendance across years 1 to 7 within each school sector and state or territory. Boys and girls had similar rates of attendance in government schools for these year levels, as was generally the case in Catholic schools. More variation between the sexes was seen in the independent school sector, with boys more often having a higher attendance rate than girls (MCEETYA 2009).

In 2007, for Year 5 students the attendance rate ranged between 85% and 95%:

- Excluding the Northern Territory, the attendance rate across the states and remaining territory and across the three school sectors (government, Catholic and independent) was 90% or above (Figure 15.1).
- The lowest attendance rates were reported for the Northern Territory (85% for government schools, 89% for Catholic schools and 91% for independent schools). This is likely to be related to the high proportion of Indigenous Year 5 students in the Northern Territory (41% compared with 1–7% in the other states and territories; ABS National Schools Statistics Collection, unpublished data), who have lower rates of school attendance (MCEETYA 2009).

## Do rates of school attendance vary for Aboriginal and Torres Strait Islander children?

School attendance among Aboriginal and Torres Strait Islander students is of particular concern. In 2007, Indigenous Year 5 students generally had lower attendance rates than non-Indigenous students. For example, in the government school sector (where about 89% of Indigenous Year 5 students were enrolled) the difference between the Indigenous and non-Indigenous attendance rates for the majority of the states and territories was between 5 and 7 percentage points. Further information on school attendance among Indigenous students is provided in *Part IX*.



## 16 Literacy and numeracy

A national education goal is for every child leaving primary school to be numerate and able to read, write and spell at an appropriate level.

In 2008, 91% of Year 5 students met the national minimum standards for reading and 93% for numeracy, with proportions substantially lower among Indigenous students and students living in remote parts of Australia.

Just as language development in early childhood lays the foundation for formal education, literacy and numeracy skills acquired in the schooling years are the building blocks for further educational attainment, social development and employment. A national education goal is for every child leaving primary school to be numerate and able to read, write and spell at an appropriate level.

Literacy means more than just being able to read and write—literacy is integrally related to learning in all areas of the curriculum and enables individuals to develop knowledge and understanding. Numeracy is also central to many areas of education, and also life outside of school. It allows problems to be analysed and solved, is important in many types of employment, and helps people manage their day to day lives.

A number of factors are associated with children's level of literacy and numeracy, including the home environment and engagement with the school environment. In the home, the number of books available, the amount of time parents spend discussing books with their child, the presence of study aids (desk, computer and dictionary) and the educational attainment of parents have been associated with literacy and numeracy levels. Although children from low-income families are more likely to have problems that interfere with learning outcomes, the relationship between socioeconomic disadvantage and educational outcomes can be mediated by the home environment—with access to reading materials and parental encouragement to read at home, students from disadvantaged backgrounds have been found to outperform students with relative socioeconomic advantage but lower levels of reading engagement (Clark & Akerman 2006; Farrar et al. 2007; OECD 2002). In terms of the school environment, children

who engage in school activities and express positive feelings towards school are more likely to have higher educational aspirations, grades and retention to Year 12.

In 2008, the Australian Government established the National Curriculum Board to develop a national curriculum for students from kindergarten to Year 12, initially with a focus on English, mathematics, the sciences and history. The national curriculum is expected to be developed by 2010 and implemented in all states and territories from 2011. One of the aims of the board is to produce a continuum of learning in literacy and numeracy as students progress in their schooling (National Curriculum Board 2009).

Literacy and numeracy have been endorsed by the AHMC, CDSMC and the AESOC as Children's Headline Indicator priority areas (see *Part X* for further information and state and territory data), and are consistent with the COAG Performance Measure to 'increase the proportion of young people meeting basic literacy and numeracy standards, and improve overall levels of achievement' (COAG 2006).

### NATIONAL LITERACY AND NUMERACY MINIMUM STANDARDS

National minimum standards have been developed for reading, writing, spelling, language conventions (grammar and punctuation) and numeracy for students in years 3, 5, 7 and 9. Students who achieve the minimum standards have demonstrated at least the basic understanding required for their year level. In 2008, the first National Assessment Program—Literacy and Numeracy (NAPLAN) tests were conducted. For the first time, students in each state and territory sat the same tests, allowing the

consistent assessment of students across Australia. There is now a common and continuous reporting scale used for all students in years 3, 5, 7 and 9, which provides considerably more information about student achievement than was previously available (MCEETYA 2008b).

This chapter presents reading and numeracy results for students in years 3, 5 and 7—results are expressed in terms of the percentage of students who met the national minimum standard. Although data are collected for children in years 3, 5, 7 and 9, the Year 5 results have been identified as the most appropriate to report for this Headline Indicator. By Year 5, students have had an opportunity to build on the outcomes achieved in Year 3 and are able to demonstrate progress across several years of schooling. Year 3 is considered to be too early to reliably reflect the influence of early interventions on students' outcomes.

#### Headline Indicators:

Proportion of children in Year 5 achieving at or above the national minimum standards for reading

Proportion of children in Year 5 achieving at or above the national minimum standards for numeracy

In 2008:

- Most Year 5 students met the minimum standards for reading (91%) and numeracy (93%) (Table 16.1).
- A higher proportion of girls in Year 5 achieved the minimum standard for reading: 93% compared with 89% of boys. The poorer performance of boys in reading has been attributed to a tendency for boys to be less interested and engaged in reading activities. It is also thought that boys are less likely to be encouraged to read and more likely to experience anxiety about reading (Malloy & Botzakis 2005). No statistically significant difference was seen between the proportion of Year 5 boys and girls who met the numeracy minimum standard.

- Among Year 3 students, 92% met the reading and 95% met the numeracy minimum standards; the corresponding proportions among Year 7 students were 94% and 95%. Again, a higher proportion of girls met the reading minimum standard in both Year 3 and Year 7; however, there was little or no statistically significant difference between boys and girls for numeracy.

The introduction of a new assessment system (the NAPLAN) in 2008 meant that data could not be compared with results from previous years. For the period 2001–2007, the proportion of Year 5 students meeting the reading and numeracy benchmarks remained much the same (ranging from 88% to 90% for reading and 89% to 91% for numeracy) (MCEETYA 2008c).

### How do population groups vary in meeting reading and numeracy minimum standards?

Some groups of students do not perform as well against the national reading and numeracy minimum standards. In particular, Indigenous students, children living in remote areas and children whose parents were not in paid work or who had lower levels of educational attainment often did not achieve the same educational outcomes as other Australian children. These groups are also more likely to leave school early (ABS 2006b; Lamb et al. 2000; MCEETYA 2008b).

In 2008, for Year 5 students:

- Indigenous students were less likely to have achieved the reading and numeracy minimum standards—63% and 69% respectively; 28 and 24 percentage points lower than for all students (Figure 16.1; see also *Part IX*).
- Students in *Remote* and *Very remote* areas were less likely to meet the reading and numeracy minimum standards than those in *Metropolitan* areas—for reading 80% and 46% of students respectively,

**Table 16.1: Students in years 3, 5 and 7 achieving at or above the national reading and numeracy minimum standards, 2008 (per cent)**

	Boys		Girls		Children	
	Reading	Numeracy	Reading	Numeracy	Reading	Numeracy
Year 3	90.3	94.6	94.1	95.5	92.1	95.0
Year 5	89.3	92.8 *	92.8	92.5 *	91.0	92.7
Year 7	92.8	95.4 *	95.6	95.3 *	94.2	95.4

\* The difference between boys and girls at the same year level is not statistically significant at the 5% level of significance.

Source: MCEETYA 2008b.

compared with 92% of students in *Metropolitan* areas. For numeracy, the corresponding proportions were 83% and 54%, compared with 94% (Figure 16.1). These patterns may be influenced by the high proportion of Indigenous students in *Remote* and *Very remote* areas, and the poorer performance of these students.

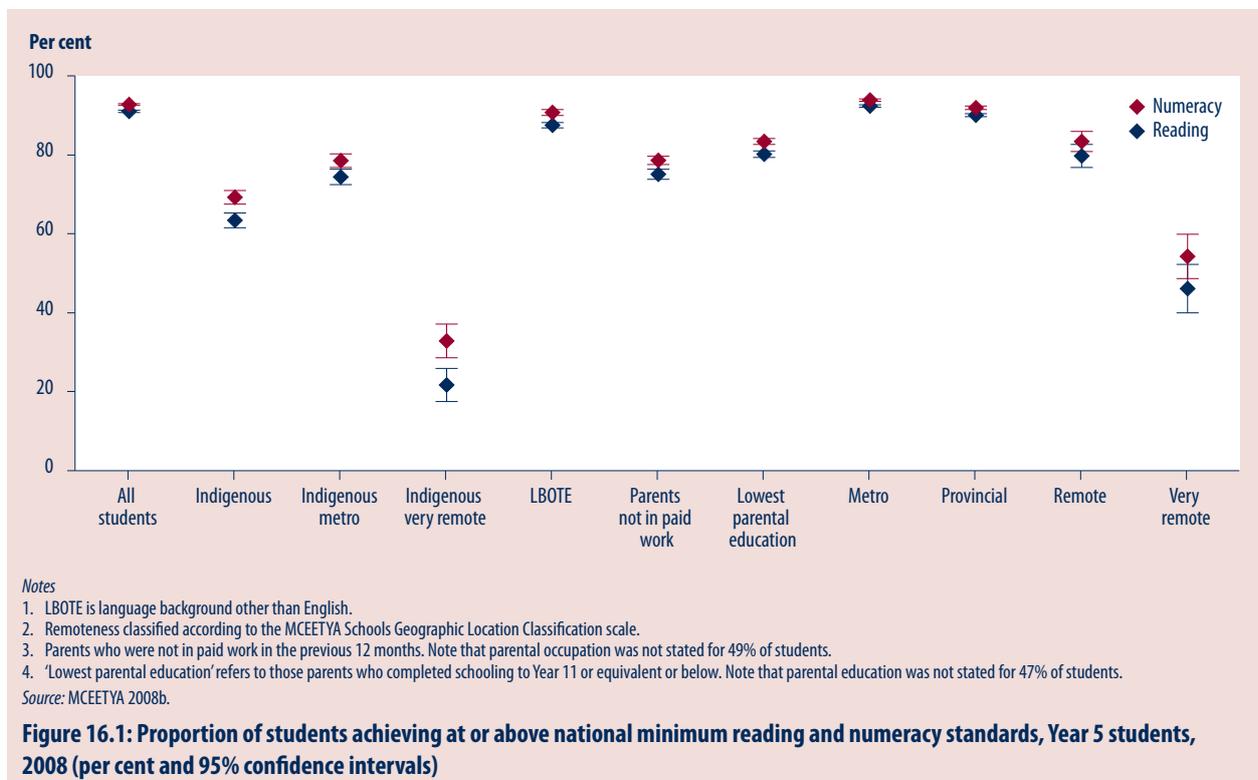
- The proportion of students with a language background other than English who met the minimum standards was similar to that for all students for reading and numeracy.
- A smaller proportion of students whose parents had not been in paid work in the previous 12 months met the minimum standards (75% for reading and 79% for numeracy compared with 91% and 93% of all Year 5 students, respectively).
- Students of parents with the lowest levels of educational attainment were less likely to achieve the minimum standards (80% for reading and 83% for numeracy)—16 and 14 percentage points lower, respectively, compared with students of parents with the highest level of educational attainment (Figure 16.1; MCEETYA 2008b).

## How does Australia perform internationally in reading, mathematics and science?

Internationally, awareness of the social and economic consequences of underachievement in literacy and numeracy has highlighted the importance of monitoring these core educational outcomes (OECD 2007; UN 2005). Internationally comparable literacy and numeracy benchmark data are not available for primary school-aged students; however, data are available from the Programme for International Student Assessment (PISA) surveys on proficiency in reading, mathematics and science among 15 year old students. In 2006, 30 OECD countries and 27 partner countries participated.

PISA results show that in 2006, among the 30 OECD countries:

- Australia's mean scores for reading (513), mathematics (520) and science (527) were significantly higher than the PISA-reported OECD averages (492, 498 and 500, respectively).



In 2006, among all participating countries, Australia was statistically significantly outperformed by:

- five countries for reading; an increase from 2003 when two countries outperformed Australia. In 2006 the two top-performing countries were Korea and Finland
- eight countries for mathematics; seven countries outperformed Australia in 2003. In 2006 the two top-performing countries were Chinese Taipei and Finland
- three countries for science (Finland, Hong Kong–China and Canada); in 2003 the comparable number was four countries (Thomson & De Bortoli 2008).

While Australia generally performs well, some groups of Australian students performed more poorly. The 2006 PISA results showed a wide gap in academic achievement between Australia's Indigenous and non-Indigenous students, with very little improvement since PISA was first conducted in 2000. In 2006, the average performance of Australia's Indigenous students placed them two and a half years behind Australia's non-Indigenous students (Thomson & De Bortoli 2008).

# 17 Social and emotional development

The consequences of poor social and emotional development include poor academic performance, persistent physical aggression, mental health issues, adolescent delinquency and antisocial behaviour.

No national data are currently available on social and emotional development due to definition and measurement difficulties.

A child's ability to learn and function as a contributing member of society is influenced by their social and emotional development. Social and emotional development encompasses a number of skills that children need to develop in order to succeed at school, and in life in general. These include the ability to identify and understand one's feelings, accurately read and comprehend emotional states in others, manage strong emotions and their expression, regulate one's behaviour, develop empathy for others, and establish and sustain relationships. These skills form the basis for self-regulation, enabling children to withstand impulses, maintain focus and undertake tasks regardless of competing interests (Boyd et al. 2005). Where social and emotional development is limited, this can result in poor academic performance, relationship problems, mental health issues, persistent physical aggression, adolescent delinquency and antisocial behaviour (Aviles et al. 2006; Boyd et al. 2005).

A child's social and emotional development is an interplay between biological and environmental factors (Vimpani et al. 2002). These factors can either increase the likelihood of poor developmental outcomes (referred to as 'risk factors') or strengthen a child's response to such risks (referred to as 'protective factors'). Examples of risk factors include disability, social isolation, domestic violence and substance abuse, while protective factors include a warm and supportive relationship between the child and parent or carer, and secure, stable care (Goldfeld 2007; Raising Children Network 2006a). Differences in social and emotional development may also result from a child's inborn temperament, cultural influences, behaviours modelled by adults, and the opportunities provided for social interaction (Raising Children Network 2006b).

The early childhood years are a crucial time for social and emotional development, as brain development in the first 5 years of life lays the foundations for cognition, behaviour, learning capacity, memory and coping skills. Many of the components of social and emotional development are similar to the concepts discussed in *Chapter 14 Transition to primary school*, which focuses on children entering school with the basic skills for life and learning, including social and emotional competence. However, social and emotional development is broader than this and continues throughout life—it is about gaining the strength and capacity to lead a full and productive life, and having the resilience to deal with change and unpredictability, a much broader concept than just successful transition to school.

## MEASURING SOCIAL AND EMOTIONAL DEVELOPMENT

As discussed, social and emotional development is determined by how well children can manage their feelings, understand others' feelings and interact positively with others. These concepts are difficult to measure in national surveys. Furthermore, as social and emotional development is a progressive process, measuring satisfactory development will depend on understanding what is normal achievement at a particular age.

**Key national indicator:** Under development

Given the difficulty in defining and measuring social and emotional development, there is currently no defined indicator, nor national-level data that describe the social and emotional development of Australian children.

The Australian Early Development Index (AEDI) collects information on two domains which are measures of social and emotional development: social competence and emotional maturity (see *Chapter 14 Transition to primary school* and *Appendix 2* for more information on the AEDI). Information is collected at school entry, as this is the first opportunity to collect information systematically on children. As the Australian Government has committed to the national implementation of the AEDI commencing in 2009, the AEDI could potentially address a social and emotional development indicator at the national level in the future.

The Growing up in Australia: the Longitudinal Study of Australian Children (LSAC) collects information on children's development across three domains—physical, social and emotional functioning, and learning—considered to be the major components of current wellbeing and future capability to be a successful participant in society (Wake et al. 2008; see *Appendix 2* for more information on the LSAC). The domain of interest here is the social and emotional functioning domain. The social-emotional outcomes measure in the LSAC includes social competence (pro-social behaviour and problems with peers), internalising (displaying negative emotional states such as nervousness, worry), and externalising (hyperactivity, problem behaviours when interacting with others). It is not possible to make claims about the performance of the overall sample of infants or children; furthermore, the LSAC sample is not truly nationally representative. For example, it has a greater proportion of post-secondary-educated mothers than in the national population. Consequently, the LSAC can not be used to address a national indicator.

### How does social and emotional development vary across population groups?

Although the LSAC can not be used to report on the indicator at the national level, it can be used for comparisons of subgroups of the sample relative to each other (see Wake et al. 2008:16). Statistically significant differences on the social and emotional functioning domain for the infant and child cohorts are discussed here—higher scores indicate better social-emotional outcomes.

On average, infants who lived in homes where a language other than English was spoken had lower scores than those in homes where only English was spoken (Wake et al. 2008).

More differences were found among the child cohort than the infant cohort. Among children aged 4–5 years, on average, scores were higher among girls, children whose mothers had higher education (tertiary and Year 12 completion), children whose parents had a higher occupational class and income, and children in the highest SES areas. Scores were lower on average among Indigenous children, children whose main language was not English and children in financially stressed households (Wake et al. 2008).



# Part V

## WHAT FACTORS CAN AFFECT CHILDREN ADVERSELY?

*Part II* of this report looked at health status measures, such as mortality, morbidity and disability, and showed that while many Australian children experience relatively good health, some experience considerably worse health than others in the population. *Part III* of the report has discussed the positive factors that influence health, in particular those that promote healthy child development, such as breastfeeding, good dental health, physical activity and early learning experiences.

*Part V* will focus on factors which increase the risk of ill health in children. Childhood, including the prenatal period, is a time of rapid development during which it is critical to establish good health, positive health behaviours and overall wellbeing. During these times it is important to reduce the factors that adversely affect the health of children and to promote factors that enhance health.

The following topics are therefore discussed in *Part V*:

- teenage births
- smoking in pregnancy
- alcohol use in pregnancy
- birthweight
- overweight and obesity
- environmental tobacco smoke in the home
- tobacco use
- alcohol misuse.

The following table shows how children fare across the various indicators presented in *Part V*, and whether there has been any improvement over time.

Indicator		Value	Trend
<b>Teenage births</b>	Age-specific birth rate for 15–19 year old women (2006)	17 per 1,000	✓
<b>Smoking in pregnancy</b>	Women who smoked during the first 20 weeks of pregnancy	National data not available	..
<b>Alcohol use in pregnancy</b>	Women who consumed alcohol during pregnancy (2007)	60%	✓
<b>Birthweight</b>	Live born infants of low birthweight (2006)	6%	~
<b>Overweight and obesity</b>	Children aged 2–12 years whose BMI score is above the international cut-off points for 'overweight' and 'obese' for their age and sex (2007)	22%	..
<b>Environmental tobacco smoke in the home</b>	Households with children aged 0–14 years where someone smokes inside (2007)	8%	✓
<b>Tobacco use</b>	Children aged 12–14 years who are current smokers (2005)	5%	✓
<b>Alcohol use</b>	Children aged 12–14 years who have engaged in risky drinking on any one occasion (in the last week) (2005)	2.6%	✗

Key: ✓ = favourable trend; ✗ = unfavourable trend; ~ = no change or clear trend; .. = no trend data presented.

## 18 Teenage births

Teenage motherhood poses significant long-term risks, including poorer health, educational and economic outcomes, for both mother and child.

In 2006, 11,900 babies were born to teenage mothers, or 5% of all births. For teenagers, the birth rate was 5 times as high among Indigenous girls, and those living in remote areas of Australia.

Teenage motherhood, particularly at younger ages, can pose significant long-term risks to both mother and child. Teenage mothers often delay having their pregnancy confirmed and/or seeking antenatal care, and are more likely to engage in risky behaviour, including smoking and drinking alcohol during pregnancy (see *Chapter 19* and *Chapter 20*). Consequently, teenage mothers face increased risk of miscarriage, preterm delivery, low birthweight and other complications of pregnancy and birth, and perinatal mortality (WHQW 2008). Perinatal mortality is highest among infants of teenage mothers (perinatal deaths include fetal deaths of at least 20 weeks gestation or 400 grams in weight, up to babies aged less than 28 days). Infants born to teenage mothers are at an increased risk of infection, chemical dependence (due to maternal substance abuse) and SIDS (Malamitsi-Puchner & Boutsikou 2006).

Parenthood during the teenage years often means interrupted schooling, a high risk of lone parenthood, greater dependence on government assistance, increased problems in engaging with the labour market, and poverty (Sleebo 2003). As a result, many young mothers are unable to meet the financial and emotional needs of their babies. These negative consequences can affect the health, educational and economic futures of children born to teenage parents, as well as the parents themselves (Sleebo 2003). Children born to teenage mothers develop more behavioural problems, tend to be more impulsive than children of older mothers and are more likely to be born into, and continue to live in, social and economic disadvantage (Ambert 2006). Children of teenage mothers have a higher likelihood of becoming a teenage parent themselves (Felice & Feinstein 1999 cited in Pursche 2007).

A number of factors are associated with teenage birth including family history of teenage pregnancy, sexual abuse in childhood, unstable housing arrangements, poor school attendance and performance, socioeconomic disadvantage, absence of a father figure, living in rural and remote areas, and being Indigenous (Slowinski 2001). While not all teenage births result in negative outcomes for mother and child, the circumstances that often contribute to teenage birth mean that many young mothers do not receive the support they need during and after the birth. There is also the question of whether certain groups of young women have adequate support to avoid unintended pregnancy. Knowledge about reproductive matters and access to contraception are important factors in preventing unintended teenage pregnancies.

Teenage births has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information and state and territory data).

### HOW MANY AUSTRALIAN CHILDREN ARE BORN TO TEENAGE MOTHERS?

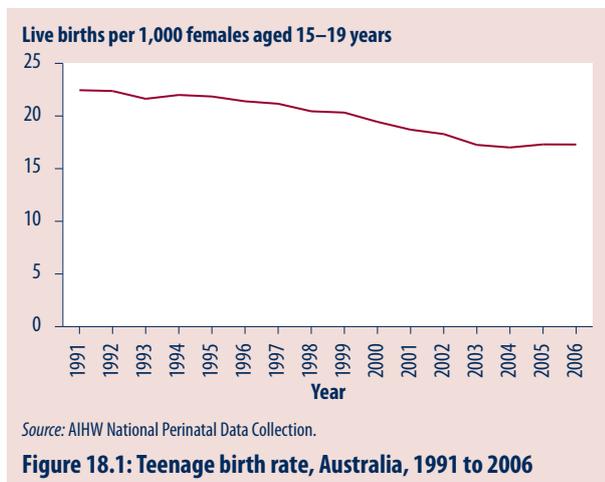
The teenage birth rate, that is, the number of babies born to teenage mothers, is expressed as the number of live births per 1,000 female population aged 15–19 years. There are few births to mothers under the age of 15 years in Australia—these births are included in the numerator. Data on births to teenage mothers is available from the AIHW National Perinatal Data Collection.

The teenage birth rate is distinct from the teenage pregnancy rate. The birth rate includes only live births and is therefore lower than the pregnancy rate, which would include terminations and stillbirths. The teenage birth rate is reported in this chapter to emphasise the relationship between early life experiences and their longer term effects on child health and wellbeing.

**Headline Indicator:** Age-specific birth rate for 15–19 year old women

In 2006:

- Around 11,900 infants were born to teenage mothers—a rate of 17 live births per 1,000 females aged 15–19 years. Births to teenage mothers accounted for 4.5% of all live births.
- Of teenagers who gave birth, 82% were first-time mothers.
- The declining trend observed in teenage births since the mid 1990s, when the rate was 22 per 1,000 females aged 15–19 years, appears to have stabilised from 2003 onwards at 17 (Figure 18.1).



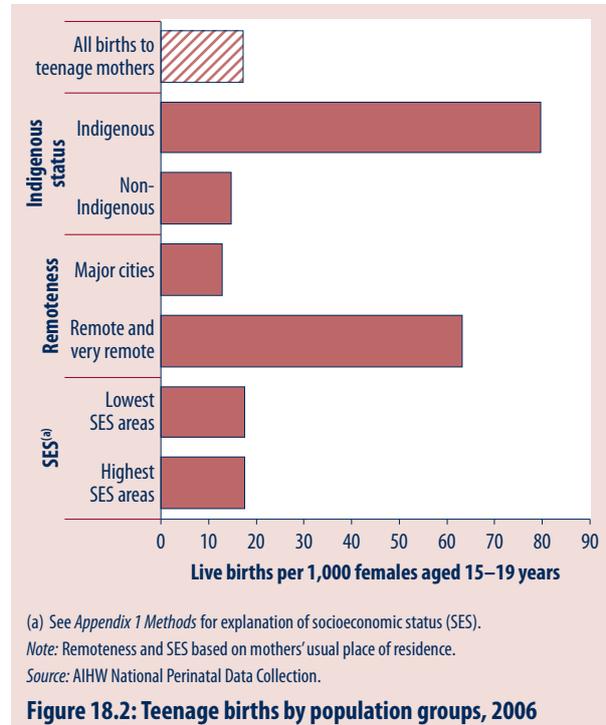
**Figure 18.1: Teenage birth rate, Australia, 1991 to 2006**

**Do teenage birth rates vary across population groups?**

Teenage births are more common among Indigenous Australians, and among mothers from remote areas. Research suggests that limited access to family planning information and services may contribute to relatively high numbers of teenage births in rural communities (Pursche 2007).

In 2006:

- The Indigenous teenage birth rate was 5 times the non-Indigenous rate—80 births per 1,000, compared with 15 for non-Indigenous teenagers (Figure 18.2). See *Part IX* for further information.
- The teenage birth rate increased with increasing remoteness, with teenage girls in *Remote and very remote* areas being 5 times as likely to give birth as their peers in *Major cities* (63 per 1,000 compared with 13).
- There was no statistically significant difference in teenage birth rates between those in the lowest and highest socioeconomic status (SES) areas (based on the mother's usual place of residence).



**Figure 18.2: Teenage births by population groups, 2006**

## How do Australia's teenage birth rates compare internationally?

Australia's teenage birth rate ranked 20th out of 30 OECD countries in 2002 (Figure 18.3). At 18 births per 1,000 teenage females, the Australian rate was higher than the OECD average (17) and substantially higher than Korea (2.7), Switzerland (5.5) and Japan (6.2), the best performing OECD countries. Teenage birth rates were highest in Mexico (51), Turkey (49) and the United States (43).



## 19 Smoking in pregnancy

Smoking in pregnancy is an important modifiable risk factor for low birthweight, preterm birth, placental complications and perinatal mortality.

In 2006, one in six women smoked at any time during pregnancy, with rates at least twice as high among Indigenous women, those living in remote areas and those living in the most socioeconomically disadvantaged areas.

Smoking during pregnancy is a significant risk factor for the mother and her unborn baby. Tobacco smoke interferes with normal fetal development by restricting oxygen flow through the placenta and exposing the developing fetus to numerous toxins. This increases the risk of spontaneous abortion and ectopic pregnancy, and can result in health problems for the newborn, including low birthweight, intrauterine growth restriction, prematurity, placental complications, birth defects, lung function abnormalities and respiratory symptoms, and perinatal mortality (Jauniaux & Burton 2007; Julvez et al. 2007; Milner et al. 2007).

Low birthweight and short gestation are the most common short-term problems for infants whose mothers smoked in pregnancy, and are associated with increased perinatal morbidity and mortality, as well as adverse health outcomes throughout life (see also *Chapter 21 Birthweight*). Lower levels of exposure to cigarette smoke are associated with improved health outcomes for infants—reducing cigarette smoking to eight cigarettes a day significantly improves birthweight, while quitting smoking within the first 20 weeks of pregnancy results in birthweight similar to that of infants of non-smoking mothers (Chan & Sullivan 2008; Hoff et al. 2007). Conversely, mothers who smoked more than 10 cigarettes a day have infants of significantly lower birthweight (Chan & Sullivan 2008).

The effects of smoking during pregnancy are not restricted to the perinatal period but persist into infancy and childhood. Smoking during pregnancy has been found to be associated with SIDS and childhood conditions such as asthma, obesity, lowered cognitive development and psychological problems (Button et al. 2007; Julvez et al. 2007).

A number of maternal characteristics are associated with smoking in pregnancy. Rates of smoking in pregnancy are higher among teenage mothers, lone mothers, Aboriginal and Torres Strait Islander mothers, and mothers with lower levels of educational attainment and of low socioeconomic status (Laws et al. 2006). Women continue to smoke during pregnancy for many reasons such as addiction, and social and economic pressures, as well as the lack of understanding of the consequences of smoking during pregnancy (Hoff et al. 2007; OBGYN & Reproduction Week 2008).

Smoking in pregnancy has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information).

### HOW MANY PREGNANT WOMEN SMOKE IN AUSTRALIA?

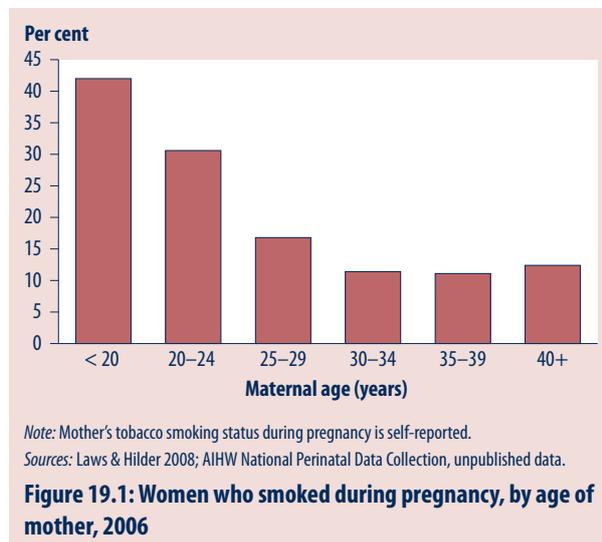
**Headline Indicator:** Proportion of women who smoked during the first 20 weeks of pregnancy

Smoking in the first 20 weeks of pregnancy is the endorsed Children's Headline Indicator. Currently, only South Australia collects suitable data for this indicator. A standard data element has been developed and it is expected that nationally consistent data on smoking during the first 20 weeks of pregnancy will be collected from 1 January 2010.

In the interim of national data being available on smoking in the first 20 weeks of pregnancy, this chapter reports on the proportion of women who smoke at any time during pregnancy, using data from the AIHW National Perinatal Data Collection (see *Appendix 2 Data sources*).

In 2006, excluding data for Victoria:

- One in six (17%) women who gave birth reported smoking during pregnancy, and the rate has remained fairly stable since 2001.
- Smoking in pregnancy was most common among teenage mothers (42%), and decreased with increasing maternal age to between 11% and 12% among mothers aged 30 years and over (Figure 19.1).
- Infants whose mothers smoked during pregnancy were twice as likely to be of low birthweight (11% compared with 5% for those who did not smoke) and 60% more likely to be pre-term at less than 37 weeks than mothers who did not smoke.

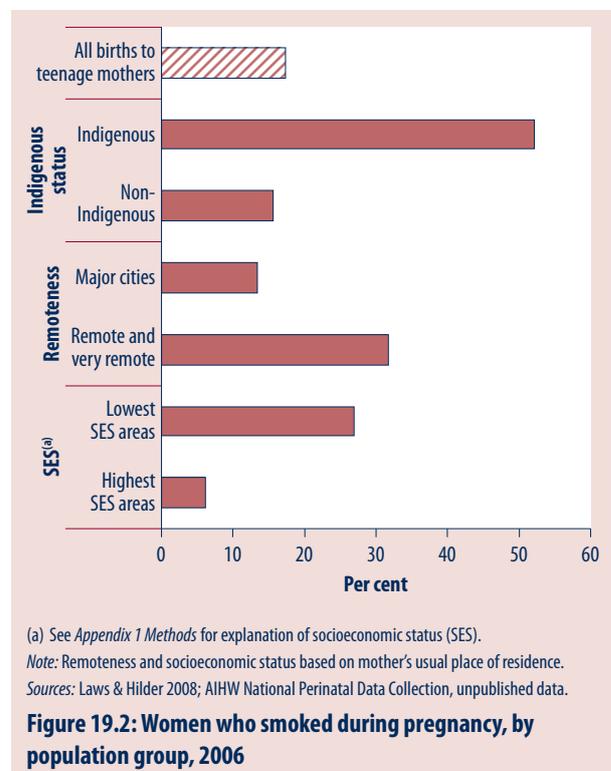


### How does smoking in pregnancy vary across population groups?

There are a number of reasons why rates of smoking in pregnancy may vary between population groups such as Aboriginal and Torres Strait Islander mothers, and mothers from remote and socioeconomically disadvantaged areas. These include access to high-quality maternal health services, which are less readily available to these population groups, and lower educational attainment. Combined, these factors may mean that women in these groups are less aware of the health effects of smoking on their baby, and may lack the resources or support to reduce or quit smoking while pregnant.

In 2006, excluding data for Victoria:

- More than half (52%) of Indigenous mothers reported smoking during pregnancy—more than 3 times the rate of non-Indigenous mothers (16%) (Figure 19.2) (see Part IX for further information).
- Mothers in *Remote and very remote* areas were more than twice as likely to have smoked during pregnancy compared with mothers in *Major cities* (32% and 13%, respectively).
- Mothers in the lowest socioeconomic status (SES) areas were over twice as likely to have smoked during pregnancy than those in the highest SES areas (27% and 6%, respectively).



## 20 Alcohol use in pregnancy

Maternal alcohol use during pregnancy is associated with severe adverse perinatal outcomes, such as fetal alcohol syndrome, alcohol-related birth defects and alcohol-related neurodevelopmental disorders.

In 2007, 60% of women consumed alcohol during pregnancy, with most of these women reducing their alcohol consumption due to pregnancy.

Maternal alcohol use during pregnancy is associated with adverse perinatal outcomes. Alcohol readily crosses the placenta and is a well-known teratogen (that is, it can cause birth defects). Research has shown that maternal drinking at high levels during pregnancy can cause miscarriage, stillbirth and premature birth, growth retardation, fetal alcohol syndrome, pseudo-Cushing's syndrome, alcohol withdrawal in the newborn, alcohol-related birth defects, and neurological, cognitive and behavioural problems (NHMRC 2001; Peadon et al. 2007; Tai et al. 1998 cited in AIHW: Ford et al. 2003). Exposure to alcohol in the uterus is the leading cause of birth defects and mental retardation among children (Kumada et al. 2007).

Fetal alcohol spectrum disorder is an umbrella term that describes a range of conditions that can occur in children exposed to alcohol before birth. Fetal alcohol spectrum disorder includes fetal alcohol syndrome, alcohol-related birth defects and alcohol-related neurodevelopmental disorders. These conditions are entirely preventable (Peadon et al. 2007).

### FETAL ALCOHOL SYNDROME

Fetal alcohol syndrome (FAS) is the most severe alcohol-related disorder among children (Kumada et al. 2007). FAS refers to a pattern of abnormal features associated with the use of alcohol during pregnancy. The characteristic features of FAS include prenatal and/or postnatal growth restriction, characteristic facial features and central nervous system abnormalities (for example, neurological abnormalities, developmental delays, behavioural dysfunction and learning difficulties). Children with FAS experience lifelong problems, including learning

difficulties and disrupted education, increased rates of mental illness, drug and alcohol problems, inappropriate sexual behaviour, unemployment and contact with the law (Streissguth et al. 2004 cited in Peadon et al. 2007).

Rates of FAS in Australia, and around the world, are likely to be underestimated, due to difficulties in identifying and managing the condition, and fears of stigmatisation for the child and family (Elliott et al. 2006b). In Australia, there was a significant increase in the number of children reported with FAS to the Australian Paediatric Surveillance Unit each year from 2001 to 2004 (Elliott et al. 2007). Higher rates of FAS occur in Indigenous communities compared with non-Indigenous communities (Elliott et al. 2006a). Many children affected by FAS are in foster care, while many others have an affected sibling, which suggests missed opportunities for prevention (Elliott et al. 2006a).

### IS THERE A SAFE LEVEL OF ALCOHOL CONSUMPTION DURING PREGNANCY?

Damage to the fetus depends on the quantity, frequency and timing of alcohol consumption during pregnancy and is influenced by maternal factors. Drinking heavily or to intoxication poses the greatest risk to the developing fetus, but some recent studies suggest that even low levels of alcohol consumption (such as one or two drinks per week) may adversely affect neurodevelopmental and behavioural outcomes (NHMRC 2009). These effects can be prevented by abstaining from alcohol during pregnancy.

High levels of alcohol consumption in the first trimester can cause facial and brain malformations, while consumption during the third trimester is highly related to damage to the areas of the brain responsible for sensory

perception, motor control, short-term memory, spatial navigation and executive functioning (such as cognitive behaviour, personality expression and moderation of appropriate social behaviour) (Riley & McGee 2005).

The relative risk of drinking during pregnancy or breastfeeding (compared with not drinking) has not been determined across a range of drinking levels. Hence, a safe ('no-effect') level has not been established on a population basis. Furthermore, individual factors mean that actual risks vary considerably from one person to another. Most policies stress that heavy drinking or intoxication pose the greatest risk to the fetus and several stress that a safe level has not been established. The National Health and Medical Research Council's *Australian guidelines to reduce health risks from drinking alcohol* therefore recommend that not drinking alcohol during pregnancy is the safest option (NHMRC 2009).

## HOW MANY WOMEN CONSUME ALCOHOL WHILE PREGNANT?

Alcohol consumption during pregnancy is not routinely collected on a national or state-wide level, except by the Northern Territory Midwives collection. At present, there is no standardised data collection instrument or data definition for alcohol consumption in pregnancy. Currently the only source of national data is the National Drug Strategy Household Survey.

The National Drug Strategy Household Survey asks women whether they consumed alcohol while pregnant, while breastfeeding, or while pregnant and breastfeeding in the previous 12 months. The survey also asks about changes in alcohol consumption due to pregnancy or breastfeeding: whether women abstained from alcohol, reduced alcohol consumption or made no change to alcohol consumption. The quantity and regularity of alcohol consumption during pregnancy is not available from this survey.

**Key national indicator:** Proportion of women who consume alcohol in pregnancy

In 2007, of those women who were pregnant in the 12 months before the survey:

- An estimated 60% (or around 356,700) reported that they consumed alcohol during pregnancy, while 40% abstained. The proportion of women who drank while pregnant has declined over recent years; from 64% and 62% in 2001 and 2004, respectively.

- Of those who reported that they did consume alcohol during pregnancy, the majority (94%) reduced their consumption, while a small proportion (6%) drank the same or more.

The National Drug Strategy Household Survey also found that women were likely to reduce their use of tobacco or marijuana when they were pregnant. Of those women who were pregnant in the 12 months before the survey, 10% used tobacco while pregnant and 3% used marijuana, down from rates of 18% and 9%, respectively, when the same women were not pregnant.

The 2006 Victorian Child Health and Wellbeing Survey collected information from women about their consumption of alcohol during pregnancy. The survey found that for children aged under 2 years:

- Three in five (61%) had mothers who said they drank alcohol early in their pregnancy before they knew they were pregnant (Table 20.1).
- One in five (21%) had mothers who reported that they had drunk more than 4 standard drinks in one day before they knew they were pregnant, and 8% had mothers who said they drank to this level at least once a week before becoming aware of their pregnancy.
- When women knew they were pregnant they were less likely to drink alcohol and very unlikely to drink more than 4 standard drinks in one day. One-third (34%) of children had mothers who drank alcohol at least once in early pregnancy after becoming aware that they were pregnant, and 31% had mothers who drank alcohol late in their pregnancy.

**Table 20.1: Reported alcohol use in pregnancy: women with children under 2 years of age, 2006 (per cent)**

	Ever drank alcohol	More than 4 standard drinks at least once	More than 4 standard drinks at least once a week
Unaware of pregnancy	60.8	21.0	8.0
Aware of pregnancy (early pregnancy)	33.7	3.5	1.0
Aware of pregnancy (late pregnancy)	30.7	3.9	1.3

Source: Vic DHS 2006.

## How does alcohol consumption in pregnancy vary across population groups?

### Aboriginal and Torres Strait Islander women

In the Northern Territory in 2002, one in ten women (10%) reported at the time of their first antenatal visit that they consumed alcohol in pregnancy (first trimester). However, there was a decline in the proportion consuming alcohol by the 36th week of pregnancy (third trimester) to 6%. These results may be understated, as drinking status was unknown for one-quarter of Indigenous women in the first trimester and one-third of Indigenous women in the third trimester (Stewart & Li 2005). As a result, it is difficult to draw comparisons between Indigenous and non-Indigenous women, as drinking status was unknown for a higher proportion of Indigenous women than non-Indigenous women in both the first and third trimesters.

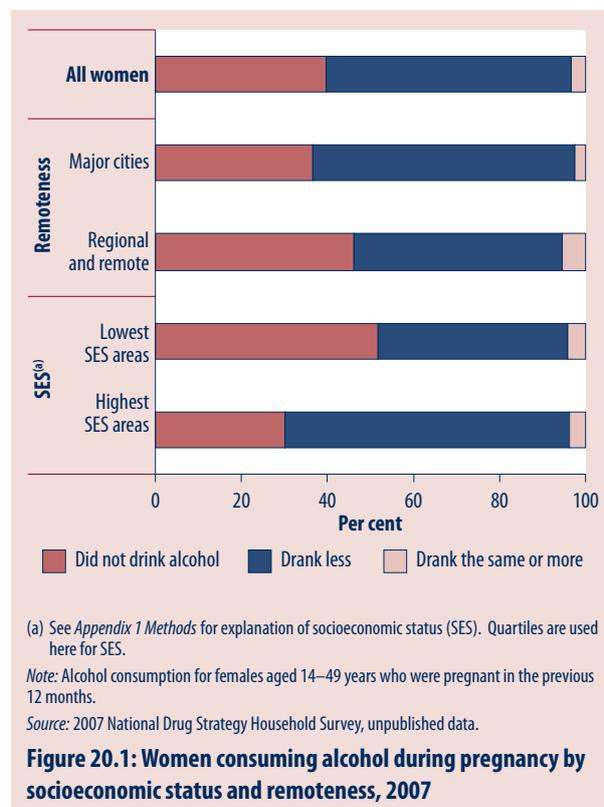
There has been little change over time in the proportion of Indigenous women in the Northern Territory consuming alcohol during pregnancy (d'Espaignet et al. 1999; Stewart & Li 2005).

### Remoteness

According to the National Drug Strategy Household Survey, women in *Regional and remote* areas were more likely than women in *Major cities* to not drink alcohol in pregnancy in 2007 (47% compared with 37%). However, women in *Major cities* were more likely to reduce their alcohol consumption due to pregnancy than women in *Regional and remote* areas (61% compared with 48%) (Figure 20.1). Very few women continued to drink the same or more alcohol during pregnancy in both *Major cities* (2%) and *Regional and remote* areas (5%).

### Socioeconomic status

The pattern of alcohol consumption among women who were pregnant in the previous 12 months differed by socioeconomic status (SES) in 2007, according to the National Drug Strategy Household Survey (Figure 20.1). Women in the lowest SES areas were more likely than women in the highest SES areas to not drink alcohol in pregnancy (52% compared with 30%). However, women in the highest SES areas were more likely to reduce their alcohol consumption due to pregnancy than women in the lowest SES areas (66% compared with 44%). There was little difference by socioeconomic status for women who drank the same or more during pregnancy (4% each).



## 21 Birthweight

Infants who are born with low birthweight are at greater risk of poor health, disability and death than other infants.

In 2006, 6.4% of live born infants in Australia were of low birthweight, with this proportion twice as high among babies of Indigenous mothers.

Birthweight is a key indicator of infant health and a principal determinant of a baby's chance of survival and good health. For newborns, low birthweight poses a greater risk of lengthy hospitalisation after birth, the need for resuscitation, and death. Low birthweight is a risk factor for neurological and physical disabilities, with the risk of adverse outcomes increasing with decreasing birthweight (AIHW: Ford et al. 2003). Some 70% of high-risk babies admitted to Level III neonatal intensive care units in Australia in 2005 were low birthweight infants (Laws et al. 2007). Children with extremely low birthweight (less than 1,000 grams) are more likely to have psycho-social problems and are at an increased risk of having difficulties at school. Teenagers who had extremely low birthweight have been found to be less likely to achieve well on intellectual measures, particularly arithmetic, than their peers (Saigal 2000).

The health effects of low birthweight are not only restricted to infancy and childhood, but continue into adulthood. Research has found an increased risk of Type 2 diabetes, high blood pressure, metabolic and cardiovascular diseases, and possibly obesity in later life among adults who were low birthweight (Hovi et al. 2007; Phillips 2006; Tappy 2006). Behavioural interventions can be effective in addressing these disorders, and the identification of those at increased risk early in life provides an important opportunity for disease prevention (Hovi et al. 2007).

A baby may be small due to being born early (preterm), or may be small for its gestational age (intrauterine growth restriction). Factors that contribute to low birthweight include maternal age, illness during pregnancy, low socioeconomic status, multiple fertility, maternal history of spontaneous abortion, harmful behaviours such as smoking or excessive alcohol consumption, poor nutrition during pregnancy, and poor prenatal care (Laws et al. 2004, 2007). Many of

these risk factors are modifiable and susceptible to intervention. The increasing number of infants born to older mothers in Australia, and the disproportionate risk faced by certain population groups, makes this an important indicator of antenatal and neonatal health.

Birthweight has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information and state and territory data).

### HOW MANY AUSTRALIAN BABIES ARE OF LOW BIRTHWEIGHT?

Low birthweight is defined as a birthweight of less than 2,500 grams. Within this category, weights of less than 1,500 grams are defined as 'very low birthweight' and less than 1,000 grams as 'extremely low birthweight' (WHO 1992).

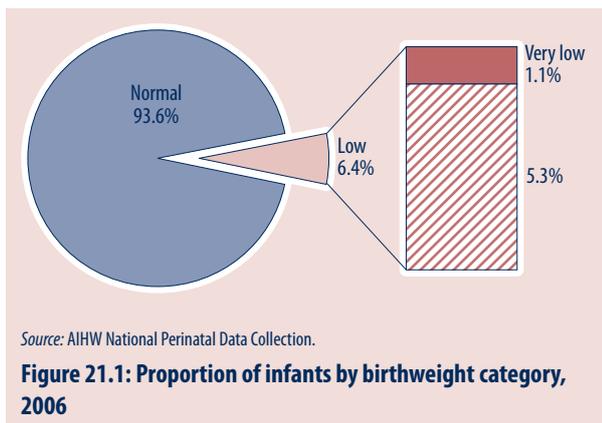
**Headline Indicator:** Proportion of live born infants of low birthweight

In 2006, 6.4% (or around 18,000) of live born infants weighed less than 2,500 grams (Figure 21.1). This comprised:

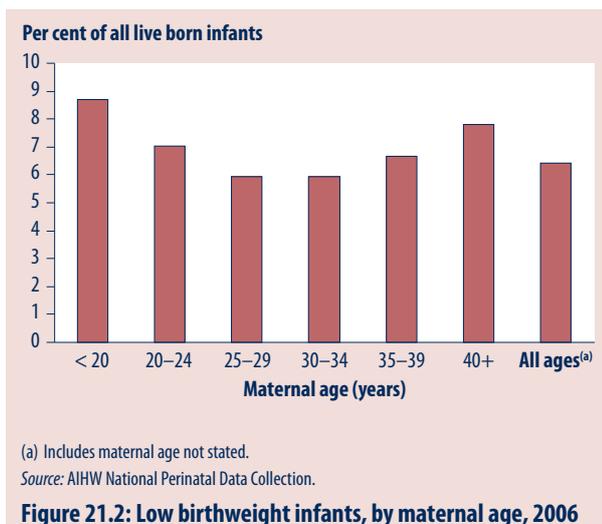
- 1.1% weighing less than 1,500 grams (very low birthweight, including extremely low birthweight)
- 5.3% weighing between 1,500 and 2,499 grams.

There has been no statistically significant change in the annual proportions of low birthweight infants between 1999 and 2006.

First-time mothers were more likely to have a low birthweight infant (7.5%) than women having a second or subsequent child (5.7%). Baby boys were slightly less likely to be of low birthweight (5.9%) than baby girls (6.9%).



Younger and older mothers (aged less than 20 years or 40 years or over) have a greater chance of having a low birthweight infant than other age groups (Figure 21.2). In 2006, 8.7% and 7.8% of live births to teenage and older mothers, respectively, were of low birthweight. Mothers aged 25–34 years were least likely to have a low birthweight infant (5.9%).



### Does low birthweight vary across population groups?

Some groups of the Australian population are at an increased risk of having a low birthweight infant. While many risk factors for low birthweight are modifiable in the short term, such as by providing and accessing good antenatal care, improving maternal nutrition before and during pregnancy, and improving maternal health, there are other factors that cannot be altered (for example, infant gender or race), and others that may take at least a generation to change (for example, maternal birthweight).

Addressing these health risks will reduce the proportion of low birthweight infants, particularly among disadvantaged populations where these issues are more prominent.

#### *Infants of mothers born overseas*

Infants with mothers born outside Australia are slightly less likely to be of low birthweight than infants with Australian-born mothers. Low birthweight occurred in 6.1% of infants of mothers born outside Australia and in 6.5% of infants to Australian-born mothers in 2006.

#### *Aboriginal and Torres Strait Islander infants*

Indigenous infants were twice as likely as non-Indigenous infants to be of low birthweight in 2006 (12% compared with 6%, respectively; Figure 21.3). During the period 1991–2004, there was a small, but statistically significant, widening in the gap between Indigenous and non-Indigenous infants of low birthweight (Leeds et al. 2007).

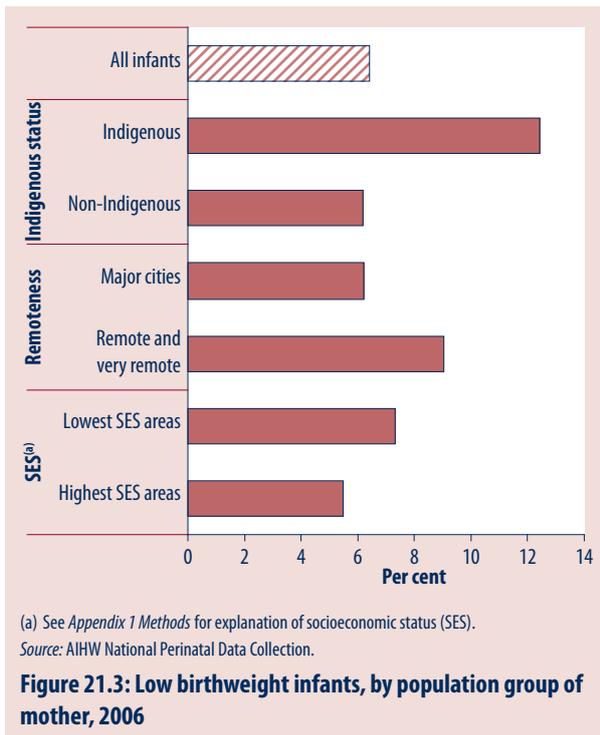
The proportion of low birthweight infants born to Indigenous mothers was similar across all remoteness areas of Australia in 2006. However, the mean birthweight of infants born to Indigenous mothers decreased with increasing remoteness of the mother's usual place of residence—between 2001 and 2004, Indigenous mothers in *Major cities* had heavier infants (mean 3,188 grams) than those in *Very remote* areas (mean 3,123 grams) (Leeds et al. 2007).

#### *Remoteness*

A significantly higher percentage of infants born in *Remote and very remote* areas of Australia were of low birthweight compared with *Major cities*—9.0% and 6.2%, respectively in 2006 (Figure 21.3).

#### *Socioeconomic status*

Poor perinatal outcomes generally increase with increasing socioeconomic disadvantage (Laws et al. 2007). In 2006, infants born to mothers in the lowest socioeconomic status (SES) areas were almost 30% more likely to be of low birthweight than those in the highest SES areas (7.3% compared with 5.5%, respectively).



### How does Australia perform internationally for low birthweight?

Australia performed slightly better than the OECD average for low birthweight. Australia ranked 13th out of 30 OECD countries in 2006, with 6.4% of infants of low birthweight, compared with an OECD average of 6.6% (Figure 21.4). The proportion of low birthweight infants was lowest in Iceland (3.5%) and Sweden (4.2%) and highest in Japan and Turkey (9.6% and 11.3%, respectively).

## 22 Overweight and obesity

Overweight and obese children are at risk of serious health conditions in both the short and long term, such as asthma, cardiovascular conditions and Type 2 diabetes.

Over one-fifth of Australian children aged 2–12 years were estimated to be overweight or obese—17% overweight but not obese; 6% obese in 2007.

Overweight and obesity increases a child's risk of poor physical health and is a risk factor for morbidity and mortality in adulthood. Obese children have a greater risk of developing asthma and Type 2 diabetes than non-obese children, and in severe cases may develop conditions such as gallstones, hepatitis and sleep apnoea (Must & Strauss 1999). Children who continue to be overweight or obese into adulthood are at increased risk of coronary heart disease, diabetes, certain cancers, gall bladder disease, osteoarthritis and endocrine disorders (Guo et al. 2002; Whitlock et al. 2005).

In addition to physical health problems, overweight and obese children frequently experience discrimination, victimisation and teasing by their peers. This may contribute to poor peer relationships, school experiences and psychological wellbeing, particularly among older overweight or obese children (Griffiths et al. 2006; Hayden-Wade et al. 2005; Sawyer et al. 2006). Children affected by overweight and obesity are also more likely to come from disadvantaged backgrounds or minority population groups such as Indigenous, Pacific Islander and Middle Eastern communities (O'Dea 2008).

There are many interacting factors that lead to increased body weight. All children naturally gain body weight as they grow and develop; however, for excess weight gain to occur, an imbalance must exist between the amount of energy children are consuming and the energy they expend over an extended period of time. While genetics may play an intervening role, it is clear that cultural, environmental, economic, familial and individual behavioural factors also influence the likelihood of this imbalance occurring.

Overweight and obesity has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information).

### HOW MANY AUSTRALIAN CHILDREN ARE OVERWEIGHT OR OBESE?

Overweight and obesity can be indirectly measured in the child population using body mass index (BMI). The BMI is a measure of the ratio of weight in kilograms divided by height in metres squared ( $\text{kg}/\text{m}^2$ ). In children, BMI changes substantially with age and can differ between boys and girls, rising steeply in infancy, falling during the preschool years and increasing during adolescence and adulthood (DoHA 2009). At the population level, a child is considered to be overweight or obese if their BMI exceeds international cut-off points for their age and sex, based on a statistical distribution of BMI scores in a standard child population (Cole et al. 2000).

**Headline Indicator:** Proportion of children whose body mass index (BMI) is above international cut-off points for 'overweight' and 'obese' for their age and sex

In 2007, according to measured height and weight of children aged 2–12 years:

- Around one-fifth (22%) of children were estimated to be either overweight or obese (17% overweight but not obese; 6% obese). However, the majority of children were within a normal weight range (73%) (Table 22.1).
- There was little difference overall in the prevalence of overweight or obesity between boys and girls, although girls aged 10–12 years were more likely to be overweight or obese than boys of the same age (31% compared with 26%).
- A small proportion of children were underweight (4.8%), and this varied slightly with age (3.6% to 6.0%).

**Table 22.1: Australian children aged 2–12 years by BMI category, 2007 (per cent)**

	Age group	Underweight	Normal	Overweight (but not obese)	Obese	Overweight or obese
Boys	2–4 years	4.8	76.0	16.2	3.1	19.3
	5–9 years	5.2	76.0	13.1	5.8	18.8
	10–12 years	5.4	68.3	18.8	7.5	26.2
	2–12 years	5.2	73.8	15.6	5.5	21.1
Girls	2–4 years	4.2	76.1	16.2	3.6	19.8
	5–9 years	3.6	74.5	15.7	6.3	21.9
	10–12 years	6.0	63.3	22.9	7.8	30.7
	2–12 years	4.4	71.9	17.8	6.0	23.7
<b>Children</b>	<b>2–12 years</b>	<b>4.8</b>	<b>72.8</b>	<b>16.7</b>	<b>5.7</b>	<b>22.4</b>

Source: 2007 Australian National Children's Nutrition and Physical Activity Survey, unpublished data.

Another survey, the National Youth Cultures of Eating Survey, found similar estimates of overweight and obesity prevalence among 6–11 year olds in 2006, according to measured height and weight. Overweight prevalence estimates in this survey were 16% for boys and 18% for girls. The corresponding prevalence of obesity was estimated to be 6.4% for boys and 5.6% for girls, although this gender difference was not statistically significantly different (O'Dea 2008).

### Does overweight and obesity vary across population groups?

Children who are socially, economically and geographically disadvantaged are at an increased risk of ill health due to high levels of biomedical factors such as overweight and obesity. These children may not have the same opportunities for good health as other Australian children, in terms of access to goods and services—they generally have less access to basic necessities such as fresh fruit and vegetables due to availability and affordability—and are less likely to be physically active (AIHW 2008b).

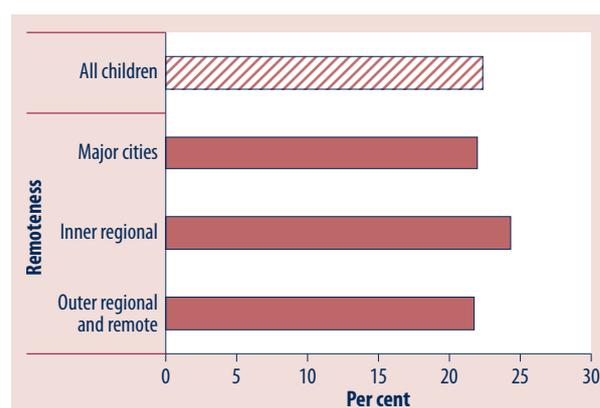
#### Aboriginal and Torres Strait Islander children

There is currently no national data available on the prevalence of overweight and obesity among Indigenous children. However, it is known that, in the general population, rates of self-reported obesity among Indigenous adults are higher than for other Australian adults (ABS & AIHW 2008). The high rate of obesity in Indigenous adults may reflect the

change over a long period from the traditional fibre-rich, high-protein, low saturated fat diet of many Aboriginal and Torres Strait Islander communities to one which is high in refined carbohydrates and saturated fats (Burns & Thompson 2008).

#### Remoteness

According to the 2007 Australian National Children's Nutrition and Physical Activity Survey, the prevalence of overweight and obesity was slightly higher among children living in *Inner regional* areas (24%) than for children in *Major cities*, and *Outer regional* and *Remote* areas combined (22% each) (Figure 22.1).



#### Notes

1. Children categorised as overweight or obese using cut-offs developed by Cole et al. 2000; 2007.
2. Remoteness category *Outer regional* and *Remote* excludes *Very remote* areas.

Source: 2007 Australian National Children's Nutrition and Physical Activity Survey, unpublished data.

**Figure 22.1: Children aged 2–12 years who were overweight or obese, by remoteness, 2007**

## 23 Environmental tobacco smoke in the home

Tobacco smoke damages the health of infants and children and is a risk factor for SIDS.

Around 8% of households with dependent children had at least one person who smoked inside the home in 2007—a decrease from almost one-third in 1995.

Environmental tobacco smoke is one of the most hazardous environmental exposures for children. Tobacco smoke contains numerous toxic and cancer-causing chemicals that increase the risk of adverse health outcomes for children, including SIDS, acute respiratory infections, middle-ear infection (otitis media), onset and increased severity of asthma, respiratory symptoms and slowed lung growth (CDC 2007; WHO 2007). Children with parents who smoke are also more likely to take up smoking later in life (Kestila et al. 2006).

Infants and children are particularly vulnerable to the effects of environmental tobacco smoke because they have less developed respiratory, immune and nervous systems, and have limited control over their exposure. These vulnerabilities combined with exposure to tobacco smoke in enclosed spaces, such as the home or car, mean that children can be exposed to high levels of environmental tobacco smoke in a short period of time. In homes where someone smokes inside, children have higher levels of cotinine, a biological marker for exposure to tobacco smoke, than children not exposed to tobacco smoke in the home (CDC 2007). Children travelling in a car with someone smoking are also at risk, even if the windows are down (Sendzik et al. 2008; Sly et al. 2007).

There is no safe level of exposure to environmental tobacco smoke and adults can do much to reduce or prevent a child's exposure, particularly by not smoking in the home or car. The benefits of reducing children's exposure to tobacco smoke in the home include improved health and school performance, reduced absenteeism from school, reduced uptake of smoking, and less frequent smoking among children who smoke (NDS 2002).

### LEGISLATION TO REDUCE CHILD EXPOSURE TO TOBACCO SMOKE

Australia is a signatory to the UN Convention of the Rights of the Child and the WHO Framework Convention on Tobacco Control that acknowledges the need for the health of all children to be protected. In 2008, only South Australia and Tasmania had legal provisions to protect children from exposure to tobacco smoke in the car (SA DoH 2008; Tas DHHS 2008).

Restrictions on tobacco smoking in public places also contribute to reducing children's exposure to tobacco smoke. In 2002, most states and territories had legislation prohibiting smoking in restaurants and shopping centres, with further restrictions to all work places and enclosed public spaces by 2005.

### CHILDREN EXPOSED TO TOBACCO SMOKE IN THE HOME

**Key national indicator:** Proportion of households with children aged 0–14 years where someone smokes inside

In 2007, of households with dependent children aged 0–14 years:

- About 8% of households had someone who smoked at least one cigarette, cigar or pipe of tobacco inside the home per day (Table 23.1).
- Children were less exposed to tobacco smoke in the home than in 1995—children in almost one-third of households were exposed to tobacco smoke in the home in 1995, compared with 8% in 2007. This decline has coincided with an increase in the proportion of households where someone smoked only outside the home (from 17% to 29%).

- The proportion of households with children where no one smoked regularly at home increased from 52% in 1995 to 63% in 2007, consistent with the general decline in smoking prevalence among the Australian population.

**Table 23.1: Smoking status of households with children aged 0–14 years, 1995–2007 (per cent)**

Household smoking status	1995	1998	2001	2004	2007
Smokes inside the home	31.3	22.6	19.7	12.3	7.8
Only smokes outside the home	16.7	21.5	24.9	28.1	29.2
No one at home regularly smokes	52.0	55.9	55.4	59.6	63.1

*Notes*

1. Household smoking status as reported by respondents aged 14 years and over. This may include a small number of 14 year olds who smoked inside the home.
2. Smoking status is defined as smoking at least one cigarette, cigar or pipe of tobacco per day in the previous 12 months.

Source: National Drug Strategy Household Survey (AIHW 2008b).

### Do rates of exposure to environmental tobacco smoke vary across population groups?

#### Aboriginal and Torres Strait Islander children

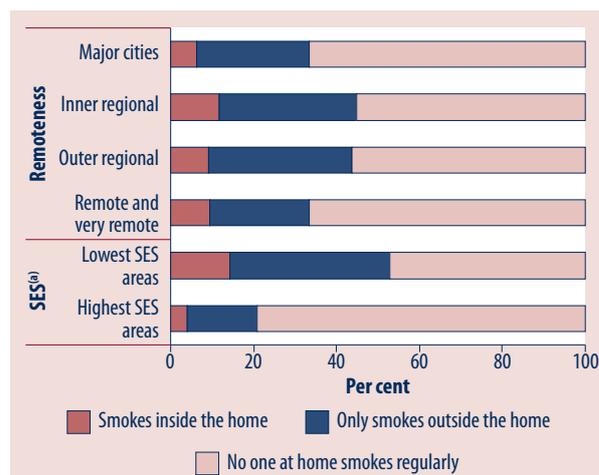
Indigenous children were around 3 times as likely to be exposed to tobacco smoke in the home than non-Indigenous children, according to the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey (see also *Part IX*).

#### Remoteness

Exposure to tobacco smoke in the home was highest among households with children in *Inner regional* areas (12%), compared with *Outer regional* and *Remote and very remote* areas (both 9%) and *Major cities* (6%) (Figure 23.1).

#### Socioeconomic status

Households with children in the lowest socioeconomic status (SES) areas were 3.6 times as likely as in the highest SES areas to be exposed to tobacco smoke in the home in 2007 (14% compared with 4%) (Figure 23.1). They were also twice as likely to have a regular smoker at home (who smokes outside) than households with children in the highest SES areas (38% compared with 17%).



(a) See *Appendix 1 Methods* for explanation of socioeconomic status (SES).

*Notes*

1. Household smoking status as reported by respondents aged 14 years and over. This may include a small number of 14 year olds who smoked inside the home.
2. Smoking status is defined as smoking at least one cigarette, cigar or pipe of tobacco per day in the previous 12 months.

Source: 2007 National Drug Strategy Household Survey, unpublished data.

**Figure 23.1: Smoking status of households with children aged 0–14 years, by remoteness and socioeconomic status, 2007**

## 24 Tobacco use

Tobacco smoking is the single most preventable cause of death in the world today. Tobacco use at a young age is a key predictor of continued smoking in adulthood.

An estimated 5.4% of secondary school students aged 12–14 years were current smokers in 2005—down from 17% in 1984.

Tobacco smoking is the single most preventable cause of death in Australia and in the world today (AIHW 2008b; WHO 2008b). It results in considerable ill health and is the risk factor associated with the greatest disease burden in Australia (8% of the total disease burden in 2003) (Begg et al. 2007). Smoking is known to cause damage to nearly every organ in the body and the detrimental health effects of tobacco smoking are well established. In the short term, tobacco use may lead to respiratory problems, shortness of breath, nicotine dependence (and subsequent withdrawal symptoms), persistent coughing and reduced physical fitness. In the long term, tobacco smoking is a major risk factor for a number of serious health conditions including coronary heart disease, chronic obstructive pulmonary disease, stroke, peripheral vascular disease, numerous cancers, and a number of other diseases and conditions (AIHW 2008b).

Most tobacco smokers take up smoking in adolescence, with very few people beginning to smoke as adults (Mathers et al. 2006). Those who begin smoking at younger ages (12 or 13 years) have been found to smoke more cigarettes per day on average, and to reach this higher level of smoking at a younger age than those who begin smoking when they are older (Hoffmann et al. 2006). Adolescent tobacco use is associated with a range of social and health problems in early adulthood, such as continued smoking, problematic alcohol use, and mental health, academic and sleep problems (Mathers et al. 2006). Preventing the uptake of smoking among young people is, therefore, a high-priority public health issue.

There are a number of factors known to affect the likelihood of smoking among children and adolescents. The smoking behaviour of peers is strongly associated with smoking uptake (Kobus 2003), and parents and siblings can also influence smoking behaviour (Avenevoli & Merikangas 2003). There is evidence that maternal

smoking can have an affect on the developing fetus that leads to higher rates of smoking in adolescence (Scollo & Winstanley 2008), and preliminary research has identified genetic influences on the smoking of adolescents (Laucht et al. 2008). Lower socioeconomic status and exposure to the positive depiction of smoking in the media have also been associated with smoking among young adults (Fergusson et al. 2007; USNCI 2008).

### PREVALENCE OF SMOKING AMONG CHILDREN

This chapter looks at the prevalence of current smoking among children aged 12–14 years using data from the Australian Secondary School Students' Alcohol and Drug Survey. As this is a school-based survey, information is presented for students, rather than for children. 'Current' smoking is defined as smoking tobacco at least once in the week before the survey.

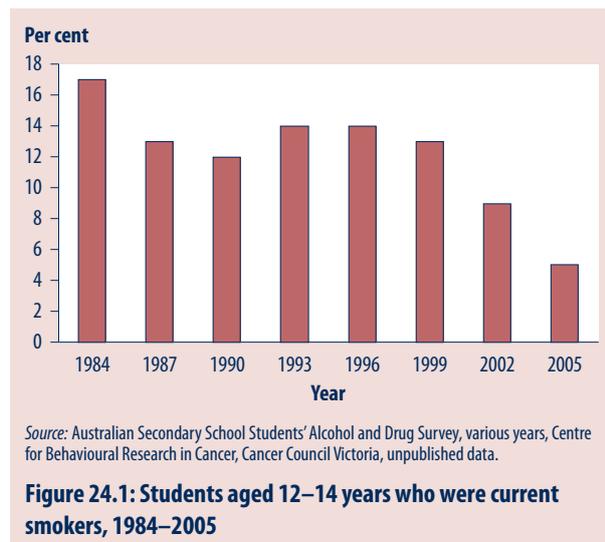
**Key national indicator:** Proportion of children aged 12–14 years who are current smokers

In 2005, among secondary school students aged 12–14 years:

- About one in 20 (5.4%) were current smokers, equating to an estimated 44,200 children Australia-wide.
- The rates of smoking increase considerably with age—from 2.4% to 4.9% to 8.8% for 12, 13 and 14 year olds, respectively.
- There was not a statistically significant difference between the proportion of boys and girls who were current smokers.

A marked decline has been seen in the proportion of students aged 12–14 years who were current smokers over the last two decades:

- About one in six students (17%) reported being current smokers in 1984 compared with about 1 in 20 (5.4%) in 2005 (Figure 24.1).
- The sharpest rates of decline were seen between 1984 and 1987 and between 1999 and 2005. An increase in the proportion of current smokers was seen between 1990 and 1993. This trend roughly coincides with the level of tobacco control activity underway at these times. Between 1984 and 1991, a number of states and territories established tobacco control campaigns and some introduced legislation prohibiting the outdoor advertising of tobacco products. Between 1992 and 1996 there was a decline in tobacco control activity, before a coordinated, national approach emerged in 1997 (White et al. 2008).



### Method of obtaining cigarettes

The ability of young people to purchase cigarettes increases their likelihood of smoking. Accordingly, all states and territories in Australia have legislation that prohibits the sale of cigarettes to persons under the age of 18 years. In 2005, students aged 12–15 years who were current smokers most commonly reported that their last cigarette was obtained from a friend (41%), while 17% reported that they bought their last cigarette themselves (White & Hayman 2006b).

## Do smoking rates vary by population group?

### Aboriginal and Torres Strait Islander children

In 2005, 17% of Indigenous students aged 12–15 years were current smokers, which was a greater proportion than the 7% of non-Indigenous students (White et al. 2009; see Part X for further information). In 2004–05, 50% of Indigenous Australians aged 18 years and over were daily smokers, more than twice the rate of non-Indigenous Australians (ABS & AIHW 2008). Reducing the number of Indigenous adolescents who smoke could play an important role in lowering the smoking rates among Indigenous adults. This would have positive health consequences as smoking is a major risk factor for death and disease (Vos et al. 2007).

### Socioeconomic status

Smoking contributes significantly to the overall socioeconomic gradient in mortality (that is, low socioeconomic status is associated with higher mortality rates compared with high socioeconomic status) (Siahpush et al. 2006). Since tobacco smoking at a young age is a predictor of continued smoking in adulthood, reducing the prevalence of smoking among children and young adults from socioeconomically disadvantaged backgrounds will help to reduce the disparity in death rates between socioeconomic groups in the future.

In 2005, students aged 12–15 years from the most socioeconomically disadvantaged areas were more likely to be current smokers than those from the least socioeconomically disadvantaged areas (8% of students compared with 5%, respectively). Between 1987 and 2005, the proportion of students who were current smokers fell, however the decline was smaller for students who lived in the most socioeconomically disadvantaged areas (a 7 percentage point decline for these students compared with an 11 percentage point decline for students living in the least disadvantaged areas). When the period of time corresponding to the most recent tobacco control campaign is examined (1997 to 2005) an 11 percentage point decline was seen for students from both the least and most socioeconomically disadvantaged areas (White et al. 2008).

## 25 Alcohol misuse

Alcohol use at young ages is associated with more frequent use during late adolescence and an increased risk of later dependence.

In 2005, 2.6% of 12–14 year old students had engaged in risky drinking in the previous week.

Alcohol use by children and adolescents can have far-reaching effects on their health and wellbeing. Alcohol use can lower inhibitions and impair decision making, which can lead to unsafe behaviour with negative short- and long-term consequences (US DHHS 2007). Heavy drinking in childhood and adolescence can also have significant and detrimental effects on brain development, during a critical period of brain maturation (De Bellis et al. 2005).

Initiation to alcohol use at a young age has been associated with more frequent use during late adolescence and increased risk for later dependence (Lubman et al. 2007). Additionally, the risk of suffering an accidental injury, experiencing poor mental health or having social problems are increased when alcohol use starts early. Intoxication during first experience with alcohol has also been associated with an increased risk of problem drinking in adulthood (Warner et al. 2007).

Children are more vulnerable to the risks of alcohol use than adults—they are physically smaller, they lack experience of drinking and its effects, and do not have a built up tolerance to alcohol. The 2009 Australian Alcohol Guidelines advise that for those under the age of 18 years not drinking is the safest option, and that this is especially important for children aged under 15 years (NHMRC 2009).

Certain traits displayed during early childhood, such as externalising behaviours (aggressive, impulsive and under-controlled behaviour) and, to a lesser degree, internalising behaviours (anxious, sad and depressive behaviour) have been linked to early alcohol use and abuse (Zucker et al. 2008). Other factors include early school failure or a lower level of bonding to school. Influences from within the household such as neglectful or poor parenting, family breakdown, parental use of alcohol (especially problematic use) and their attitudes to drinking are also important. It is likely that there are

genetic characteristics that contribute to early alcohol consumption (Lubman et al. 2007; Zucker et al. 2008).

This chapter focuses on risky (or binge) drinking, which is when a person drinks heavily over a short period of time, resulting in immediate and severe intoxication. Possible outcomes from risky drinking include damage to the small bowel and subsequent diarrhoea, depression of the central nervous system, headaches, and stomach problems resulting in nausea, shakiness and vomiting (NDARC 2004). Risky drinking can also increase the risk of injury (for example from falls, assault or road accidents), can foster coercive sexual activity and unprotected sex (Bonomo et al. 2001; NHMRC 2009) and increases the likelihood of tobacco and illicit drug use (US DHHS 2007). Acute alcohol intoxication (the result of severe binge drinking) can lead to alcohol poisoning, which may result in coma and/or death.

Long-term excessive use of alcohol can lead to a number of physical, emotional and social problems, including stomach, liver, heart or brain problems and an increased risk of some cancers. Depression, family and relationship problems, and legal and financial difficulties may also result from long-term alcohol abuse (Bruner & Fishman 1998; NDARC 2004; NHMRC 2009).

### RISKY DRINKING AMONG CHILDREN

This chapter looks at the proportion of children aged 12–14 years who engaged in risky drinking, using data from the Australian Secondary School Students' Alcohol and Drug Survey. As this is a school-based survey, information is presented for students rather than for children.

In this chapter, the 2001 Australian Alcohol Guidelines were used to define risky drinking for short-term harm (NHMRC 2001). These guidelines defined risky drinking

for adults as more than seven drinks for males and more than five drinks for females on any one occasion. These were guidelines for adults; as children are physically smaller and have less experience with alcohol, it is likely that for children consumption below these levels would also pose significant risks. Revised guidelines for adults released in 2009 lowered the suggested maximum number of drinks on any one occasion to four standard drinks for both males and females (NHMRC 2009).

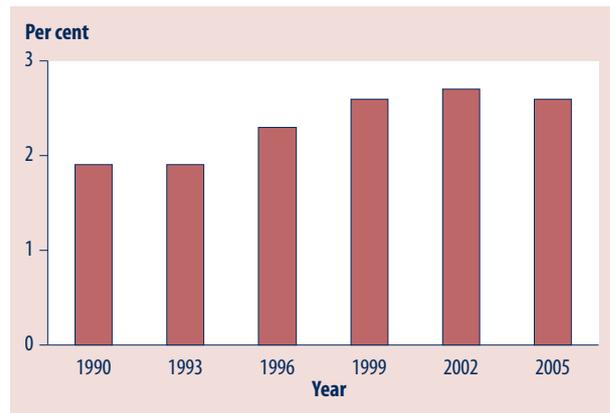
**Key national indicator:** Proportion of children aged 12–14 years who have engaged in risky drinking (7+ drinks for boys; 5+ drinks for girls) on any one occasion

In 2005, among secondary school students aged 12–14 years:

- 2.6% had engaged in risky drinking in the week before the survey.
- The proportion engaged in risky drinking increased between the ages of 13 and 14 years (from 1.5% to 5.9%), and was lower for 12 year olds (0.4%).
- There was no statistically significant difference between the proportion of boys and girls who engaged in risky drinking.
- Although the proportion of students engaging in risky drinking was small at 2.6%, there has been a statistically significant increase of almost one percentage point since 1990 (Figure 25.1).

### Does alcohol misuse vary across population groups?

There are currently no reliable national data available that examine alcohol misuse among children aged 12–14 years who are Indigenous, or living in remote or socioeconomically disadvantaged areas. What we do know, however, is that in 2004–05, Indigenous adults were 3 times as likely as non-Indigenous adults to have drunk alcohol at short-term risky or high-risk levels at least once in the last 12 months, and adults living in *Outer regional* and *Remote* areas combined were 40% more likely than those in *Major cities* to consume alcohol in quantities that risked harm in the long term (AIHW 2008b). As alcohol use in childhood has been associated with more frequent use during late adolescence, preventing or reducing risky alcohol intake in childhood among these population groups will help to reduce some of the disparity in alcohol misuse, and consequently morbidity and mortality, in the future.



Source: Australian Secondary Students' Alcohol and Drug Survey, various years, Centre for Behavioural Research in Cancer, Cancer Council Victoria, unpublished data.

**Figure 25.1: Trends in students aged 12–14 years engaging in risky drinking in the week before the survey, 1990–2005**

### Use of illicit and over the counter drugs

In 2005, most 12–15 year old students had not used an illicit substance or an over the counter drug for non-medical purposes (excluding analgesics), and the proportion of students who reported their use has generally declined since 1996. Among 12–15 year old students, 15% had used an illicit substance in their lifetime (cannabis, hallucinogens, amphetamines, cocaine, opiates or ecstasy), down from 30% in 1996. In 2005, 7% had used an illicit substance other than cannabis.

The type of substance most often used by 12–15 year old students were inhalants (for example inhaling the contents of spray cans or sniffing glue); 19% had used inhalants in their lifetime, down from 29% in 1996. Cannabis use was the next most frequently reported, with 13% of students having used it in their lifetime; a smaller proportion than reported in 1996 (28%) (White & Hayman 2006a).

# Part VI

## WHAT KIND OF FAMILIES AND COMMUNITIES DO AUSTRALIA'S CHILDREN LIVE IN?

So far, this report has focused on health, learning and educational outcomes for Australian children, as well as risk and protective factors that influence these outcomes. However, wider environmental determinants also play a role in determining children's health and wellbeing. This includes the social, emotional, physical and economic wellbeing of families, and the strength of the communities in which they live.

Families play a crucial role in the lives of children, providing them with physical, emotional and economic support. Children who are raised in stimulating and nurturing environments have been shown to have better outcomes throughout their lives. Neighbourhoods also play a role in shaping children's health and wellbeing, with strongly connected communities associated with positive outcomes for children. The school and community contexts in which children live have a considerable influence over their health, development and wellbeing. These environments set the foundations for children's learning, behaviour and health over the course of their life.

*Part VI* provides information on family relationships, parental and community influences, and links with extended family, friends and the community, with the aim of improving our understanding of the contexts in which Australian children are growing up, and how these influence outcomes for children. Specifically, *Part VI* provides information on:

- family functioning
- family economic situation
- children in non-parental care
- parental health status
- neighbourhood safety
- social capital.

The following table shows how children fare across the various indicators presented in *Part VI*, and whether there has been any improvement over time.

Indicator		Value	Trend
<b>Family functioning</b>	Under development	Data not available	..
<b>Family economic situation</b>	Average weekly real equivalised disposable household income for households with children in the second and third income deciles (2005–06)	\$347	✓
<b>Children in non-parental care</b>	Children aged 0–14 years in out-of-home care (2008)	6.5 per 1,000	✗
	Children aged 0–17 years in grandparent families (2006–07)	0.4%	✓
<b>Parental health status</b>	Parents rating their health as 'fair' or 'poor' (2006)	13%	..
	Children living with parents with disability (2003)	19%	..
	Parents with mental health problems (2006)	21%	..
<b>Neighbourhood safety</b>	Percentage of households with children aged 0–14 years where their neighbourhood is perceived as safe or very safe (2006)	86%	..
<b>Social capital</b>	Households with children aged 0–14 years where respondent was able to get support in time of crisis from persons outside the household (2006)	94%	~

Key: n.a = not available; ✓ = favourable trend; ✗ = unfavourable trend; ~ = no change or clear trend; .. = no trend data presented.

## 26 Family functioning

The relationships that children have with their family, particularly their parents, are among the most important influences on child development and psychological wellbeing.

There are no national data on family functioning for families with children aged 0–14 years.

Family functioning is a key element of the family environment that influences child health and wellbeing. In general terms, family functioning is about how families interact, communicate, make decisions, solve problems and maintain relationships. The level of functioning within a family can be affected by changes in family circumstances, relationships between individual family members, the balance between parental employment and family life, and other external stressors that may affect the home environment. As such, families will often go through stages of strength and instability (Silberberg 2001).

The relationships that children have with their family, particularly their parents, are among the most important influences on child development and psychological wellbeing (Shonkoff & Phillips 2000). Living in a dysfunctional family can have adverse short- and long-term effects on the behaviour and wellbeing of children. A number of studies have found that elements of family functioning—such as family discord, communication and parental disciplinary style—are significant risk factors for children’s poor mental health (Silburn et al. 1996; Sourander et al. 2006; Vostanis et al. 2006). Other research has found that children with a learning disability are more likely to come from poorly functioning families, and parental conflict during childhood has been linked with criminal behaviour later in life (Altarac & Saroha 2007; Fergusson & Horwood 2002).

There are many benefits for children living in strong and stable families, regardless of family type. These include having positive role models for building relationships, the ability to cope with changing circumstances and stressful life events, and higher self-esteem (Geggie et al. 2000; Shek 2002).

Although there is no real consensus on what constitutes ‘family functioning’, a number of Australian and international studies have identified similar key components: positive communication; spending time together; affection, support and commitment to the family; and adaptability (CFFC 2003; DeFrain 1999; Geggie et al. 2000; Wolcott 1999; Zubrick et al. 2000).

This chapter outlines the complexities associated with measuring family functioning, and provides information on children living in healthy functioning families.

### MEASURING FAMILY FUNCTIONING

Due to the dynamic and multi-dimensional nature of family functioning, defining an indicator of family functioning is problematic. The level of functioning within a family may vary as families go through periods of change and stress—measuring family functioning at a single point in time will not capture this inherent changeability. Additionally, while using a single measure may not adequately capture the complexity of family functioning, the use of multiple detailed measures may be too cumbersome.

The Growing up in Australia: the Longitudinal Study of Australian Children (LSAC) collects an extensive range of family functioning measures, based on the interconnected relationships within a family—for example, conflict and relationship satisfaction between parents, discipline style and warmth between parents and children, and cohesion between siblings. While this provides a wealth of detailed information on specific components of family functioning, there is no measure of overall family functioning that could be reported for a national indicator.

Using a summary scale that can provide an overarching measure of family functioning is preferable for indicator-based reporting. The General Functioning Scale of the McMaster Family Assessment Device provides a single summary measure of family functioning, derived from a number of questions about communication, problem-solving, support and closeness within the family (Epstein et al. 1983). This scale is considered to have good reliability and validity (Byles et al. 1988; Miller et al. 1985). It was recommended as a measure of overall family functioning in a report by the Australian Government Department of Family and Community Services, and it has been used in a number of state-level surveys across Australia, and in national surveys overseas (Rowe et al. 2004; Zubrick et al. 2000).

## HOW MANY CHILDREN LIVE IN HEALTHY FUNCTIONING FAMILIES?

**Key national indicator:** Proportion of children aged 0–14 years living in families reporting healthy family functioning

No national data are available on family functioning in families with children aged 0–14 years. Information on family functioning, based on the General Functioning Scale of the McMaster Family Assessment Device, is available from New South Wales and Victoria. Results from Victoria are presented here for families with children aged 0–12 years.

In 2006 in Victoria:

- Of families with children, 82% reported healthy family functioning and 16% reported unhealthy family functioning (family functioning was unknown for 2% of families).
- Unhealthy family functioning was more likely to be reported among families where the child had a special health care need (21%).
- One-parent families were more likely to report unhealthy family functioning (24%) than couple families (14%); however, this pattern may be affected by socioeconomic disadvantage.
- Families with children reporting unhealthy family functioning were less likely to be able to raise \$2,000 in an emergency (an aspect of social capital) and were more likely to live in low socioeconomic status areas (Vic DHS 2007a).

## Family cohesion

Family cohesion, that is, the ability of the family to get along with one another, is one aspect of family functioning. The LSAC measured family cohesion in families of two cohorts of children in Wave 2. At Wave 2, children in the birth cohort were aged 2–3 years and children in the child cohort were aged 6–7 years (see *Appendix 2* for more information on the LSAC).

According to the LSAC, family cohesion was reported to be 'excellent', 'very good' or 'good' in the vast majority of families of both cohorts—95% and 93% for families of 2–3 year olds and 6–7 year olds, respectively. The remainder of families reported 'fair' or 'poor' family cohesion.

## Family functioning in Aboriginal and Torres Strait Islander families

The 2000–2002 Western Australian Aboriginal Child Health Survey measured family functioning using a culturally appropriate scale developed specifically for the survey. It included questions on support, communication, financial management and traditions within the family. Families with scores in the highest quartile of the family functioning scale were categorised as having 'very good' family functioning, although it was acknowledged that, in reality, the majority of families scored highly on the scale (Silburn et al. 2006).

See *Part IX* for further detail on these findings.

## 27 Family economic situation

Low family income can adversely affect the health, education and self-esteem of children.

In 2005–06, there were an estimated 421,300 low-income households with children aged 0–12 years. Weekly income for these households was on average \$218 less than among middle-income households with children.

For most families, regular adequate income is the single most important determinant of their economic situation. Children living in families without adequate income are at a greater risk of poor health and educational outcomes, both in the short- and long-term. Children living in low-income families are more likely to have insufficient economic resources to support a minimum standard of living. This can affect a child's nutrition and access to medical care, the safety of their environment, level of stress in the family, quality and stability of their care, and provision of appropriate housing, heating and clothing (ABS 2006c; Shore 1997).

Studies have shown that children from low-income families are more prone to psychological or social difficulties, behavioural problems, lower self-regulation and elevated physiological markers of stress (Barnett 2008). An emerging field of research is investigating children's perspectives on economic adversity. Redmond's (2008) review reveals that a primary concern of economically disadvantaged children is being excluded from activities that other children appear to take for granted and the embarrassment that this can cause.

Notwithstanding the importance of adequate income in alleviating poverty and contributing to personal health and wellbeing, income poverty is just one dimension of poverty:

Poverty encompasses a multitude of deprivations that are related, but not restricted, to low income or income inequality...aspects of living that are not easily named or measured, such as quality of life, social cohesion, family and social networks, autonomy and opportunity for future prosperity are also important in assessing levels of poverty. (Carson et al. 2007)

In this sense, children who are economically disadvantaged are not necessarily the most disadvantaged children.

Close family relationships, particularly closeness to at least one parent, appear to protect children from the worst effects of economic disadvantage. In contrast, economic disadvantage coupled with low family support, or strained or abusive relationships can cause children to lower their aspirations, exclude themselves from activities or engage in antisocial behaviour (Heady et al. 2006). Although this chapter focuses on income disadvantage and jobless families, many of these other issues are covered in other chapters of this report.

Family economic situation has been endorsed by the AHMC, CDSMC, and the AESOC as a Children's Headline Indicator priority area (see *Part X Children's Headline Indicators* for further information and state and territory data).

### HOUSEHOLD INCOME

A household's income is derived from regular and recurring cash receipts, including money from wages and salaries, government pensions and allowances, and other sources such as superannuation, child support and profit or loss from business or investment income (ABS 2007b). This chapter presents results from the ABS Survey of Income and Housing, which measures net household income, that is, disposable income after the deduction of income tax liability and the Medicare levy.

The ABS 2005–06 Survey of Income and Housing found that people in the 'low-income' group accounted for about 11% of disposable household income nationally. The 'low-income' group is defined as the 20% of the population in the second and third income deciles (the lowest decile is not used because household income is not always a good indicator of the total economic resources available to many people with incomes close to nil or negative; ABS 2007b).

Income is usually received by individuals but shared among family members. Household size and composition can therefore have a large impact on the material standard of living that a given income can support. Income distribution and trends are generally analysed using the concept of equivalised income, whereby an equivalence scale is used to adjust household income for household size and composition (for details of the modified OECD equivalence scale used by the ABS see ABS 2007c).

In this chapter 'household income' refers to average equivalised disposable household income in 2005–06 dollars and 'low-income households' refer to households in the second and third income deciles.

**Headline Indicator:** Average real equivalised disposable household income for households with children aged 0–12 years in the second and third income deciles

In 2005–06, low-income households with children aged 0–12 years:

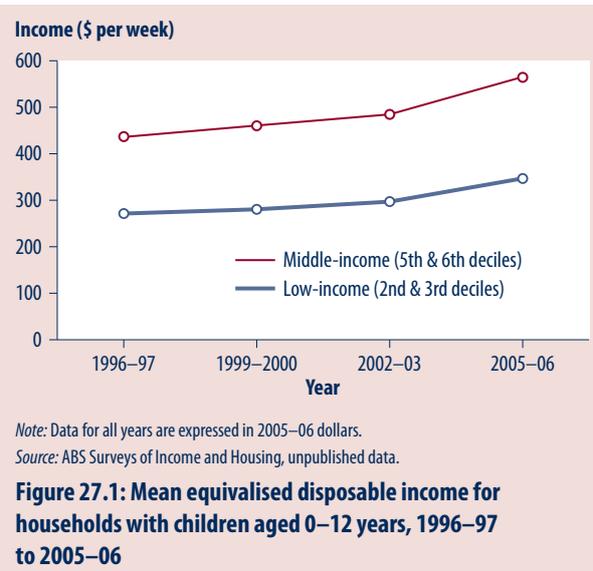
- accounted for 421,300 households Australia-wide and received on average \$347 a week
- received on average \$218 a week less than medium-income households with children aged 0–12 years (fifth and sixth income deciles) (ABS 2005–06 Survey of Income and Housing, unpublished data).

Between 1996–97 and 2005–06:

- The average income of low-income households with children aged 0–12 years increased in real terms by 28%, slightly less than the increase recorded by middle-income households with children aged 0–12 years over the same period (30%) (Figure 27.1).
- The rate of increase for both low- and middle-income households with children aged 0–12 was greatest between 2002–03 and 2005–06 (for example, the average annual increase was nearly 6% for this period for low-income households compared with under 2% annually between 1996–97 and 2002–03). This coincides with a period of relatively high employment rates, wage growth and return on investments, although other factors, such as methodological improvements to the survey (for example, the inclusion of salary-sacrificed amounts and more refined questions) and changes to personal income tax rates and thresholds may also have contributed (ABS 2007b).

Income is not the only economic resource available to households. Households with higher levels of wealth can use these assets to support a higher standard of living. Outright ownership of a dwelling, for example, can substantially reduce living costs. The ABS uses the concept of 'low economic resources' to encompass low income and low wealth (ABS 2006c). There is fairly close agreement between low income and low total economic resources for families with children, many of whom live in private rental or public housing.

Internationally, 10 out of 24 OECD countries had a lower proportion of children living in relative income poverty than Australia— in 1999, 12% of Australian children aged 0–17 years lived in households with equivalent income of less than 50% of the median household income (UNICEF 2007b).



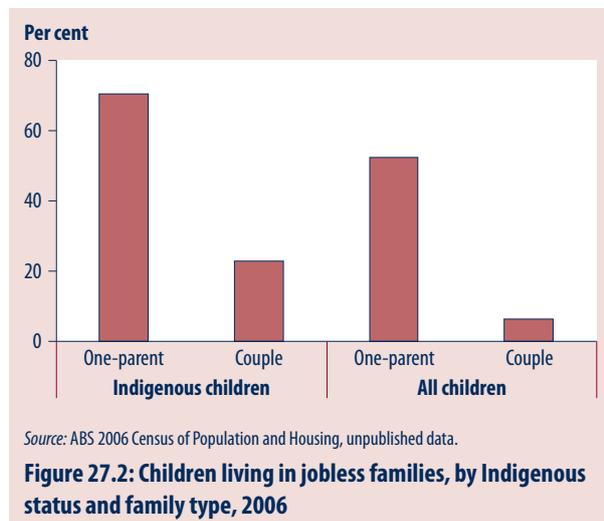
## JOBLESS FAMILIES

Jobless families are disproportionately likely to be reliant on welfare, have low incomes and experience financial stress. Members of jobless households report worse physical and mental health and lower life satisfaction than members of households where someone is employed (Heady & Verick 2006). Studies on the effects of unemployment on other family members have identified relationships between parental joblessness and family conflict, family breakdown and child abuse (McClelland 2000). Secure employment provides financial stability, self-confidence and social contact for parents, with positive effects flowing on to children.

In 2006, among children aged 0–14 years:

- Around 15%, or 543,600, lived in jobless families, a decline from 19% in 1996 (ABS 1996 and 2006 Censuses, unpublished data).
- Over half of children (52% or 362,800) in one-parent families did not live with an employed parent, compared with 6% in couple-parent families (180,800 children).
- Nearly half (45% or 67,600) of Indigenous children aged 0–14 years lived in jobless families—3 times the proportion of all children. The higher proportion of Indigenous children living in one-parent families would have contributed to this higher rate (45% of Indigenous children live in one-parent families compared with 20% of all children); 71% of Indigenous children living in one-parent families did not live with an employed parent (Figure 27.2).

Australia had the second highest proportion of working-age jobless families with children aged 0–17 out of 24 OECD countries in 2000 (UNICEF 2007b), largely due to the relatively high rate of one-parent households in Australia and the high rate of joblessness among this group (Whiteford 2008).



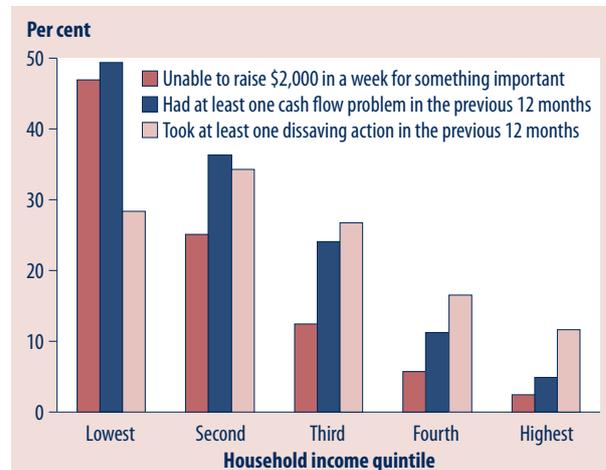
## FINANCIAL STRESS

Financial stress is not limited to households with low incomes, nor does being on a low income necessarily imply that a person experiences financial stress. However, people in the lower household income quintiles were more likely to report a range of financial stressors.

According to the ABS 2006 General Social Survey, almost half (47%) of households with children aged 0–14 years in the lowest income quintile reported being unable to raise \$2,000 within a week. A similar proportion (49%) reported at least one cash flow problem in the previous year, and more than a quarter (28%) took at least one dissaving action in the previous year (see note to Figure 27.3 for explanation of dissaving actions). This compares with 3%, 5%, and 12%, respectively, in the highest income quintile (Figure 27.3).

One-parent families with children aged 0–14 years were more likely to have experienced financial stress than couple-parent families with children:

- Of one-parent families, 42% reported they could not raise \$2,000 within a week for something important, higher than the 12% of couple-parent families.
- Half (50%) had experienced at least one cash flow problem in the previous year compared with 19% of couple-parent families.
- One-third (34%) took at least one dissaving action in the previous year, compared with 22% of couple-parent families (AIHW analysis of ABS 2006 General Social Survey confidentialised unit record file).



### Notes

1. Cash flow problems include not being able to pay bills, mortgage or rent on time; going without meals or being unable to heat home; seeking financial assistance from family, friends or a welfare agency.
2. Dissaving actions include reducing home loan repayments, drawing on accumulated savings, increasing the amount owing on credit cards, taking out a personal loan, borrowing money from family or friends, selling assets and other actions.
3. Quintiles formed using equivalised disposable household income of all households for which income was known.

Source: AIHW analysis of ABS 2006 General Social Survey confidentialised unit record file.

**Figure 27.3: Selected financial stress indicators by equivalised household income, households with children aged 0–14 years, 2006**

## 28 Children in non-parental care

Children in out-of-home care represent a particularly disadvantaged group—most have experienced child abuse or neglect, as well as the breakdown of their families.

In 2008, around 26,700 children were in out-of-home care (6.5 per 1,000). Indigenous children are overrepresented in out-of-home care at 9 times the rate of other children.

The vast majority of children in Australia live with one or both of their parents, however, in some cases parents are unable to care for their children and fulfil their parental responsibilities. The reasons for this are varied, and may include parental substance abuse, incarceration of a parent, the death of one or both parents, a parent's mental or physical illness, a child's disability or poor health, or the child's need for a more protective environment (AIHW 2007a).

Children living in non-parental care represent a particularly disadvantaged group. Many have suffered child abuse or neglect, or family relationship breakdown (particularly breakdowns in parent–child relationships), while others have suffered emotional trauma through the loss of one or both parents. The need to support and strengthen positive outcomes for children living in non-parental care is of critical importance, especially as many more children today are living in non-parental care than 20, and even 10, years ago.

Children in non-parental care are living in a variety of living arrangements, for example in foster care, with grandparents or other relatives, and in residential care. Over the last 30 years there has been a shift away from the use of residential care for children at risk of abuse and neglect towards foster care and other forms of home-based care, including relative/kinship care. In Australia, kinship care is largely provided by grandparents, and much of the kinship care for children, including the care provided by grandparents, occurs outside the formal child protection system (Smyth & Eardley 2008). Most children placed in out-of-home care are eventually reunited with their families (AIHW 2009c).

The focus of this chapter is on children living in out-of-home care through contact with child protection authorities in the states and territories (formal out-of-home care). However, other types of non-parental care are also discussed: children in grandparent families and those in disability supported accommodation.

### CHILDREN IN OUT-OF-HOME CARE

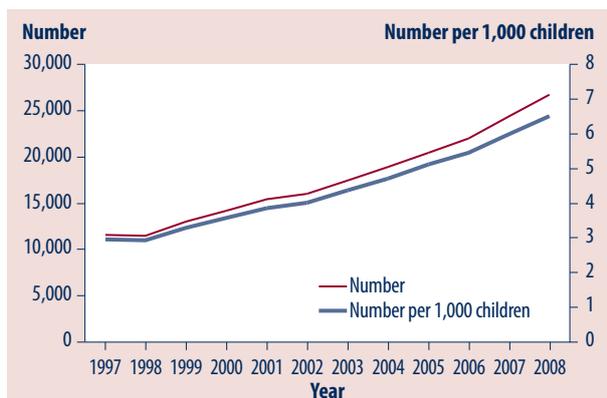
Out-of-home care provides alternative accommodation for children and young people who are unable to live with their parents; it is defined as overnight care for children under 18 years of age, where the state or territory makes a financial payment or where a financial payment has been offered but has been declined. Although no national data are available on the reasons children are placed in out-of-home care, reasons could include child abuse or neglect, or a parent's inability to care for the child. Out-of-home care can include placements with relatives other than parents. Children in out-of-home care include those in both legal and voluntary placements (see also *Chapter 34 Child abuse and neglect*). The data exclude children who are living in out-of-home care outside the auspices of the child protection system, such as placements made in disability services, medical or psychiatric services, juvenile justice facilities, overnight child care services or supported accommodation assistance services. However, some jurisdictions are not always able to exclude these placements from the data, and this should be taken into account when comparing state and territory figures. Children in unfunded placements are excluded from the National Child Protection Data Collection held by the AIHW.

**Key national indicator: Rate of children aged 0–14 years in out of home care**

As at 30 June 2008, among children aged 0–14 years:

- Around 26,700 were living in out-of-home care, a rate of 6.5 per 1,000 children (Figure 28.1).
- The number and rate of children in out-of-home care has more than doubled since 1997—the number has increased from 11,600 to 26,700 and the rate from 3.0 placements per 1,000 children in 1997 to 6.5 in 2008 (Figure 28.1).

This increase results from more children commencing out-of-home care than are being discharged each year rather than simply more children commencing out-of-home care. The increased duration of out-of-home care placements reflects the increasing complexity of family situations faced by these children (Layton 2003; Tennant et al. 2003; Vic DHS 2002). Some of these factors include low family income, parental substance abuse, mental health issues and family violence.



Note: Children in out-of-home care as at 30 June.  
Source: AIHW National Child Protection Data Collection.

**Figure 28.1: Children aged 0–14 years in out-of-home care, 1997 to 2008**

**Living arrangements of those in out-of-home care**

In 2008, among children aged 0–14 years:

- The majority of children in out-of-home care were in home-based care (95%), either foster care (49%) or living with relatives (46%). Smaller proportions of children were in residential care (3.2%) or other care arrangements (1.8%) (Table 28.1).
- Older children were generally more likely to be in out-of-home care—71% of children in out-of-home care were aged 5–14 years and only 4% were infants.
- Infants were less likely than older children to have been living with relatives (33% compared with 46% of children aged 1–14 years), but were more likely to have been in foster care (65% compared with 48% of children 1–14 years).
- Although the proportions were relatively small, children aged 10–14 years were more likely than younger children to have been in residential care (6.7% compared with less than 2% for younger children).

**Are rates of out-of-home care different for Aboriginal and Torres Strait Islander children?**

In 2008, Aboriginal and Torres Strait Islander children aged 0–14 years were 9 times as likely to be in out-of-home care as non-Indigenous children (44 in every 1,000 compared with 4.8). A further discussion of these data and the overrepresentation of Indigenous children in out-of-home care is presented in Part IX.

**Table 28.1: Children aged 0–14 years in out-of-home care, type of care at 30 June 2008**

Age	Relatives/kin		Foster care		Residential care		Other		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
< 1 year	356	1.3	701	2.6	20	0.1	6	< 0.1	1,083	4.1
1–4 years	2,950	11.0	3,542	13.3	46	0.2	86	0.3	6,624	24.8
5–9 years	4,490	16.8	4,488	16.8	123	0.5	172	0.6	9,273	34.7
10–14 years	4,465	16.7	4,404	16.5	656	2.5	212	0.8	9,737	36.4
<b>Total</b>	<b>12,261</b>	<b>45.9</b>	<b>13,135</b>	<b>49.2</b>	<b>845</b>	<b>3.2</b>	<b>476</b>	<b>1.8</b>	<b>26,717</b>	<b>100.0</b>

Source: AIHW National Child Protection Data Collection.

## OTHER TYPES OF NON-PARENTAL CARE

### Grandparent families

Grandparent families can generally be defined as those in which grandparents are raising their grandchildren. Typically, grandparents take on the role of primary carers of their grandchildren because parents are no longer able to fulfil their parental responsibilities. The reasons for this often include parental substance abuse, the death of one or both parents, a parent's mental or physical illness, or the child's need for a more protective environment (COTA 2003). For grandparents, the increase in responsibility in fully caring for their grandchildren has legal, financial, lifestyle and health consequences that can adversely effect their health and wellbeing.

Data on grandparent families are drawn primarily from the 2006–07 ABS Family Characteristics and Transitions Survey, with some additional information from the 2006 ABS Census of Population and Housing. The survey has the advantages of providing a clear identification of the child–guardian link in a household and allowing comparison with data from 2003, while having the disadvantage of a reduced sample size in 2006–07, which increases the statistical uncertainty of estimates. The 2006 Census was the first for which an analysis of grandparent families was possible. While the Census is a rich source of information and gathers information from a large proportion of the Australian population, it is not as robust as the Family Characteristics and Transition Survey at establishing the child–guardian connection in a household. For example, in more than half (54%) of grandparent families (as classified by the Census), there were other adults or children present who, in some cases, may have been the parent of the child.

**Key national indicator:** Proportion of children aged 0–17 years in grandparent families

According to the ABS 2006–07 Family Characteristics and Transitions Survey:

- There were an estimated 14,000 grandparent families with children aged 0–17 years (about 0.5% of all families with children). This equates to an estimated 18,900 children (0.4% of all children) (ABS 2008h; AIHW analysis of ABS 2006–07 Family Characteristics and Transitions Survey confidentialised unit record file).
- Between 2003 and 2006–07, the estimated number of grandparent families with children aged 0–17 years declined from 22,500 (95% CI  $\pm$  5,500) to 14,000 (95% CI  $\pm$  7,000). While this decline was statistically significant, the relatively large confidence intervals indicate that the size of the decline is uncertain.

Some key findings from the 2006 Census of Population and Housing for grandparent families with children aged 0–14 years include:

- Indigenous children were more likely to live in grandparent families—4.6% of Indigenous children compared with 0.6% of all children. Around one-third (32%) of children living in grandparent families were Indigenous.
- Children living in grandparent families were twice as likely to be living in a household with a lower or very low gross equivalised household income than children living with their parents. Grandparents caring for children also had a lower rate of outright home ownership than other older Australians.
- Grandparent families were on average slightly smaller than couple-parent (natural or adoptive) families—4.04 people compared with 4.15—but were slightly larger than one-parent (natural or adoptive) families (3.02). On average there were 1.9 grandchildren in each grandparent family (ABS 2009).

### Disability supported accommodation

Children living in disability supported accommodation represent a very small proportion of children in non-parental care—the majority of children with disabilities live at home. Those who cannot be cared for at home may live in disability supported accommodation funded under the Commonwealth State/Territory Disability Agreement (CSTDA).

In 2006–07, 49,192 children aged 0–14 years accessed CSTDA support, representing one-fifth of all service users. Of these children, the majority (99%) were not living in supported accommodation for CSTDA service users (domestic-scale accommodation or supported accommodation facilities), but were in other types of accommodation such as their homes, usually with parents ('private residences' in Table 28.2). Children aged 10–14 years accounted for 62% of children who stayed in supported accommodation for CSTDA service users (167 of the 268 children who were accommodated) (Table 28.2).

**Table 28.2: Users of CSTDA-funded services aged 0–14 years, age by residential setting, 2006–07**

Age group (years)	Domestic-scale supported living facility	Supported accommodation facility	Private residence	Other/not stated	Total
0–4	32	23	14,831	982	15,868
5–9	25	21	17,510	2,140	19,696
10–14	105	62	11,300	2,161	13,628
<b>Total</b>	<b>162</b>	<b>106</b>	<b>43,641</b>	<b>5,283</b>	<b>49,192</b>

*Notes*

1. Service user data are estimates after the use of a statistical linkage key to account for individuals who received services from more than one service type outlet during the 12-month period.
2. Service user data were not collected for all CSTDA service types.
3. 'Other' includes residence in an Aboriginal or Torres Strait Islander community; boarding house or private hotel; independent living in a retirement village; residential aged care facility; psychiatric or mental health community care facility; hospital; short-term crisis, emergency or transitional accommodation facility; public place or temporary shelter; and other.

Source: CSTDA National Minimum Data Set 2006–07, unpublished data.

## 29 Parental health status

Raising children involves physical, emotional and financial demands that can pose significant challenges to a parent with disability or a mental health problem.

Around 13% of parents living with children rated their health as fair or poor and around one-fifth were affected by poor mental health. An estimated one-fifth of children live with a parent with disability.

Children living with a chronically ill parent can experience stressful life events that can negatively affect their health and wellbeing. This is because a parent with a chronic illness, such as kidney failure or mental illness, may experience frequent medical procedures and hospitalisations, loss of income, dependency on other family members, changes to the appearance of their body, social stigmatisation and, in some conditions, the possibility of premature death (Romer & Barkmann 2002).

In these circumstances, the physical, emotional or economic needs of children may not be met, increasing their risk of long-term mental health and behavioural problems (Barkmann et al. 2007; Romer & Barkmann 2002). Studies have also shown that children whose parents have a mental illness are also more likely to experience learning disabilities and perform poorly academically, and are susceptible to substance abuse (Kowalenko et al. 2000; Lancaster 1999).

While many parents who have a chronic illness or disability are capable parents, these health problems can affect the parent–child relationship. Depending on the severity of the parental illness or disability, the wellbeing of children may be affected by factors such as family discord, discontinuity of care, poor parenting skills, social isolation and poverty, and they may experience developmental delays (ABS 1999; AICAFMHA 2001; McConnell et al. 2003).

A child living with a chronically ill parent or parent with disability may also take on greater responsibilities or, in some cases, care for the parent. Taking on a caring role may be rewarding; however, it can also significantly affect the life of a child or young person. These children may be less involved in community, educational and social activities (CA 2001). The ability of children to cope in these circumstances varies with their age,

gender, developmental stage, personality, severity of their parent's health condition and the support they receive from other family members (Steck et al. 2005).

Children living with parents who are problematic alcohol or substance users are at greater risk of poor health and wellbeing outcomes. The impact of parental substance use on children may differ between families depending on their level of risk and protective factors; however, children are at greater risk when exposed to multiple risk factors over a long period of time. These factors may include parental mental health problems, socioeconomic disadvantage, social isolation, crime and violence (including verbal, physical and/or sexual) (Dawe et al. 2007). Parents who are problematic alcohol or substance users often have co-existing mental health problems.

This chapter explores four aspects of parental health: parents' self-assessed health status, parents with disability or poor mental health, and parental substance use.

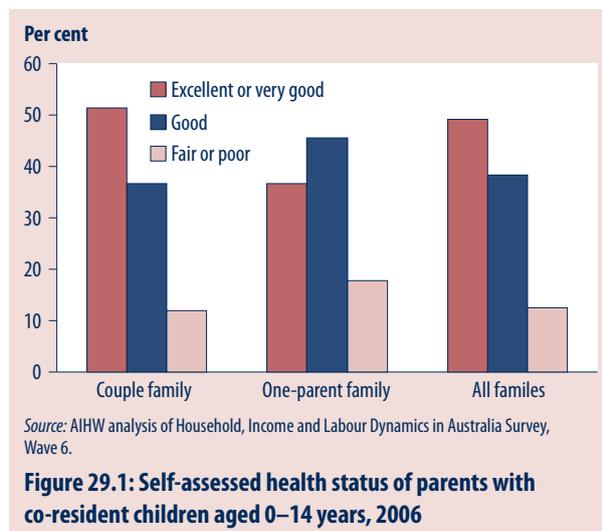
### PARENTS WITH POOR HEALTH

Even relatively mild health conditions that do not greatly affect a parent's functioning may lead to some adverse outcomes for children. An individual's rating of their own overall health is often used as an indicator of health status and, at the population level, as a predictor of health service use and mortality (AIHW 2008b).

**Key national indicator:** Proportion of parents rating their health as 'fair' or 'poor'

In 2006, according to the Household, Income and Labour Dynamics in Australia (HILDA) Survey, among parents of co-resident children aged 0–14 years:

- An estimated 13% of parents (or around 446,000) rated their health as fair or poor. The majority of parents rated their health as good, very good or excellent (87% or an estimated 3.1 million parents) (Figure 29.1).
- Parents in one-parent families were more likely to rate their health as fair or poor compared with parents in couple families (18% and 12%, respectively), consistent with findings that indicate that one-parent families have a greater risk of social disadvantage in terms of employment, housing, income and social participation, leading to poorer health outcomes (Robinson 2008).



## PARENTS WITH DISABILITY

Raising children involves physical, emotional and financial demands that can pose significant challenges to a parent with disability. Parental disability can affect children in different ways, for example by reducing

family income or limiting opportunity for community participation. Some children who provide intensive ongoing care to a parent with disability may have their schooling interrupted, with long-term implications for educational attainment, employment and the successful transition from home to independent living (CA 2001).

In the ABS Survey of Disability, Ageing and Carers (SDAC), a person is considered to have disability if they reported at least one of a list of impairments, health conditions or limitations that restricted everyday activities and that had lasted—or was likely to last—for at least 6 months (see *Appendix 2* for more information on this survey).

### Key national indicator: Proportion of children living with parents with disability

According to the ABS 2003 Survey of Disability, Ageing and Carers, among children aged 0–14 years in 2003:

- About one in five, or 742,800, lived with a parent with disability (Table 29.1). Almost one-quarter, or 172,800, of these children lived with a parent who had severe or profound core activity limitation (meaning that they sometimes or always needed assistance with activities of daily living—self-care, mobility or communication).
- Around 69,000 children were caring for a parent with disability, representing around 1.7% of all children. The proportion of these children who were primary carers can not be determined, as primary carers were only identified among those aged 15 years and over in this survey.
- There were around 435,100 families with children where there was at least one parent with disability, representing one-fifth of all families (Table 29.1).

**Table 29.1: Children living with a parent with disability, 2003**

Age group	Couple families		One-parent families		Total with one or both parents with disability	
	Number ('000)	Per cent	Number ('000)	Per cent	Number ('000)	Per cent
0–4 years	174.4	16.6	28.6	16.8	203.0	16.6
5–9 years	199.0	19.1	50.6	19.6	249.6	19.2
10–14 years	231.2	22.3	59.0	20.4	290.3	21.9
<b>Children 0–14 years<sup>(a)</sup></b>	<b>604.6</b>	<b>19.3</b>	<b>138.2</b>	<b>19.3</b>	<b>742.8</b>	<b>19.3</b>
<b>Families<sup>(b)</sup></b>	<b>337.0</b>	<b>19.6</b>	<b>98.1</b>	<b>20.7</b>	<b>435.1</b>	<b>19.9</b>

(a) Children aged 0–14 years living with at least one parent with disability.

(b) Families with children aged under 15 years where at least one parent has disability.

Note: As families may have more than one child, the number of children with a parent with disability is greater than the number of parents with disability.

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

## PARENTS WITH A MENTAL HEALTH PROBLEM

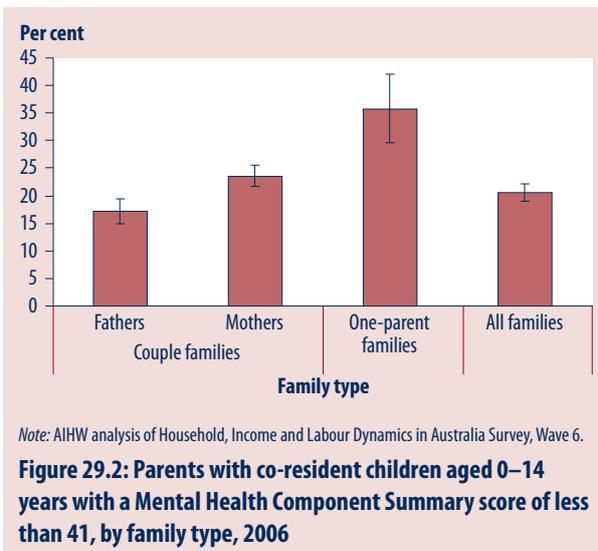
Children living with a parent with a mental health problem may be at increased risk of social, psychological and physical health problems compared with children in families not affected by mental illness. An estimated 25–50% of children living with a parent with a mental health problem experience a psychological disorder during childhood, adolescence or adulthood compared with 10–14% of children in the general population (Mayberry et al. 2005). This may be due to a combination of factors that increase the risk of mental health problems among children, including genetic inheritance, poverty, homelessness and extra caring responsibilities (Fudge & Mason 2004). Children may also experience physical and/or sexual violence, verbal abuse, neglect, loss of close intimate contact with a parent, and social and emotional problems as a result of poor parental mental health (Cooklin 2006).

Measuring the number of children with a parent with a mental health problem is difficult as the parental role of people accessing mental health services is not always recorded and definitions of mental health can vary in survey data. One measure of mental health is available from the Short Form 36 (SF-36)—a 36-item questionnaire that measures eight domains of subjective health. The scores from this questionnaire can be summarised to produce a single measure of mental health: the Mental Health Component Summary (MCS) score. An analysis of population averages suggests that an MCS score less than 41 is indicative of poor mental health.

**Key national indicator:** Proportion of parents with mental health problems

In 2006, according to the Household, Income and Labour Dynamics in Australia Survey (HILDA), among parents with co-resident children aged 0–14 years:

- Around one-fifth (21%) had MCS scores of less than 41, indicating poor mental health (Figure 29.2).
- A significantly higher proportion of mothers scored poorly (MCS score of less than 41) than fathers (24% and 17%, respectively).
- Lone parents were almost twice as likely to have an MCS score of less than 41 as parents in couple families (36% and 19%, respectively).



### Does parental health status vary across population groups?

In terms of mental health, there was no statistically significant difference in MCS scores between Indigenous and non-Indigenous parents according to the 2006 HILDA Survey. This may be due to the small number of Indigenous parents in this survey. There are no reliable national estimates of self-assessed health or disability status for Indigenous parents.

Parents living in the lowest socioeconomic status (SES) areas were more likely to report fair or poor health (17%) and to have an MCS score indicative of poor mental health (26%), than those in the highest (SES) areas (7% and 15%, respectively), according to the 2006 HILDA Survey.

### Parental substance abuse

There is limited national data available on illicit substance use among parents in Australia. According to the 2007 National Drug Strategy Household Survey, an estimated 12% of parents with children aged 0–14 years used either an illicit substance (such as marijuana or ecstasy) or a licit substance for non-medical purposes (such as pain killers) in the previous 12 months. This was slightly lower than among adults without children (14%).

Risky and high risk alcohol use for short and long-term harm among parents was also estimated in the 2007 National Drug Strategy Household Survey. Risky and high risk alcohol use was defined using the 2001 Australian alcohol guidelines (NHMRC 2001) (Table 29.2).

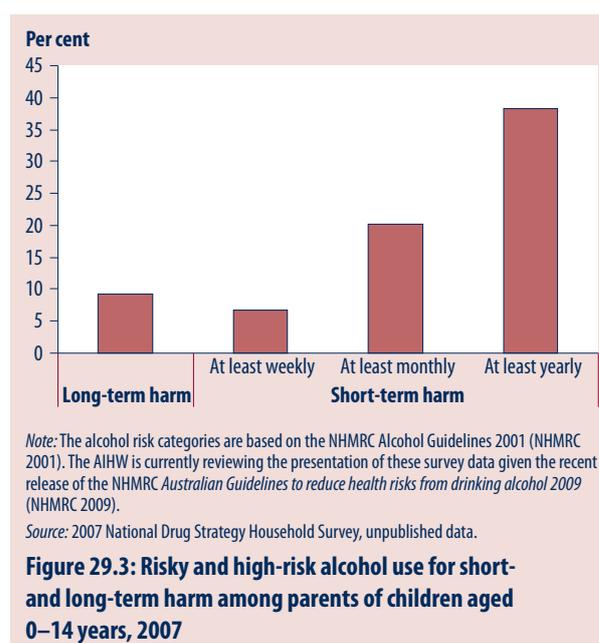
**Table 29.2 Alcohol consumption associated with harm among people aged 18 years and over**

Alcohol consumption associated with harm	Short-term harm		Long-term harm	
	Risky	High-risk	Risky	High-risk
Males	7 to 10 standard drinks on any one day	11 or more standard drinks on one day	29 to 42 standard drinks per week	43 or more standard drinks per week
Females	5 to 6 standard drinks on any one day	7 or more standard drinks on any one day	15 to 28 standard drinks on any one day	29 or more standard drinks per week

Source: NHMRC 2001.

In terms of alcohol use among parents with dependent children aged less than 15 years:

- An estimated 7% of parents drank at risky or high-risk levels for short-term harm at least weekly. One in five (20%) and two in five (38%) parents drank at these levels at least monthly or yearly (Figure 29.3).
- An estimated 9% of parents drank at risky or high-risk levels for long-term harm.



## 30 Neighbourhood safety

Children are shaped not only by their family environment, but also by the neighbourhood contexts in which they live.

Around 86% of households with children perceived their neighbourhood as safe or very safe all the time in 2006.

Children are shaped not only by their family environment but also by the neighbourhood context in which they live. A number of neighbourhood characteristics influence child outcomes, including the availability of local social networks, peer influences, quality of local services, economic opportunities, and exposure to crime and violence (Curtis et al. 2004). Parental perception of these neighbourhood characteristics can have a significant impact on children's health, development and wellbeing.

High neighbourhood quality has been associated with positive outcomes for children, including lower levels of child maltreatment and youth delinquency, and higher levels of physical and mental health and educational attainment. One of the most common indicators of neighbourhood quality is parents' perception of neighbourhood safety (Ferguson 2006). This is often associated with how safe people feel when they are alone at home during either the day or night, and refers to individuals' perceptions of their vulnerability to, or protection from, personal harm. Fear of crime, whether founded or perceived, detracts from quality of life and is a deterrent from participation in the local community.

Parental perception of neighbourhood safety affects children's daily activities, as parents typically exert substantial control over where children spend their time. Fear of exposing their children to risks may lead parents to restrict their children from outdoor activities, particularly while unsupervised (Galster & Santiago 2006), which could lead to a more sedentary lifestyle and weight gain.

### SAFETY OF CHILDREN'S NEIGHBOURHOODS IN AUSTRALIA

The data in this section are drawn from the ABS 2006 General Social Survey. Respondents were asked about their feelings of safety when home alone during the day and at night. In 2006, only a very small number of respondents from households with children aged 0–14 years reported that they felt unsafe or very unsafe, and due to the high relative standard errors associated with such small numbers, these estimates cannot be presented. The indicator of neighbourhood safety presented here is therefore defined as the proportion of respondents who reported that they felt safe or very safe when home alone during the day and at night.

**Key national indicator:** Proportion of households with children aged 0–14 years where their neighbourhood is perceived as safe or very safe

In 2006, of those respondents living in households with children aged 0–14 years:

- The majority (86% of households) reported feeling safe or very safe all the time (that is, both during the day and at night). Respondents were more likely to feel safe or very safe during the day (96%) than at night (86%) (Table 30.1).
- Those living in the lowest socioeconomic status (SES) areas were less likely to always feel safe or very safe compared with those in the highest SES areas (78% of households compared with 88%).
- Those living in *Major cities* were less likely to have reported feeling safe or very safe all the time compared with those living in *Inner regional* and *Other* areas (84% compared with 89–90%).

- A higher proportion of respondents from Australia and mainly English-speaking countries reported feeling safe or very safe all the time, compared with respondents from mainly non-English-speaking countries (87% of households compared with 79%).

**Table 30.1: Households with children aged 0–14 years where neighbourhood is perceived as safe or very safe, 2006 (per cent)**

Household characteristics	Always feels safe or very safe		
	Day and night	During day	At night
<b>Socioeconomic status<sup>(a)</sup></b>			
Lowest SES areas	78.1	91.1	78.2
Highest SES areas	88.2	96.8	88.3
<b>Remoteness</b>			
Major cities	83.6	94.8	83.7
Inner regional	89.3	97.7	89.4
Other areas <sup>(b)</sup>	89.8	96.2	89.7
<b>Country of birth</b>			
Australia and mainly English-speaking countries <sup>(c)</sup>	87.1	96.6	87.2
Other (mainly non-English-speaking countries)	78.7	90.9	78.9
<b>Australia</b>	<b>85.6</b>	<b>95.6</b>	<b>85.7</b>

(a) See *Appendix 1 Methods* for explanation of socioeconomic status (SES).

(b) Includes *Outer regional* and *Remote areas*. Very remote areas were excluded from the Survey.

(c) Mainly English-speaking countries include Canada, Ireland, New Zealand, South Africa, United Kingdom and United States of America.

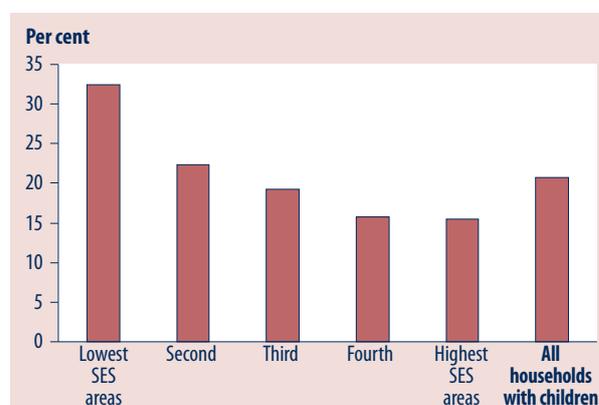
Note: Excludes respondents who are never home alone during the day and/or night.

Source: AIHW analysis of ABS 2006 General Social Survey confidentialised unit record file.

## NEIGHBOURHOOD CRIME

In addition to collecting information on perceived neighbourhood safety, in 2006 the ABS General Social Survey asked respondents if they had been the victim of assault or break-in during the previous 12 months. Among respondents from households with children aged 0–14 years:

- One in five (21%) had been a victim of assault or break-in during the previous 12 months.
- The proportion who were victims of assault or break-in was twice as high among those living in the lowest socioeconomic status (SES) areas (32%) compared with those from the highest SES areas (16%) (Figure 30.1).



Note: See *Appendix 1 Methods* for explanation of socioeconomic status (SES).

Source: AIHW analysis of ABS 2006 General Social Survey confidentialised unit record file.

**Figure 30.1: Households with children aged 0–14 years where respondent was a victim of assault or break-in, by socioeconomic status, 2006**

## 31 Social capital

Families with rich social networks have been found to have increased access to information, material resources, and friends and neighbours to assist them in managing their daily lives and problems.

Most families with children (94%) were able to access social support and had weekly contact with family and friends (97%).

Social capital is an important aspect of the social context in which a child develops. Social capital can be understood as networks of social relationships, characterised by norms of trust and reciprocity; it is the name given to quality relationships that enable people to come together to collectively share experiences or resolve problems and where all involved can achieve mutually desired benefits (Stone & Hughes 2000). Strong connections between individuals promote a sense of belonging and provide access to support. This can be represented by the degree to which people feel they can get assistance from neighbours, allow their children to play outside safely, and participate in community activities (Zwi & Henry 2005).

Families with rich social networks have been found to have increased access to information, material resources and friends and neighbours to assist them in managing their daily lives and problems. For children, the benefits of social capital include positive mental health and behavioural outcomes in childhood and later life, reduced school dropout rates and an increased likelihood of gaining meaningful employment (Ferguson 2006). Strong family relationships and supportive neighbourhoods protect children and young people against the adverse effects of socioeconomic disadvantage, leading to improved health for children and youth in economically poor communities (Attree 2004 cited in Zwi & Henry 2005).

Social capital can be measured in a variety of ways. The ABS, for example, has developed the Social Capital Framework, which contains four broad dimensions to describe social networks and relationships: network qualities, network structure, network transactions and network types. The Framework is based on the notion that people have social networks and relationships with other people in society such as family members, friends, neighbours, colleagues and acquaintances, and with organisations (ABS 2006a).

Due to this multi-dimensional nature of social capital, it is difficult to summarise in one measure. Measures of social capital used in this section are limited to social support networks, due to lack of data. Support networks, a key aspect of social capital, can act in a variety of ways, such as provision of information or emotional, practical or financial support, and these in turn provide individuals with a sense of belonging. Social support in a time of crisis has been selected as the key national indicator, as having someone to rely on in emergency situations is a safety net that is vitally important, and especially so for families with children. Contact with family and friends and sources of social support (where families with children could ask for small favours) are also presented here as indications of the positive aspects of social networks.

**Key national indicator:** Proportion of households with children aged 0–14 years where respondent was able to get support in time of crisis from persons living outside the household

According to the ABS 2006 General Social Survey, of those households with children aged 0–14 years:

- Over 94% were able to get support in times of crisis from someone outside the household (Table 31.1), a similar proportion to all households (93%). The person contacted for support was most often a family member (87%), a friend (76%) or a neighbour (38%). These proportions were similar to those reported in the ABS 2002 General Social Survey.
- About 94% could ask for small favours, and 97% had weekly contact with family or friends.
- Couple-parent households were slightly more likely than one-parent households to be able to get support in a time of crisis or to ask for small favours (almost 2 percentage points higher), while making contact with family or friends was similar for both family types.

- Of households where the respondent was employed, 96% were able to get support in a time of crisis. This was greater than the 91% of households where the respondent was unemployed and the 89% where the respondent was not in the labour force.

### Do these measures of social support networks vary across population groups?

The data presented in Table 31.1 suggest an association between these three measures of social support networks and socioeconomic status, and also between these measures and country of birth. There was little variation across remoteness areas for these measures.

- Households with children in the lowest socioeconomic status (SES) areas were less likely to be able to access these three measures of social support than families in the highest SES areas:
  - 6 percentage points lower for ‘able to get support in a time of crisis’ or ‘able to ask for small favours’
  - 3 percentage points lower for ‘weekly contact with family or friends’.

However, over 90% of respondents living in the lowest SES areas still reported that they had access to these measures of support (Table 31.1).

- Households with children where the respondent was born in a mainly non-English-speaking country compared with those born in Australia or in a mainly English-speaking country were less likely to:
  - be able to get support in times of crisis (84% of households compared with 96%)
  - be able to ask for small favours (86% compared with 96%)
  - have weekly contact with family or friends (94% compared to 97%).

The ABS 2002 National Aboriginal and Torres Strait Islander Social Survey found that the majority (91%) of households with an Indigenous respondent with children aged 0–14 years were able to get support in a time of crisis from someone living outside the household; slightly lower than the proportion of all respondents from households with children aged 0–14 years (95%) in the ABS 2002 General Social Survey. See *Part IX* for further information on social capital in the Indigenous context.

**Table 31.1: Measures of social support networks in one-family households with children aged 0–14 years, 2006 (per cent)**

Household characteristics	Able to get support in time of crisis <sup>(a)</sup>	Could ask for small favours <sup>(b)</sup>	Has weekly contact with family or friends
<b>Family type</b>			
Couple-parent family	94.8	94.4	96.9
One-parent family	92.9	92.7	96.4
<b>Employment status</b>			
Employed	96.2	96.3	97.3
Unemployed	90.8	86.6	91.4
Not in labour force	89.0	87.7	95.8
<b>Socioeconomic status<sup>(c)</sup></b>			
Lowest SES areas	90.9	90.6	94.3
Highest SES areas	96.4	96.3	97.9
<b>Remoteness</b>			
Major cities	93.9	94.0	96.9
Inner regional	95.3	94.7	96.3
Other areas <sup>(d)</sup>	95.4	93.5	96.7
<b>Country of birth</b>			
Australia and mainly English-speaking countries <sup>(e)</sup>	96.5	95.7	97.3
Other (mainly non-English-speaking countries)	84.2	86.1	94.3
<b>Australia</b>	<b>94.4</b>	<b>94.1</b>	<b>96.8</b>

(a) Able to get support in times of crisis from persons living outside the household.

(b) Able to ask for small favours from someone living outside the household. Examples of small favours include looking after pets or watering the garden, collecting mail or checking the house, minding a child for a brief period, help with moving or lifting objects, and borrowing equipment.

(c) See *Appendix 1 Methods* for explanation of socioeconomic status (SES)

(d) Includes *Outer regional* and *Remote* areas. *Very remote* areas were excluded from the Survey.

(e) Mainly English-speaking countries include Canada, Ireland, New Zealand, South Africa, United Kingdom and United States of America.

Source: AIHW analysis of 2006 ABS General Social Survey confidentialised unit record file.

# Part VII

## HOW SAFE AND SECURE ARE AUSTRALIA'S CHILDREN?

*Part VI* discussed the importance of family and community factors for the health, development and wellbeing of Australian children. The family and community environment also has a vital role to play in protecting children from physical and emotional harm, which can have a significant impact on the health and wellbeing of children in both the short term and throughout life.

*Part VII* focuses on the safety and security of Australian children, and discusses key indicators that place children at immediate and long-term risk of physical and/or emotional harm and associated adverse outcomes:

- injuries
- school relationships and bullying
- child abuse and neglect
- children as victims of violence
- homelessness
- children and crime.

The following table shows how children fare across the various indicators presented in *Part VII*, and whether there has been any improvement over time.

Indicator	Value	Trend
<b>Injuries</b>	Age-specific death rates from all injuries for children aged 0–14 years	6 per 100,000 ✓
	Road transport accident death rate for children aged 0–14 years	1.6 per 100,000 ✓
	Accidental drowning death rate for children aged 0–14 years	1.0 per 100,000 ✓
	Assault (homicide) death rate for children aged 0–14 years	0.7 per 100,000 ..
	Injury hospitalisation rate for children aged 0–14 years	1,462 per 100,000 ✓
	Assault hospitalisation rate for children aged 0–14 years	20 per 100,000 ✓
	Intentional self-harm hospitalisation rate for children aged 10–14 years	41 per 100,000 ✗
<b>School relationships and bullying</b>	Under development	Data not available ..
<b>Child abuse and neglect</b>	Children aged 0–12 years who were the subject of a substantiation of a child protection notification received in 2007–08	7.4 per 1,000 ✓
	Children aged 0–12 years who are the subject of care and protection orders (2008)	7.1 per 1,000 ✗
<b>Children as victims of violence</b>	Children aged 0–14 years who have been the victims of (2003):	
	physical assault	309 per 100,000 ..
	sexual assault	187 per 100,000 ..
<b>Homelessness</b>	Accompanying children aged 0–14 years attending agencies funded under the Supported Accommodation Assistance Program (2006–07)	16 per 1,000 ..
<b>Children and crime</b>	Number of children aged 10–14 years who are under juvenile justice supervision (2006–07)	1.7 per 1,000 ..

Key: n.a = not available; ✓ = favourable trend; ✗ = unfavourable trend; .. = no trend data presented.

## 32 Injuries

Injuries are largely preventable through public health interventions, and yet they remain a leading cause of death and hospitalisation among children.

In 2006, there were 6 deaths due to injuries per 100,000 children and, in 2006–07, children were hospitalised for injury at a rate of 1,462 per 100,000 children.

Injury is the leading cause of death of children aged 1–14 years in every industrialised country, including Australia (Mercy et al. 2006), and is also a major cause of hospitalisation. For each death and hospitalisation due to injury, there are many more visits to emergency departments and health professionals outside hospital settings. Injuries sustained during childhood can have profound and lifelong effects on health and development, by causing permanent physical disabilities or long-term cognitive or psychological damage (for example, traumatic brain injury) (Mercy et al. 2006).

Children are particularly vulnerable to certain types of injury according to their stage of development. Infants and young children (0–4 years) explore their physical environment before they understand and have the skills to respond to hazards. Initiatives to prevent injuries among children of this age therefore focus on creating safer products and environments and raising the awareness of children’s carers (NPHP 2004). Successful steps in this area have included child-resistant packaging to prevent poisoning, and legislation requiring the fencing of swimming pools and the use of car seats.

Older children (5–14 years) are exposed to a broader range of settings, such as schools, sporting environments, streets and neighbourhoods. At the same time, their ability to make decisions about their safety increases. Injuries sustained among older children are increasingly influenced by behaviour in addition to their physical and social environment. As children enter adolescence, they may be exposed to alcohol and other drugs, and are on the verge of developing new skills, such as driving and job skills. Behaviour patterns established during this stage can influence risk of injury in later life. For older children, the compulsory use of helmets and seat belts, safe playgrounds, and reduced speed limits and traffic-calming devices in school zones are examples

of injury prevention initiatives relating to individual behaviour and physical and social environments.

Because of its major impact on the health of Australians and the largely preventable nature of injury, injury prevention and control was made a National Health Priority Area in 1986. This led to the development of national injury prevention plans (NPHP 2004). The *National injury prevention and safety promotion plan: 2004–2014* identifies children as a major priority area for injury prevention.

Injury has been endorsed by the AHMC, CDSMC and the AESOC as a Children’s Headline Indicator priority area (see *Part X* for further information and state and territory data).

This chapter examines the leading causes of injury death and hospitalisation for children. Refer to *Appendix 1 Methods* for technical notes regarding the analysis of injury data.

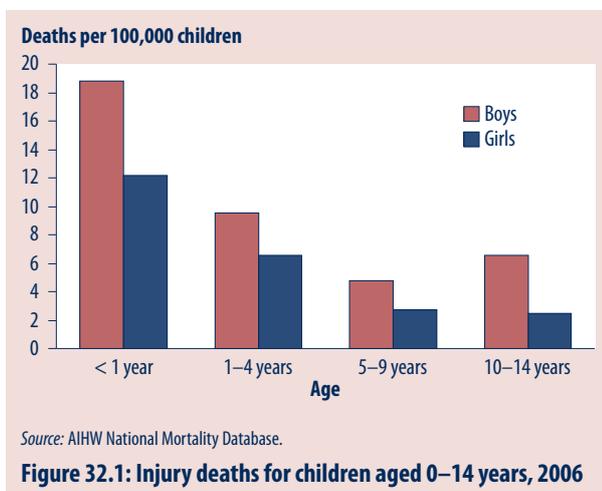
### DEATHS FROM INJURY

**Headline Indicator:** Age-specific death rates from all injuries for children aged 0–4, 5–9 and 10–14 years

In 2006, injuries contributed to 241 deaths of children aged 0–14 years—a rate of 6 per 100,000 children:

- Injury was the underlying cause in 94% of these deaths and was a contributing factor in the remainder.
- Boys were overall 80% more likely to die from injury than girls, although there was some variation by age group (Figure 32.1). The greatest disparity was among 10–14 year olds, where the rate among boys was around 2.5 times the rate for girls.

- Infants (< 1 year) had the highest rate of injury death (16 per 100,000 infants), although injuries accounted for only 3% of all infant deaths. This is due to the higher overall death rate of infants compared with children aged 1–14 years, and the high rates of death due to other causes in the first year of life, such as conditions relating to pregnancy and birth and congenital anomalies (see *Chapter 4*).
- Injury deaths comprised a substantial proportion of all deaths among 1–14 year olds (40%). Rates were 8, 4 and 5 per 100,000 children aged 1–4, 5–9 and 10–14 years, respectively.



Injury death rates among children have been decreasing over time—by almost 40% between 1997 and 2006, from 10 to 6 deaths per 100,000 children.

- The decrease is largely due to a reduction in deaths from land transport accidents, and accidental drowning and submersion.
- The rate for boys has been consistently higher than for girls over this period, although there have been fluctuations in the size of this gap.

Road transport accidents, accidental drowning and assault were leading causes of injury death among children in 2006.

## Road transport accidents

The most accurate information on road transport accident deaths is from the Australian Transport Safety Bureau (ATSB) Fatal Crash Database (see Henley et al. 2007:19 for further information). Data from this source are presented here.

The ATSB Fatal Crash Database collects information on fatal traffic accidents, which are accidents occurring on a public highway or street involving a moving vehicle, which can be a motor or non-motor vehicle. Information on non-traffic accidents, that is, those that do not occur on public highways or streets, is not available from this database.

**Key national indicator:** Road transport accident death rate for children aged 0–14 years

In 2007, among children aged 0–14 years:

- There were 66 deaths due to road transport accidents, a rate of 1.6 per 100,000 children and a decline from 5.5 per 100,000 in 1989. The rate of decline over this period was greater for boys (79%) than for girls (57%), resulting in no significant difference between the sexes in 2007.
- Death rates among 0–4 and 10–14 year olds were more than twice those of 5–9 year olds.
- Almost three-quarters of children who died as a result of a road transport accident were passengers, and a further 20% were pedestrians. The remaining 5% were cyclists or drivers.

## Accidental drowning

**Key national indicator:** Accidental drowning death rate for children aged 0–14 years

In 2006, among children aged 0–14 years:

- There were 46 accidental drowning deaths—a rate of 1 per 100,000 children and accounting for almost one-fifth of accidental drowning deaths for all ages.
- The death rate due to accidental drowning has almost halved between 1997 and 2006—from a rate of 2 per 100,000 deaths in 1997 (80 deaths).
- Infants and young children (1–4 years) had the highest accidental drowning death rates (2.7 and 2.3 per 100,000 children, respectively). Rates were lower among older children, with rates of 0.5 and 0.3 per 100,000 children for 5–9 and 10–14 year olds, respectively.

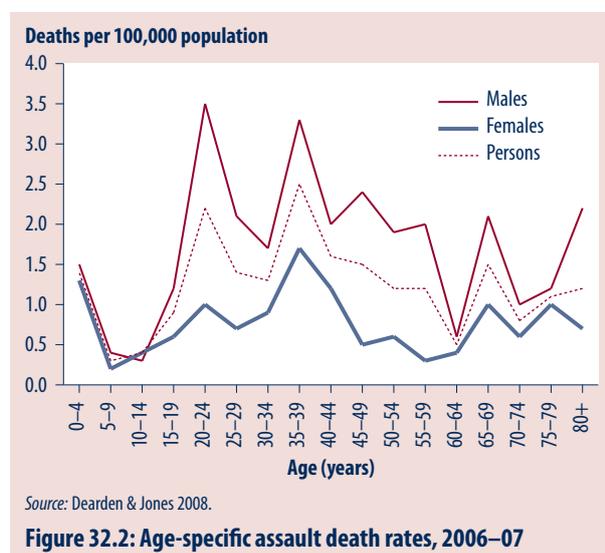
## Assault and homicide

The most accurate information on assault (homicide) deaths is from the Australian Institute of Criminology National Homicide Monitoring Program (see Henley et al. 2007:80 for further information). Data from this source are presented here.

**Key national indicator: Assault (homicide) death rate for children aged 0–14 years**

In 2006–07, among children aged 0–14 years:

- There were 27 deaths due to homicide, a rate of 0.7 per 100,000 children (Dearden & Jones 2008).
- Among children, the rate of homicide was highest among 0–4 year olds (1.9 per 100,000 children) and declined to 0.6 among 5–9 year olds and 0.2 among 10–14 year olds. The rate among children aged 0–4 years was the fifth highest of all age groups, while the lowest rate was among 10–14 year olds (Figure 32.2).



## INJURY HOSPITALISATIONS

**Key national indicator: Injury hospitalisation rate for children aged 0–14 years**

In 2006–07, among children aged 0–14 years:

- There were around 59,000 hospital separations for injury—a rate of 1,462 per 100,000 children, representing 11% of all hospitalisations for children. The hospital separation rate was 4% lower in 2006–07 than in 1998–99.
- Boys were overall 60% more likely to be hospitalised for injury than girls, but this varied by age—from 10–40% among infants, 1–4 year olds and 5–9 year olds, to more than twice as high among 10–14 year olds (Table 32.1).
- Injury hospital separation rates were lowest among infants, although injury death rates were highest in this age group.

The cause of an injury provides important information for developing preventive strategies to reduce the risk of serious injury to children.

In 2006–07, among children aged 0–14 years:

- Falls were the most common reason for injury hospitalisation of children, accounting for around 40% of all injury separations. Falls were the leading cause of hospitalised injury for each age group.

**Table 32.1: Injury hospital separation rate for children aged 0–14 years, leading specific causes of injury, 2006–07 (per 100,000)**

	Age group	Falls	Land transport accidents	Accidental poisoning	Burns and scalds	Assault	All injuries
Boys	< 1 year	338.9	18.7	43.9	96.4	68.4	807.4
	1–4 years	737.9	94.8	173.8	113.2	16.9	1,857.9
	5–9 years	771.6	227.1	15.1	19.5	8.1	1,554.3
	10–14 years	755.1	514.3	10.6	13.8	40.9	2,156.4
	0–14 years	728.3	278.1	56.5	46.9	25.7	1,790.7
Girls	< 1 year	349.3	14.4	34.0	59.0	43.9	727.3
	1–4 years	556.7	55.6	144.7	85.0	11.4	1,398.0
	5–9 years	622.4	137.9	10.3	16.4	5.8	1,122.4
	10–14 years	348.4	177.7	14.1	11.3	17.0	971.5
	0–14 years	492.8	122.1	47.9	35.2	13.7	1,115.1
<b>All children</b>	<b>0–14 years</b>	<b>613.7</b>	<b>202.2</b>	<b>52.3</b>	<b>41.2</b>	<b>19.8</b>	<b>1,461.8</b>

*Notes*

1. Refer to Table A1.3 for ICD-10-AM codes.
2. Exposure to inanimate mechanical forces, accidental exposure to other and unspecified factors, and exposure to animate mechanical forces were also leading causes of injury hospitalisation for children. These categories are diverse and are not useful for reporting purposes.

Source: AIHW National Hospital Morbidity Database.

- Land transport accidents (including both traffic and non-traffic) accounted for 8,200, or around one in seven (14%), injury hospitalisations of children. Rates differed considerably with age, accounting for 2.2% of injury hospitalisations among infants and increasing to more than one-fifth (22%) among 10–14 year olds. Of all children hospitalised for land transport accidents, pedal cyclists were most likely to be hospitalised (45%), followed by motorcyclists (22%).
- There were distinct differences in age patterns of hospital separations for different causes of injury. For example, hospital separations for assault were more common among infants than children aged 1–14 years, and hospital separations for burns and scalds were highest among infants and young children (1–4 years). Hospital separation rates for accidental poisoning were highest among young children (1–4 years).

## Assault

**Key national indicator:** Assault hospitalisation rate for children aged 0–14 years

In 2006–07, among children aged 0–14 years:

- There were around 800 hospital separations due to assault—a rate of 20 per 100,000 children (Table 32.1).
- Hospital separations for assault were more common among infants than children aged 1–14 years, and were almost twice as common among boys as girls.
- In 45% of hospitalised cases for assault, the perpetrator was either a parent, carer or other family member.
- The most common form of assault leading to hospitalisation was assault by bodily force (43% of assault hospital separations among children).
- The assault hospital separation rate decreased by 14% between 1998–99 and 2006–07, with the rate of decline for girls greater than for boys over this period (20% and 11% decline, respectively).

## Intentional self-harm

**Key national indicator:** Intentional self-harm hospitalisation rate for children aged 10–14 years

In 2006–07, among children aged 10–14 years:

- There were around 570 hospital separations for intentional self-harm—a rate of 41 per 100,000 children, a 35% increase since 1998–99 (30 per 100,000 children). This has been driven by an increase of almost 50% in the rate for girls, from 47 to 70 per 100,000 children. By contrast, the rate for boys was the same in 2006–07 as in 1998–99 (13 per 100,000 children).
- The majority (84%) of intentional self-harm hospital separations were for girls (a rate of 70 per 100,000 children compared with 13 for boys).

## How does injury mortality and hospitalisation vary across population groups?

The rate of injury mortality and morbidity is higher among certain population groups, such as Aboriginal and Torres Strait Islander children, and children living in remote areas.

### Aboriginal and Torres Strait Islander children

Among children aged 0–14 years:

- The injury death rate for Indigenous children was more than 3 times that for non-Indigenous children in 2002–2006 (data from Queensland, Western Australia, South Australia and the Northern Territory only).
- The injury hospital separation rate among Indigenous children was 40% higher than for other children in 2006–07—1,941 per 100,000 children compared with 1,378 (excludes data from Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory). The leading causes of injury hospital separation for Indigenous children were the same as for other Australian children—falls, land transport accidents, accidental poisoning, burns and scalds, and assault—although the rates of each of these were much higher for Indigenous children (see also *Part IX*).

### **Remoteness**

Among children aged 0–14 years:

- Children in *Remote and very remote* areas experienced the highest injury death rate, at more than 4 times the rate in *Major cities* in 2004–2006 (20 per 100,000 children compared with 4). The higher injury death rate in *Remote and very remote* areas may be partly explained by the high proportion of Indigenous children living in these areas and the higher injury death rate occurring in this group. Indigenous children accounted for less than 5% of the Australian child population in 2006, yet comprised more than one-third of all children living in *Remote and very remote* areas.
- In *Remote and very remote* areas, the injury hospital separation rate for children was 60% higher than in *Major cities* in 2006–07—2,136 per 100,000 children compared with 1,325. For assault, the hospital separation rate was 6 times as high among children in *Remote and very remote* areas than among children in *Major cities* (74 and 13 per 100,000 children, respectively).

## 33 School relationships and bullying

Children who are bullied may have higher absenteeism, lower academic achievement, physical and somatic symptoms, anxiety and depression, social dysfunction, and alcohol and substance use.

No national data are currently available on bullying due to definition and measurement difficulties.

An essential function of all Australian schools is to promote and provide a supportive learning environment in which all students can expect to feel safe (MCEETYA 2005). School connectedness and supportive social relationships have been associated with positive child outcomes such as lower levels of absenteeism, aggression, substance use and sexual risk behaviour, and higher levels of academic achievement and self-esteem among children (Hopkins et al. 2007; Springer et al. 2006). School bullying removes that safe environment.

In Australia, there is currently no agreed definition for bullying; however, the most commonly cited definition is the 'repeated oppression, psychological or physical harm, of a less powerful person by a more powerful person or group of persons' (DEST 2006). Bullying typically involves a power imbalance and deliberate acts that cause physical, psychological and emotional harm (Lodge 2008). It can either be direct (for example, hitting and teasing) or indirect/covert (for example, spreading gossip, deliberately excluding or enforcing social isolation, and sending malicious text messages) (DEST 2007). Bullying often occurs because of differences between the bullies and the victims, such as culture, ethnicity, age, ability or disability, religion, body size and physical appearance, personality, sexual orientation, and economic status (Rigby 2009).

Bullying in Australian schools is widely recognised as a problem, with over 20% of males and 15% of females aged 8 to 18 years reporting being bullied at least once a week (Rigby & Slee 1999).

The negative consequences of school bullying include higher absenteeism in children who are bullied, lower academic achievement and consequent lower vocational and social achievement, physical and somatic symptoms, anxiety, social dysfunction, depression, school failure, and alcohol and substance use (Lodge 2008; Spector & Kelly 2006).

### ANTI-BULLYING PROGRAMS

Concern about bullying in schools has resulted in numerous schools in Australia and overseas developing and implementing anti-bullying programs (Rigby & Thomas 2002). An evaluation of the effectiveness of anti-bullying programs in reducing bullying among children aged 5 and 12 years, between 1985 and 2001, found reductions in overall bullying behaviour for the majority of schools with anti-bullying programs (Rigby 2002a, 2002b). The largest reported reduction in bullying was found by Olweus (1991) in Norway in the 1980s, with reductions of 50% or more in bully or victim problems, reductions in antisocial behaviour, and improved student satisfaction with school life and the social climate of the classroom. The Friendly Schools and Families Program, an evidence-based program in Australia, has also shown a very significant reduction in bullying behaviour (Edith Cowan University 2008).

In Australia, the House of Representatives Standing Committee on Employment, Education and Training responded to the issue of bullying in Australian schools in a 1994 inquiry on violence in schools. The inquiry found that bullying was a major problem in schools and recommended the development of intervention programs to reduce school bullying (House of Representatives Standing Committee on Employment, Education and Training 1994).

The Ministerial Council on Education, Employment, Training and Youth Affairs, through its Taskforce on Student Learning and Support Services, has developed a National Safe Schools Framework to help schools and their communities tackle bullying and violence, among other issues. Jurisdictions report on their strategies and efforts to provide safe, supportive learning environments through the annual *National report on schooling in Australia* (MCEETYA 2008c, and earlier years).

## HOW TO MEASURE BULLYING IN SCHOOLS

There are a number of important aspects to consider when measuring bullying, including the severity (type of bullying and frequency) and the effect that bullying has on the child, which may vary depending on children's resilience.

A widely used instrument to measure bullying behaviours in school-aged children is the Olweus Bully/Victim Questionnaire. This questionnaire measures bully and victim problems such as exposure to various physical, verbal, indirect, racial or sexual forms of bullying; various forms of bullying other students; where the bullying occurs; pro-bully and pro-victim attitudes; the extent to which the social environment (teachers, peers, parents) is informed about and reacts to the bullying; victims' experiences and feelings of acceptance by classmates, negative self-evaluations and depressive tendencies (Jimerson & Furlong 2006; Olweus 1996).

Rigby and Slee (1993) used the Peer Relations Questionnaire to estimate the prevalence of bullying in schools and to determine how children feel about bullying, how they typically react towards bullying in terms of the frequency or intensity of the bullying, and what they are prepared to do about it. Information was also collected on how children are affected by bullying depending on the child's resilience.

The Strengths and Difficulties Questionnaire collects information about children's risk of developing a clinically significant behavioural problem (Goodman 2001). This questionnaire has been widely used within Australia and has good reliability and validity. The questionnaire collects information from parents on whether their child (aged 4–12 years) was 'picked on' or bullied by other children or young people. However, it does not incorporate questions on the severity, regularity or effects of bullying.

## HOW MANY CHILDREN ARE BULLIED IN AUSTRALIAN SCHOOLS?

**Key national indicator:** Under development

There is currently no indicator or national data source available for school relationships and bullying, due to definition and measurement difficulties. Further consultation and research are required in order to identify the most appropriate tool to use in measuring and collecting information on relationships and bullying in the Australian school context.

Victorian data from the Strengths and Difficulties Questionnaire are presented here in the interim. According to the 2006 Victorian Child Health and Wellbeing Survey, around 24% of parents reported that it was either certainly or somewhat true that their child was bullied (Vic DHS 2006).

## 34 Child abuse and neglect

Abuse and neglect victims may experience lower social competence, poor school performance, impaired language ability, and are at increased risk of criminal offending and mental health problems.

In 2007–08, there were 7.4 child protection substantiations per 1,000 children aged 0–12 years. Indigenous children were over-represented at 8 times the rate of other children.

There is a demonstrated relationship between the health and wellbeing of children and the environment in which they grow up. Children who are raised in supportive, nurturing environments are more likely to have better social, behavioural and health outcomes (McCain & Mustard 2002; Stanley et al. 2003). The reverse is also true: children who have been abused or neglected emotionally or physically often have poor social, behavioural and health outcomes immediately and later in life. Abuse and neglect victims may experience lower social competence, poor school performance and impaired language ability, a higher likelihood of criminal offending, and mental health issues such as eating disorders, substance abuse and depression (Chartier et al. 2007; Gardner 2008; Zolotor et al. 1999). The short- and long-term consequences of abuse may be related to the type, severity and duration of abuse, and the context in which it occurs.

The interrelationship of multiple risk factors can create complex situations that place children at higher risk of abuse and neglect. Family stressors such as financial difficulties, limited social support, domestic violence, mental or physical disability, alcohol and substance abuse and problems with unsafe, unsanitary or uninhabitable housing all contribute to the level of risk of abuse and neglect (Layton 2003; Tennant et al. 2003; Vic DHS 2002). Many of these factors are interrelated and therefore exacerbate the problems faced by some families.

Child abuse and neglect has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information and state and territory data). Child abuse and neglect is also being tackled by the Australian Government through the *National framework for protecting Australia's children*. This aims to increase coordination between governments and non-government organisations, with a focus on

improving child protection through prevention, early intervention and best practice strategies (FaHCSIA 2008a).

### MEASURING CHILD ABUSE AND NEGLECT

There are no reliable data on the prevalence of child abuse and neglect in Australia, mainly due to the difficulties in defining measures and collecting data. Available data relate to situations where children have come to the attention of child protection authorities, but these cases are an unknown proportion of all abuse and neglect cases in the community.

In Australia, child protection is the responsibility of the state and territory governments. The AIHW collects and reports national data on child protection notifications, investigations and substantiations; children on care and protection orders; and children in out-of-home care, for children aged 0–17 years (Box 34.1). Child protection data are reported annually (see AIHW 2009c and earlier issues).

While the broad processes in state and territory child protection systems are similar, child protection legislation, policies and practices vary. Variations between jurisdictions in recorded cases of abuse or neglect may reflect these differences in each jurisdiction, rather than a true variation in the levels of child abuse and neglect (see Bromfield & Higgins 2005). Trend data must also be interpreted with caution, as increases over time may reflect more children requiring a child protection response, but are more likely to be the result of increased community awareness or changes to policies, practices and data reporting methods. These differences should be noted when interpreting child protection data across jurisdictions and over time.

**Box 34.1: Definitions of notification, investigation and substantiation**

A child protection **notification** is an allegation of child abuse or neglect, child maltreatment or harm to a child that is made to an authorised department. Notifications can be made by persons or organisations, for example, a concerned relative, friend or neighbour, teacher or school, police, or health professional.

**Investigation** is the process of obtaining more detailed information about a child who is the subject of a notification, and the assessment of the degree of harm or risk of harm to the child. A finalised investigation refers to an investigation where an outcome has been reached; that is, the notification is substantiated or not substantiated.

**Substantiation** refers to the conclusion, after investigation, that a child has been, is being or is likely to be abused or neglected or otherwise harmed. An appropriate level of continued involvement by the state or territory child protection and support services would then be made. This generally includes the provision of support services to the child and family. In situations where further intervention is required the child may be placed on a **care and protection order** or in **out-of-home care**.

Source: AIHW 2009c.

**CHILD PROTECTION SUBSTANTIATIONS**

**Headline Indicator:** Children aged 0–12 years who were the subject of a substantiation of a notification received in 2007–08

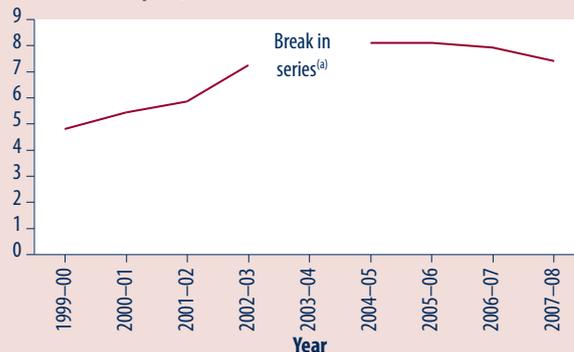
Nationally, among children aged 0–12 years:

- Around 26,200 children were the subject of one or more substantiations of a notification received in 2007–08—a rate of 7.4 per 1,000 children.
- Between 1999–00 and 2004–05 the substantiation rate increased by 59% (Figure 34.1), before levelling off and then declining from 2005–06 to 2007–08.
- Substantiation rates were highest for infants (16 per 1,000 children)—at least twice the rate recorded for older children (7.5 per 1,000 for 1–4 year olds,

6.5 and 5.8 per 1,000 for 5–9 and 10–12 year olds, respectively). This is partly due to an increased focus on early intervention for infants, as infants are recognised as requiring extra care and protection.

- The main type of abuse reported was emotional abuse, reported in 39% of substantiations, followed by neglect (28%), physical abuse (24%) and sexual abuse (9%).

**Substantiations per 1,000 children**



(a) In 2003–04, New South Wales was unable to provide data due to the implementation of a new data system. Because New South Wales accounts for the largest number of substantiations, a national rate cannot be calculated for this year.

Note: Trend data must be interpreted with caution as changes over time may reflect changes in community awareness regarding abuse and neglect and/or changes to jurisdictional policies, practices and reporting methods.

Source: AIHW National Child Protection Data Collection.

**Figure 34.1: Children aged 0–12 years who were the subject of a substantiation of a child protection notification received in a given year, 1999–2000 to 2007–08**

**CARE AND PROTECTION ORDERS**

If a child has been the subject of a child protection substantiation, there is often a need for state and territory child protection and support services to have continued involvement with the family. The relevant department generally attempts to protect the child through the provision of appropriate support services to the child and family. In situations where further intervention is required, the department may apply to the relevant court to place the child on a care and protection order. Recourse to the court is usually a last resort—for example, where supervision and counselling are resisted by the family, where other avenues for resolution of the situation have been exhausted, or where removal of the child to out-of-home care needs legal authorisation. Not all applications for an order will be granted. Data on care and protection orders may also include legal processes other than formal legal orders, such as administrative arrangements or care applications, which relate to the care and protection of

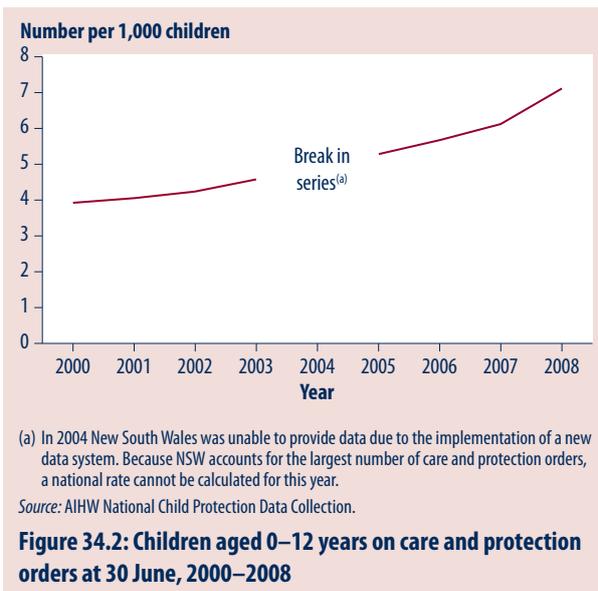
children. Children may be placed on care and protection orders for reasons other than abuse and neglect—for example, in situations where the parents are deceased, ill or otherwise unable to care for the child, or where there is an irreversible breakdown in the child–parent relationship.

**Key national indicator:** Rate of children aged 0–12 years who are the subject of care and protection orders

Among children aged 0–12 years in 2008:

- Around 25,000 children were on care and protection orders (7.1 orders per 1,000 children), an 88% increase since 2000, when the rate was 3.9 per 1,000 children (Figure 34.2).
- Infants were less likely to be on a care and protection order than older children (4.2 orders per 1,000 infants compared with 7 for older children).

The increase in the number of children on care and protection orders partly reflects the increasing number of families that are considered unable to adequately care for children, but may also be due to changing community standards in relation to child safety. Some of the increase may also be a flow-on effect from the greater number of cases substantiated over the last 5 years and the accumulation of children in the system as children remain on orders for longer periods of time. The increased duration of care and protection orders reflects the increasing complexity of family situations faced by these children (Layton 2003; Tennant et al. 2003; Vic DHS 2002).



### Are rates of child abuse and neglect different for Aboriginal and Torres Strait Island children?

Aboriginal and Torres Strait Islander children are over-represented in the child protection system. Indigenous 0–12 year olds were the subject of a substantiation of a notification received in 2007–08 at 8 times the rate of other children, and were also on care and protection orders at 8 times the rate of other children. See *Part IX* for further information.

## 35 Children as victims of violence

Physical and sexual assault can have a range of short- and long-term negative effects on the physical and psychological health of children, and increases the risk of later victimising others.

In 2003, there were 12,400 reported victims of physical assault and 7,500 reported victims of sexual assault among children, with three-quarters of sexual assault victims being girls.

Being a victim of violence can be detrimental to a child's health, sense of safety and security, and their feelings about the future. For some children, being victimised may lead to diminished educational attainment and social participation in early adulthood, or result in physical injury, suicidal ideation and behaviour, depression, disability and even death (Arboleda-Florez & Wade 2001; Macmillan & Hagan 2004; Simon et al. 2002). Experience of violence is central to issues of community safety in general, and even more so for children—the most vulnerable members of society.

For many children, their personal experience of violence is as victims of child abuse. Physical and sexual assault can have complex short- and long-term negative effects on the physical and psychological health of children. In particular, a history of child sexual abuse has been associated with psychopathology, depression, anxiety disorder, phobias, panic disorder, post-traumatic stress disorder, substance abuse, and violent and sexual offending later in life (Lee & Hoaken 2007; Molnar et al. 2001; Rick & Douglas 2007). Of major concern is that children who are victimised are at greater risk of perpetrating violence, and international approaches to crime prevention are increasingly recognising the strong links between youth victimisation and offending (see *Chapter 37 Children and crime*). Young victims of violent crime are also more likely than other young people to become victims of violent crime in adulthood (AIC: Johnson 2005).

Australian data show that children are sometimes victims of extreme violence and are particularly vulnerable to certain types of violence. In 2006–07, 27 children aged under 15 years died as the result of homicide (Dearden & Jones 2008, see also *Chapter 32 Injuries*) and in 2003, 41% of all reported sexual assault victims were aged 0–14 years (ABS 2004d).

Obtaining an accurate count of the number of children who are victims of violence is difficult. Many victims are reluctant to report crimes to the police and therefore the actual level of crime experienced by children is likely to be underestimated. Children, in particular, may feel intimidated and reluctant to report personal crimes if the perpetrator is known to them or is in a position of power (for example, they may be older or an authority figure).

### CHILDREN AS VICTIMS OF PHYSICAL AND SEXUAL ASSAULT

The two main sources of information on the criminal victimisation of children are administrative data sets: recorded crime statistics and substantiations of child abuse (see *Chapter 34 Child abuse and neglect*). Since 1993, the ABS has published recorded crime statistics reported to police in each state and territory, according to standard offence categories, and the data for this chapter are based on this data collection. Note that alleged offences may be later withdrawn or not be substantiated, and that many incidents are not reported to the police. Data are from 2003—more recent data are not available.

Victimisation rates from administrative data sources tend to be significantly lower than those based on survey data, as many people do not report crimes to the police. There is currently no national source of information on crimes against children under 15 years of age that are not reported to police or child protection services.

**Key national indicator:** Rate of children 0–14 years who have been the victim of physical or sexual assault

In 2003, physical assault was the most commonly reported crime against children:

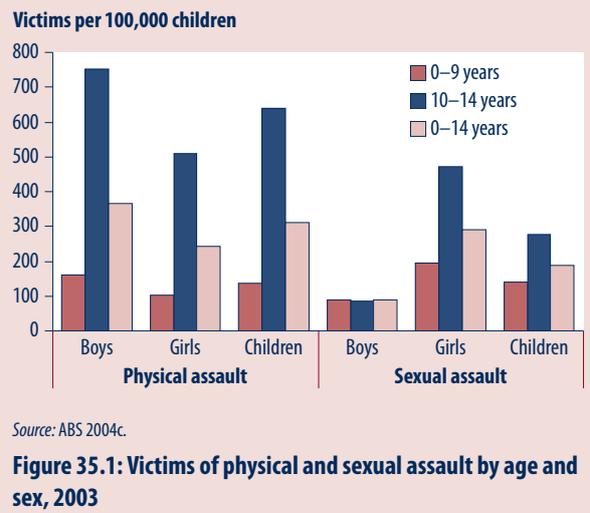
- A reported 12,400 children aged 0–14 years were victims of physical assault—a rate of 309 victims per 100,000 children.
- Children aged 10–14 years were physically assaulted at more than 4 times the rate of children aged 0–9 years.
- Rates were 50% higher among boys than girls (367 per 100,000 compared with 244) (Figure 35.1).

In the same year, around 7,500 children aged 0–14 years, or 187 in every 100,000 children, were the reported victims of sexual assault:

- Sexual assault rates were higher for children aged 10–14 years than for children aged 0–9 years (277 and 142 per 100,000 children, respectively), and three-quarters of reported victims were girls. Rates of reported sexual assault were higher for older girls (aged 10–14 years) than for 0–9 year old girls (more than twice as high), but rates for boys were similar for both age groups (Figure 35.1).

For boys, reported rates of physical assault were much higher than for sexual assault (367 per 100,000 boys and 89, respectively); however, for girls this pattern was reversed (244 per 100,000 girls and 291, respectively).

Children aged 0–14 years were less likely to have been reported victims of physical assault than those aged 15 years and over (309 in every 100,000 compared with 920). However, they were more likely to have been the reported victim of sexual assault (187 in every 100,000 compared with 68) (ABS 2004c).



### Do rates of reported physical and sexual assault vary across population groups?

There are no national data on how rates of reported physical and sexual assault vary across population groups. There is limited evidence suggesting that child sexual assault is more prevalent in rural and remote areas than in urban areas (Neame & Heenan 2004) and is associated with social disadvantage (Fleming et al. 1999). Information available from New South Wales and the AIHW National Child Protection Data Collection indicate that Aboriginal and Torres Strait Islander children are over-represented among victims of physical and sexual assault. See *Part IX* for further information.

## 36 Homelessness

Children who are homeless experience high rates of mental health and behavioural disorders and are socially isolated.

Around 64,800 children, or 16 out of every 1,000 Australian children, accompanied a parent or guardian to a SAAP agency in 2006–07. These children were either homeless or at risk of becoming homeless.

Children who are homeless, whether as part of a family unit or on their own, experience significant negative social and health consequences. Homelessness affects children in a variety of ways. Babies and toddlers may experience delays in physical and mental development (Horn & Jordan 2007), while older children experience high levels of stress, anxiety, loss and grief; have difficulties attending school and making friends; and are socially isolated (Moore et al. 2007). Children who are homeless experience high rates of mental health problems and behavioural disorders during periods of homelessness (Karim et al. 2006; Yu et al. 2008), and the instability and insecurity of temporary housing further contributes to fear and distress (Moore et al. 2007). The effects of homelessness often persist beyond the period of homelessness (Karim et al. 2006; Moore et al. 2007). Parents in homeless families are also likely to be suffering from depression or stress, which may mean they are unable to give their children adequate attention or affection.

The causes of homelessness are complex and may include economic factors such as poverty, unemployment or increased housing costs. Other circumstances, such as an unstable home environment caused by domestic violence, can also lead an individual to experience homelessness (Toro 2007). Factors that may lead to homelessness among children include family problems such as neglect, abuse and conflict, as well as drug and alcohol problems (Martijn & Sharpe 2006; Thrane et al. 2006). Reducing homelessness is a priority for the Australian government, and in 2008 the Australian, state and territory governments set the goal of halving overall homelessness by 2020 (FaHCSIA 2008b).

The largest government response to homelessness in Australia is the Supported Accommodation Assistance Program (SAAP), which is a joint Commonwealth and state/territory government initiative designed to help people who are homeless or at risk of becoming homeless.

The Program funds non-government, community and local government agencies to provide accommodation and support services to a range of groups, including families and children (AIHW 2008h). Children and young people may access SAAP services individually or they may accompany a parent or guardian to a SAAP agency. Information on people seeking assistance from SAAP and the services provided by SAAP agencies are collected and collated by the AIHW. See *Appendix 2* for further information on the SAAP Data Collection.

### HOW MANY CHILDREN ARE HOMELESS?

There are two main data sources that provide a national picture of the number of homeless children in Australia: the Counting the Homeless project and the SAAP data collection. However, obtaining an accurate count of the homeless population is difficult as some people move in and out of homelessness and may never be counted in official statistics, while some may never seek SAAP assistance or are turned away from SAAP services.

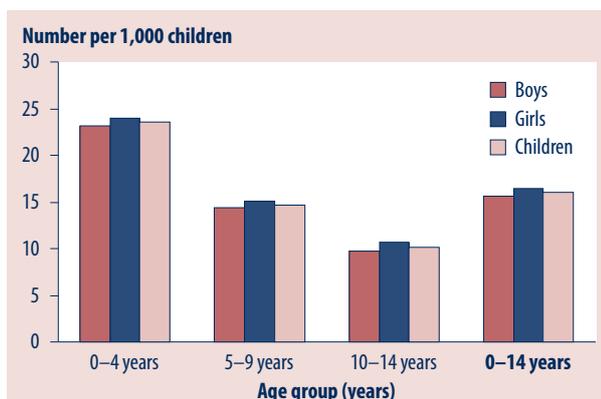
The Counting the Homeless project uses data primarily from the ABS Census of Population and Housing to estimate the number of homeless people in Australia on Census night (ABS 2008c). In 2006, an estimated 105,000 Australians were homeless, equating to 75,000 homeless households. Of these, one in ten, or 7,500 families, were homeless families with children, equating to 16,000 children. Homeless families with children accounted for one-quarter (26%) of the homeless population. In 2006, there were around 12,000 homeless children under 12, accounting for 12% of the homeless population (up from 10% in 2001).

More detailed information is available on those who accessed SAAP services, including why they sought assistance, the types of support required, how long they were supported and their circumstances before and after support. However, the number of SAAP clients and accompanying children is not equivalent to the number of homeless people as the count from the SAAP data collection excludes those who did not approach or were turned away from a SAAP service, and includes some people who were at risk of homelessness (that is, they were not homeless at the time a SAAP agency initially provided support).

**Key national indicator:** Rate of accompanying children aged 0–14 years attending agencies funded under the Supported Accommodation Assistance Program

In 2006–07, among children aged 0–14 years:

- Around 64,800 children, or 16 out of every 1,000 Australian children, accompanied a parent or guardian to a SAAP agency (Figure 36.1).
- Younger children were more likely to have accompanied their parent or guardian to a SAAP agency; there were 24 accompanying children per 1,000 children aged 0–4 years, declining to 15 and 10 for 5–9 year olds and 10–14 year olds, respectively.
- The majority of children accompanied their mother or a female guardian to a SAAP agency (in 86% of accompanying child support periods), in 10% they accompanied a couple and in 4% they accompanied their father or a male guardian.



Source: AIHW 2008h.

**Figure 36.1: SAAP accompanying children, by age and sex, 2006–07**

Clients with accompanying children aged 0–14 years most often gave domestic or family violence as the main reason for seeking SAAP assistance (in 48% of their support periods). Eviction or being asked to leave was the next most frequently reported main reason (in 9%), followed by relationship or family breakdown (8%) and time out from family or other situation (5%).

### Unmet demand for SAAP accommodation

Families (couples or individuals with children) who required immediate SAAP accommodation were more likely to have been turned away from a SAAP agency than people presenting alone during the 2006–07 Demand for SAAP Accommodation collection. Around 69% of couples with children (29 people per day), and 64% of individuals with children (185 people per day) who required immediate accommodation were unable to get it. The comparable turn away rate was 49% for individuals without children (146 people per day) (AIHW 2008d).

Families may have had higher turn away rates than individuals because, once accommodated, family groups tended to stay longer in SAAP accommodation. In 2006–07, couples with children and individuals with children had average stays in SAAP accommodation of 144 days and 68 days, respectively, while individuals without children had a relatively short average stay of 40 days. As families typically stayed longer in SAAP accommodation, fewer places would become available in agencies targeting family groups on any given day, and fewer families requiring new accommodation would gain access.

### Do rates of homelessness vary across population groups?

#### Aboriginal and Torres Strait Islander children

Indigenous Australians were over-represented in the Counting the Homeless project. Although the number of homeless Indigenous children was not presented, 9% of the homeless population were Indigenous, considerably higher than the 2% of the Australian population (ABS 2008e).

Indigenous accompanying children aged 0–14 years were over-represented in SAAP relative to their proportion in the Australian population in 2006–07:

- Around 27% of accompanying children were Indigenous, which was greater than the 5% of the Australian population aged 0–14 years who were Indigenous.
- The rate of Indigenous children accompanying their parent or guardian to a SAAP agency was 7 times that for non-Indigenous children (87 per 1,000 children compared with 12).

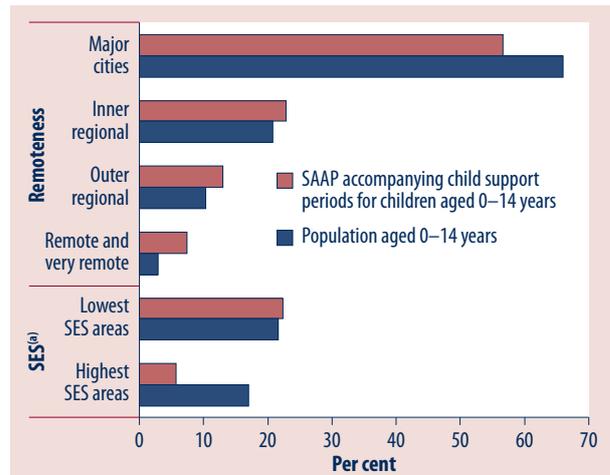
See *Part IX* for further information on Indigenous children experiencing homelessness.

### Remoteness and socioeconomic status

SAAP agencies can be assigned to a remoteness and socioeconomic status category based on the mailing address of the agency. However, it is important to note that this may not match the actual location of the agency or be in the area where the client usually lives.

In 2006–07, among children aged 0–14 years:

- The majority of accompanying child support periods were provided by SAAP agencies located in *Major cities* (57%). Agencies located in the more remote regions provided smaller proportions, ranging from 23% in *Inner regional* areas to 7% in *Remote and very remote* areas (Figure 36.2).
- While 57% of accompanying child support periods were provided in *Major cities*, 66% of children lived there. The reverse was seen for the other regions, where the proportion of accompanying child support periods provided was greater than the proportion of children who lived there.
- Almost one-quarter (22%) of accompanying child support periods were provided by SAAP agencies located in the lowest socioeconomic status (SES) areas, which was in line with the proportion of children who were living in these areas in 2006 (22%). A much smaller proportion of accompanying child support periods were provided by SAAP agencies located in the highest SES areas (6%); lower than the 17% of children in the general population who lived in these areas.



(a) See *Appendix 1 Methods* for explanation of socioeconomic status (SES).

Note: SAAP agencies are assigned to a remoteness and socioeconomic status category based on the mailing address of the agency, and this may not match the actual location of the agency.

Source: AIHW National SAAP Data Collection.

**Figure 36.2: SAAP accompanying child support periods and the child population, by remoteness and socioeconomic status, 2006–07**

## 37 Children and crime

Children in the criminal justice system represent a particularly disadvantaged population and are vulnerable to continued and more serious offending later in life.

In 2006–07, there were 2,337, or 1.7 in every 1,000, children aged 10–14 years were under juvenile justice supervision at some time during the year. Indigenous children were over-represented at 24 times the rate of other children.

During childhood, some children will have an encounter with the juvenile justice system. For most children engaged in criminal activities, the nature of the offence is relatively minor and the behaviour is short-lived. However, for a small number of children this becomes more serious or persistent and results in a juvenile justice supervision order, such as probation or sentenced detention. It is these children who are most vulnerable to continued and more serious offending later in life (Makkai & Payne 2003). Children whose first juvenile justice supervision order occurs before the age of 15 comprise around 40% of all young people under juvenile justice supervision (AIHW 2008i). They represent a particularly disadvantaged and high-risk group of the Australian population, characterised by high levels of socioeconomic stress, low levels of educational attainment, significant physical and mental health needs, and a history of drug and alcohol abuse, physical abuse and childhood neglect (Kenny et al. 2006; NSW Department of Juvenile Justice 2003; Prichard & Payne 2005; Stewart et al. 2002). Childhood neglect is considered one of the strongest predictors of later youth offending.

The juvenile justice system is responsible for children and young people who have committed or allegedly committed a crime. In all states and territories of Australia, 10 years is the youngest age at which a child may enter the juvenile justice system, as children under the age of 10 cannot be charged with a criminal offence. Juvenile justice involves several organisations, each having different roles and responsibilities in dealing with young offenders: the police, who apprehend children who have allegedly committed an offence; the courts, where matters regarding the charges are heard; and the juvenile justice departments, which are responsible for supervising children on community-based and detention orders. A major feature of the juvenile justice

system is the diversion of children from the formal system. This diversion may occur at the level of police or at the courts. If the young person is not diverted and is found guilty of the offence, the court may order the young person to serve an unsupervised sentence, a community-based supervised sentence (such as suspended detention, community service order, probation or good behaviour bond) or a detention sentence.

Children and young people under supervision, both in the community and detention, have poorer physical and mental health and a higher death rate than other young people in the population (Coffey et al. 2004; Kenny et al. 2006; NSW Department of Juvenile Justice 2003).

### CHILDREN UNDER JUVENILE JUSTICE SUPERVISION

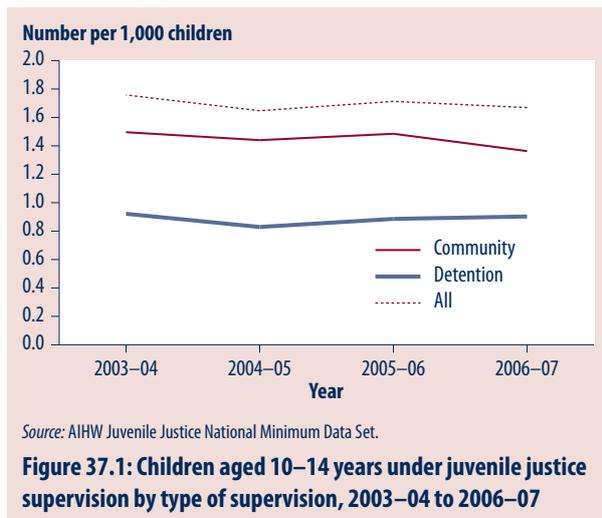
This chapter reports on children aged 10–14 years who are under juvenile justice supervision and includes both children who have been found guilty of an offence and are serving supervised sentences and children who are being supervised while awaiting trial or sentencing. Children may be supervised either in the community or in detention. Children who are supervised by other agencies, such as the police, are not included here.

**Key national indicator:** Rate of children aged 10–14 years who are under juvenile justice supervision

In 2006–07:

- A total of 2,337 children aged 10–14 years were under juvenile justice supervision at some time during the year—a rate of 1.7 per 1,000 children. This rate remained relatively stable between 2003–04 and 2006–07 (Figure 37.1).

- Four-fifths (80%) of children who were under supervision had community-based supervision and over half were in detention during the year—that is, over one-third experienced both community-based supervision and detention at some time during the year.
- The majority of children under supervision were boys—only one in five (20%) supervisions were girls.
- Most (60%) children under supervision were aged 14 years and only 5% were aged 10 or 11 years.



**Figure 37.1: Children aged 10–14 years under juvenile justice supervision by type of supervision, 2003–04 to 2006–07**

Currently there are no national data on the types of offences for which children are under supervision. National data on the cases finalised in the Children’s Courts during 2006–07 (ABS 2008f) showed that the most common principal offence types for those who were given a principal sentence of detention or community-based supervision (such as home detention, suspended detention, community service orders or probation) were:

- unlawful entry with intent (32% and 24% of finalised cases resulting in detention or community-based supervision sentences, respectively)
- acts intended to cause injury (26% and 23%, respectively)
- theft and related offences (13% and 16%, respectively)
- robbery, extortion and related offences (14% of finalised cases resulting in detention sentences) and property damage and environmental pollution (8% of finalised cases resulting in community-based supervision sentences).

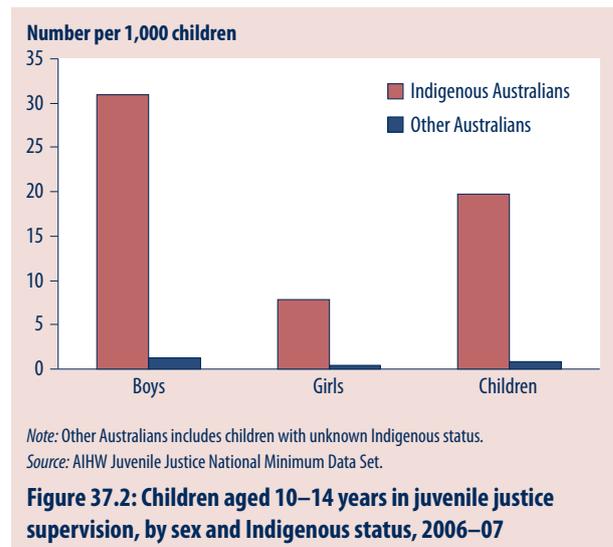
These data are only an indication of the types of offences for which children may be under juvenile justice supervision. Firstly, children may have been

found guilty for other offences in addition to the principal offence reported above; secondly, the cases for some children in supervision may have been finalised before 2006–07; and thirdly, some children may not yet have had their case finalised.

### Are rates of juvenile justice supervision different for Aboriginal and Torres Strait Island children?

Indigenous children aged 10–14 years were over-represented in juvenile justice supervision, accounting for more than half of all children under supervision in 2006–07. Indigenous children were 24 times as likely to have been under juvenile supervision at some time during the year as other Australian children (24 and 21 times for Indigenous boys and girls, respectively) (Figure 37.2).

See *Part IX* for further information on Indigenous children under juvenile justice supervision.



**Figure 37.2: Children aged 10–14 years in juvenile justice supervision, by sex and Indigenous status, 2006–07**

### Risk factors for youth offending

National data on the risk factors that may lead to youth offending are not available. However, surveys of young people in detention and under community-based supervision in New South Wales (Kenny et al. 2006; Weatherburn et al. 1997) have found that:

- Nearly half of those in detention and one-quarter of those under community-based supervision had parents who had been imprisoned.

- Eleven per cent of those in detention and 5% of those under community-based supervision had a parent currently incarcerated.
- Between 30% and 40% of those in detention or under community-based supervision had experienced physical abuse, 11–14% had experienced sexual abuse and between one-third and one-half had experienced neglect.
- There were low levels of intellectual performance and educational attainment.
- Levels of mental illness were very high.

Social and economic stress, such as poverty, unemployment, one-parent families, residential instability and crowded dwellings, has also been linked with juvenile participation in crime (Weatherburn et al. 1997).

### How does Australia perform internationally on crime indicators?

Limited data are available on the number of young people under juvenile justice supervision internationally. Available data for the number of children aged 10–14 years in juvenile detention on an average day during 2006–07 show that:

- Children in Australia were around twice as likely to be detained as children in England and Wales (Table 37.1).
- Children in the United States were 5 times as likely to be detained as children in Australia.

**Table 37.1: Children aged 10–14 years in juvenile detention on an average day, selected countries, 2006–07**

	Australia	England and Wales	United States
Number	181 <sup>(a)</sup>	196 <sup>(b)</sup>	13,758 <sup>(c)</sup>
Number per 100,000	12.9	5.9	66.8

(a) Average daily number in juvenile detention during July 2006 and June 2007.

(b) Average daily number in juvenile detention between April 2006 and March 2007.

(c) Number in juvenile detention on 22 February 2006.

Sources: AIHW 2008i; Office for National Statistics 2008; Sickmund et al. 2008; US Census Bureau Population Division 2008; Youth Justice Board 2008.



# Part VIII

## HOW WELL IS THE SYSTEM PERFORMING IN DELIVERING QUALITY HEALTH, DEVELOPMENT AND WELLBEING ACTIONS TO AUSTRALIA'S CHILDREN?

Many factors influence the health, development and wellbeing of Australian children. Most of the factors relevant to children—health status, health behaviours, socioeconomic and environmental factors, and the influence of families and communities—have been discussed in previous parts of this report. In addition to these, the capacity of systems to deliver high-quality services plays a major role in influencing the health and wellbeing of children.

In reference to health systems, the goals shared by OECD countries are to provide care that is accessible and high-quality, responsive to the population it serves, affordable and cost-effective (OECD 2004). Much work has been done in the measurement of health system performance. The National Health Performance Framework measures health system performance by the following components: effective, appropriate, efficient, responsive, accessible, safe, continuous, capable and sustainable (NHPC 2001). The same principles can be applied to the performance of systems other than health.

*Part VIII* presents indicators used to measure some of these components, and extends beyond the health system to look at quality child care and child protection resubstantiations. The indicators presented in this part are limited by the availability of information and the suitability of reporting on system performance indicators for children.

The following indicators are included in *Part VIII* to reflect how well systems are performing in delivering quality health, development and wellbeing actions to Australia's children:

- neonatal hearing screening
- childhood immunisation
- survival for leukaemia
- quality child care
- child protection resubstantiations.

The following table shows how children fare across the various indicators presented in *Part VIII*, and whether there have been any improvements over time.

Indicator		Value	Trend
<b>Neonatal hearing screening</b>	Children identified as requiring a hearing aid who are then fitted with a hearing aid by 6 and/or 12 months of age	Data not available	..
<b>Childhood immunisation</b>	Children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age (2008)	93%	✓
<b>Survival of leukaemia</b>	Five-year relative survival rate for leukaemia in children age 0–14 years (1998–2004)	83%	✓
<b>Quality child care</b>	Under development	Data not available	..
<b>Child protection resubstantiations</b>	Children aged 0–12 years who were the subject of a child protection resubstantiation in a given year	Data not available	..

Key: ✓ = favourable trend; .. = no trend data presented.

## 38 Neonatal hearing screening

Hearing impairment at birth often has major, lasting effects on language and communication. However, early diagnosis and intervention can improve language acquisition and, subsequently, educational outcomes and social development.

No national data are available on children identified as requiring hearing aids, which are then fitted by the age of 6 and/or 12 months.

Hearing impairment in children is associated with delayed language and speech, low educational attainment, increased behavioural problems, decreased psychosocial wellbeing and poor adaptive skills. Children with hearing impairment may have difficulty learning grammar, word order, idiomatic expressions, and other forms of verbal communication (US Preventive Services Task Force 2008). Hearing impairment that is severe enough to require amplification (that is, a hearing aid or cochlear implant) has serious and lasting effects on language development for many children. The estimated prevalence of congenital bilateral permanent hearing loss ranges from 1–3 per 1,000 live births (US Preventive Services Task Force 2008). Until the last decade, congenital hearing impairment among children was usually detected late, not until the age of 2 years or beyond (Wake 2002).

The goal of early hearing screening, diagnosis and treatment is to help children with hearing impairment to develop language and academic skills that are equal to those of children with no hearing impairment. The language development of children with hearing impairment identified in the first 6 months of life is significantly higher than for those identified after 6 months, with 'early-identified' children having language development at 80% of the typical development of children with no hearing impairment. Children diagnosed with hearing impairment after 6 months have language development at only 60% of typical development (Yoshinaga-Itano 2003).

However, early diagnosis does not translate into benefits—early diagnosis is only useful if followed by early intervention. Children with hearing loss who receive very early intervention have better language skills than those with later intervention, independent of the severity of hearing impairment, intelligence, and

socioeconomic status (Kennedy et al. 2006; Moeller 2000; Yoshinaga-Itano 2003). After diagnosis, factors that may affect outcomes in language development and speech perception include the age of fitting with a hearing device, the type of device used (most commonly a hearing aid, but also cochlear implants), the communication and education mode (sign, total communication or oral–aural), and the cause of the child's hearing impairment (Dahl et al. 2003). The quality of medical, audiological and educational intervention is also likely to have a significant impact on developmental outcomes for hearing-impaired children (Yoshinaga-Itano 2003). Quality services during infancy, preschool and primary school are also essential if early diagnosis of hearing impairment is to achieve the desired benefits (Wake et al. 2005).

With this new understanding of the importance of very early identification of congenital hearing loss, many countries have now implemented policies for universal neonatal hearing screening. The focus of these screening programs is on congenital hearing loss, as opposed to acquired or progressive hearing loss that may not be detected in the neonatal period.

There are two key approaches to screening the hearing of newborns—targeted screening of babies with risk factors, or universal screening of all newborns. Around 40–60% of children with congenital hearing loss have a recognised 'at risk' factor (Bailey et al. 2002), but the systematic identification of risk factors poses its own substantial challenges (Russ et al. 2005; Russ et al. 2002). Universal neonatal hearing screening is therefore a more effective approach to ensuring that most congenital cases of significant bilateral hearing impairment are detected early (US Preventive Services Task Force 2008).

## NEONATAL HEARING SCREENING IN AUSTRALIA

In Australia, the implementation of universal neonatal hearing screening has been proceeding since 1998, when Western Australia introduced a partial metropolitan service in Perth. All states and territories now have some degree of neonatal hearing screening. In 2006, universal neonatal hearing screening programs were implemented in New South Wales, Queensland, South Australia and the Australian Capital Territory. Australia's particular challenges include the geographic spread of hospitals in which babies are born, and the difficulties of having appropriate equipment and trained health professionals to undertake the screening in all of these locations, particularly in regional and remote areas. A number of jurisdictions have resolved these issues, while others have yet to do so.

## CHILDREN FITTED WITH HEARING AIDS

**Key national indicator:** Proportion of children identified as requiring a hearing aid who are then fitted with a hearing aid by 6 and/or 12 months of age

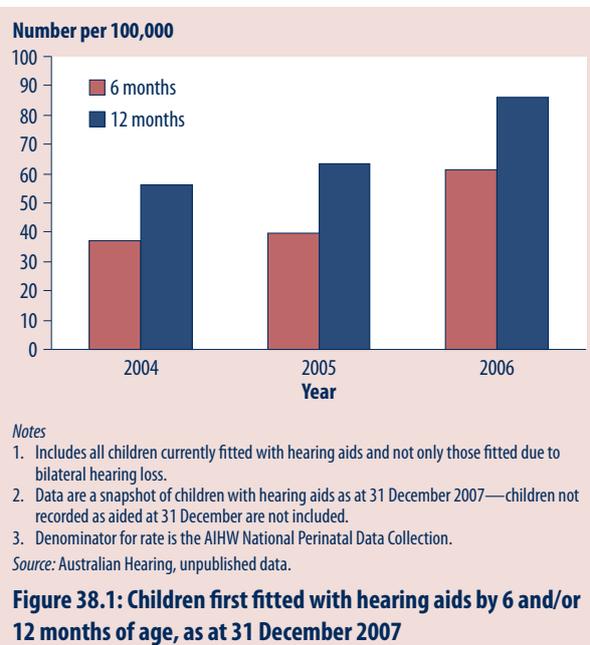
National data are not currently available on children who are identified as requiring a hearing aid, and who are consequently fitted by 6 or 12 months of age.

Data are available on the number of children first fitted with hearing aids by 6 and/or 12 months of age. However, this does not tell us the number of children who required hearing aids but were not fitted with them by 6 and/or 12 months.

As at 31 December 2007:

- Of infants born in 2006, 172 had been fitted with a hearing aid by 6 months, increasing to 241 infants by 12 months (61 and 86 per 100,000 births, respectively) (Figure 38.1).
- The rate of infants fitted with a hearing aid at both 6 and 12 months has increased for infants born between 2004 and 2006—by two-thirds at 6 months and by more than half (54%) at 12 months. This coincides with the increased implementation of neonatal hearing screening over this time throughout Australia.

Based on data from all states and territories on infants receiving neonatal hearing screens, an estimated 41% of Australian infants received a hearing screen in 2004, increasing to 56% in 2005 and 72% in 2006.



## 39 Childhood immunisation

Immunisation has been an important public health success, resulting in greatly reduced infant and child mortality. Immunisation coverage reflects the capacity of the health care system to effectively target and provide vaccinations to all children.

Most 2 year olds on the Australian Childhood Immunisation Register were fully immunised (93%), but immunisation coverage at 6 years of age (88%) was below target as at 30 September 2008.

Immunisation against childhood diseases is one of the most cost-effective public health interventions in preventing childhood morbidity and mortality (Pollard 2007). The rate of immunisation coverage reflects the capacity of the health care system to effectively target and provide vaccinations for all children. Increased immunisation coverage has been one of the most important public health successes since the 1970s, when there was virtually no coverage worldwide (England et al. 2001). Immunisation has resulted in the worldwide eradication of smallpox and the widespread elimination of poliomyelitis, largely achieved by limiting the spread of these diseases through mass immunisation. In developed countries, most infants are now covered for diphtheria, pertussis (whooping cough), tetanus, tuberculosis, measles and poliomyelitis (England et al. 2001). This rapid improvement in immunisation services has resulted in significant declines in infant and child mortality.

Australian children are protected against a number of communicable diseases through routine immunisation as part of the Immunise Australia Program (DoHA 2007). Large-scale immunisation programs exist for a wide variety of communicable diseases including diphtheria, tetanus, pertussis, rotavirus, poliomyelitis, measles, mumps, rubella, *Haemophilus influenzae type b* (Hib), hepatitis B, varicella (chickenpox), meningococcal C and pneumococcal disease. The human papillomavirus (HPV) vaccine has also been introduced from 2007, with vaccination recommended for routine school program immunisation of 12–13 year old girls to help prevent cervical cancer. Hepatitis A vaccination is funded for all Aboriginal and Torres Strait Islander children under 5 years of age living in Queensland, Western Australia, South Australia and the Northern Territory.

The Australian Childhood Immunisation Register (ACIR) was established in 1996 in response to a decline in

childhood immunisation in Australia and an increase in preventable childhood diseases. The ACIR records information on the immunisation status of children aged less than 7 years who are enrolled in Medicare (by the age of 12 months, this is estimated to be over 99% of children); children not eligible to enrol in Medicare can also be added to the ACIR (Medicare Australia 2009a; NCIRS 2007). The program offers financial incentives to parents and general practitioners. These initiatives have been very successful—immunisation coverage in Australia is now the highest on record and, as a result, notification rates of vaccine preventable diseases are low.

Childhood immunisation has been endorsed by the AHMC, CDSMC and the AESOC as a Children's Headline Indicator priority area (see *Part X* for further information and state and territory data).

### IMMUNISATION COVERAGE AMONG AUSTRALIAN CHILDREN

Immunisation coverage needs to exceed 90% in order to achieve and maintain the level of community immunity required to interrupt the ongoing transmission of vaccine-preventable diseases in the population (Lister et al. 1999). Coverage goals for Australia, recommended by the National Health and Medical Research Council in 2000, call for higher than 90% coverage of children at two years of age and near 100% coverage of children at school entry age. Due to a small percentage of conscientious objectors to immunisation and children with medical conditions that preclude immunisation, a 100% immunisation rate is not considered to be achievable.

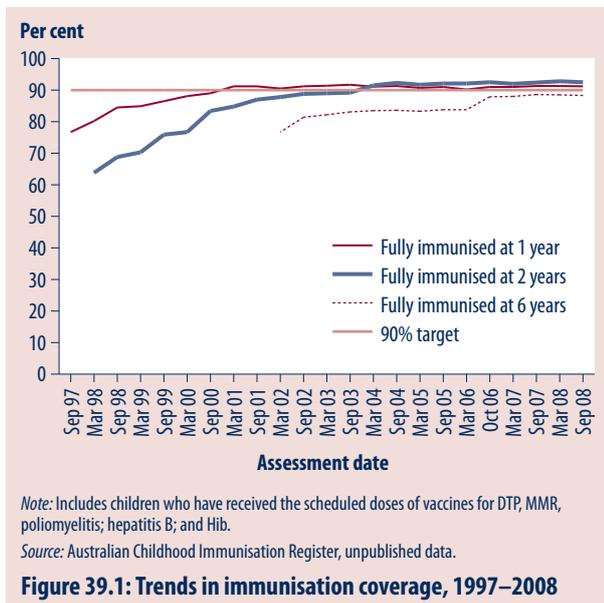
This chapter reports on children at 1, 2 and 6 years of age on the ACIR who are fully immunised for coverage reporting purposes. 'Fully immunised' at these ages

has a different meaning in the context of the ACIR Due and Overdue Rules applied under the National Immunisation Program Schedule. ACIR coverage reflects a fully immunised child as having received the specified number of doses of the following vaccines: diphtheria, tetanus and pertussis (DTP); measles–mumps–rubella (MMR); poliomyelitis; hepatitis B; and Hib. In the context of the National Immunisation Program Schedule, a fully immunised child has received the scheduled doses of all vaccines listed above, as well as rotavirus, varicella, meningococcal C and pneumococcal conjugate for children up to 2 years of age. In time, the ACIR coverage definition of full immunisation may be expanded to cover all childhood vaccines included on the National Immunisation Program Schedule.

**Headline Indicator:** Proportion of children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age

As at 30 September 2008:

- Most 1 and 2 year olds were fully immunised (91% and 93%, respectively), coverage at these ages has been relatively stable since 2002. The 90% coverage target was met in 2000 for 1 year olds, and in 2003 for 2 year olds (Figure 39.1).
- The coverage at 6 years (88%) was below the near-100% target for children of school-entry age, and was 3–5 percentage points lower than for children aged 1 or 2 years. This lower coverage is due to children not receiving the scheduled doses of DTP, poliomyelitis and MMR vaccines at 4 years of age.



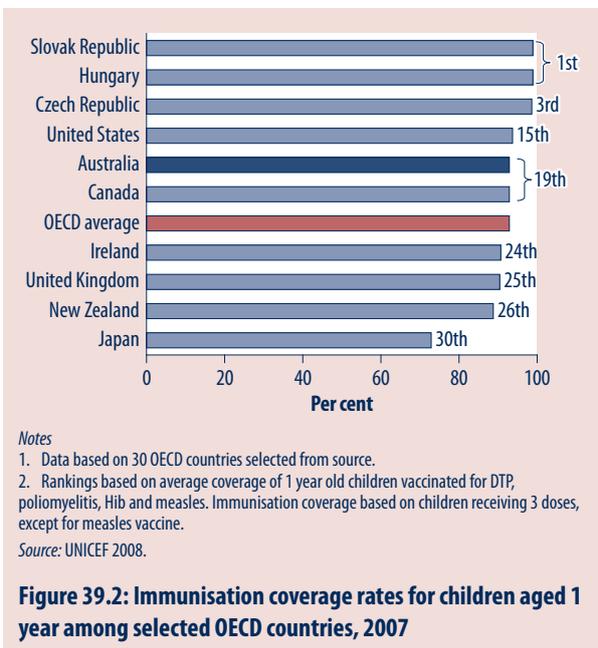
**Figure 39.1: Trends in immunisation coverage, 1997–2008**

### Is immunisation coverage different for Aboriginal and Torres Strait Islander children?

Immunisation coverage at 1 year of age was lower among Indigenous children than for other children in 2007; however, by 2 years of age the proportions of fully immunised children were comparable (NCIRS 2008). See *Part IX* for more information on immunisation among Indigenous children.

### How does Australia's immunisation coverage compare internationally?

Australia ranked unfavourably compared with other OECD countries for immunisation coverage among children aged 1 year. Australia ranked 19<sup>th</sup> out of 30 OECD countries with a combined average of 93% for DTP, poliomyelitis, Hib and measles vaccine in 2007 (Figure 39.2). The highest immunisation coverage was for the Slovak Republic, Hungary and Czech Republic (all recording at least 99%), while Japan had the lowest coverage (73%), due to Hib being excluded from Japan's immunisation schedule.



**Figure 39.2: Immunisation coverage rates for children aged 1 year among selected OECD countries, 2007**

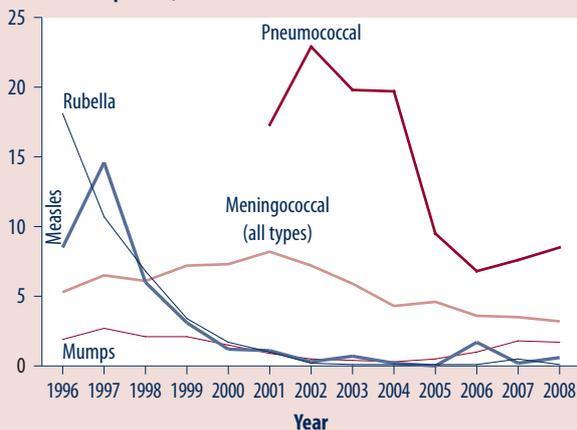
## NOTIFICATIONS OF CHILDHOOD DISEASES

Factors that influence notification rates for vaccine-preventable diseases include the natural history of a disease, immunisation coverage, the particulars of a vaccination program (full protection against pertussis, for example, requires four injections routinely given at 2, 4, 6 months and 4 years of age), and the length of time that an immunisation program has been in place.

In line with increased immunisation coverage, notification rates for a number of vaccine-preventable diseases have fallen dramatically over the last decade (Figure 39.3). For children aged 0–14 years:

- There have been no notifications of poliomyelitis or diphtheria, and only one notification of tetanus, among children between 1996 and 2008 (NNDSS 2009).
- Notification rates for rubella and measles decreased from 18 and 9 notifications per 100,000 children in 1996 to 0.1 and 0.6 respectively in 2008.
- Notification rates for pneumococcal declined rapidly between 2002 and 2008, from 23 to 9 notifications per 100,000 children. Pneumococcal disease was added to the National Immunisation Program Schedule in 2001.

Notifications per 100,000

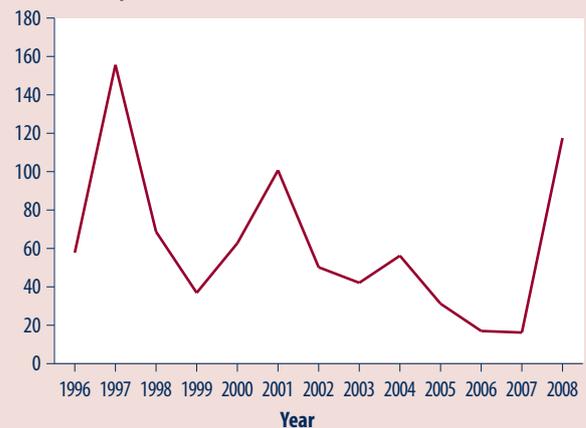


Source: AIHW analysis of National Notifiable Diseases Surveillance System.

**Figure 39.3: Notification trends of selected communicable diseases, children aged 0–14 years, 1996–2008**

The notification rate for pertussis increased sharply between 2007 and 2008 (from 16 per 100,000 to 118). Periodic epidemics of pertussis occur every 3–5 years in Australia (Figure 39.4). This is because the protection from the childhood vaccine decreases in adolescents and adults and they become an important reservoir, facilitating transmission to children who have not completed the recommended dose of the vaccine.

Notifications per 100,000



Source: AIHW analysis of National Notifiable Diseases Surveillance System.

**Figure 39.4: Pertussis notification trend, children aged 0–14 years, 1996–2008**

## 40 Survival for leukaemia

Leukaemia survival among children continues to improve through advances in early detection, treatment, research and technology, and the development of specialised treatment centres and protocols for children.

Five-year relative survival for children with leukaemia increased from 64% to 83% between 1982–1986 and 1998–2004.

Leukaemia refers to a group of cancers that affect the blood and blood-producing tissues of the body. Developing blood cells in the bone marrow become cancerous, multiply in an uncontrolled way, and replace or suppress healthy blood cells in the bone marrow. Cancerous blood cells may spread through the bloodstream to other organs such as the liver, spleen or brain, resulting in serious health complications, including death (Leukaemia Foundation 2007). Leukaemia is the most common cancer in childhood, accounting for almost 40% of childhood cancers between 2001 and 2005 (see *Chapter 5 Chronic conditions*).

Leukaemia is thought to develop from a complex interaction of genetic and environmental risk factors acting before and/or after birth. A small proportion of leukaemia cases have been directly linked to genetic and familial factors, ionising radiation (for example, through radiographs or x-rays) and cancer chemotherapy drugs; however, most have no known cause (Wong & Dockerty 2006). Leukaemia treatment varies depending on the characteristics of the leukaemic cells and their location, and can include chemotherapy, radiotherapy and bone marrow transplant.

Leukaemia survival among children in developed countries has improved considerably since the 1960s, particularly for the most common subtype, acute lymphoblastic leukaemia (McGregor et al. 2007; Ziegler et al. 2005). These improvements have followed developments in medical research and technology, and the creation of specialised treatment centres and protocols for children. Successful treatment of leukaemia depends upon the effectiveness of the health care system in a number of areas, including the early detection of leukaemia, access to appropriate treatment services, collaboration between health care professionals, and ongoing medical

research and clinical trials (McGregor et al. 2007). Despite improvements in survival, leukaemia remained one of the largest contributors to childhood cancer deaths in 2006 (see *Chapter 4 Mortality*), and children who survive may continue to experience long-term side-effects due to treatment (Mody et al. 2008; Ziegler et al. 2005).

### LEUKAEMIA SURVIVAL AMONG AUSTRALIAN CHILDREN

This chapter looks at the 5-year relative survival for leukaemia, and improvements over time. Survival is presented for the two most common types of leukaemia—lymphoid and myeloid—which have very different survival patterns.

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

**Key national indicator:** Five-year relative survival for leukaemia in children aged 0–14 years

The 5-year relative survival for leukaemia among children aged 0–14 years in 1998–2004 was:

- 83%, with no statistically significant differences by gender or age
- statistically significantly higher for lymphoid leukaemia (87%) than myeloid leukaemia (66%)—the most common types of leukaemia among children (Table 40.1).

**Table 40.1: Five-year relative survival for leukaemia, children aged 0–14 years, 1998–2004**

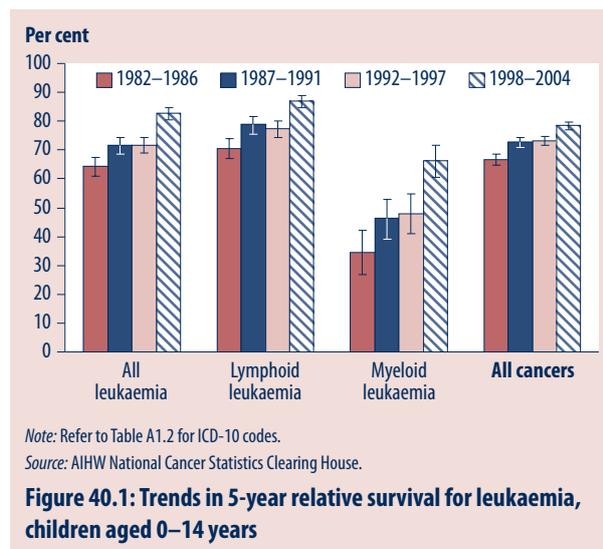
Cancer type		Boys	Girls	Children
All leukaemia	Per cent	80.4	85.2	82.6
	95% CI	77.3–83.1	82.1–87.9	80.4–84.5
Lymphoid leukaemia	Per cent	84.3	90.2	87.0
	95% CI	81.0–87.0	87.1–92.7	84.7–88.9
Myeloid leukaemia	Per cent	66.2	66.7	66.4
	95% CI	58.0–73.2	57.4–74.4	60.4–71.8
All cancers	Per cent	77.6	79.5	78.5
	95% CI	75.7–79.4	77.5–81.4	77.1–79.8

Note: Refer to Table A1.2 for ICD-10 codes.

Source: AIHW National Cancer Statistics Clearing House.

There was a statistically significant increase in 5-year relative survival for leukaemia diagnosed between 1982–1986 and 1998–2004 (an 18 percentage point increase):

- The largest improvement occurred between 1992–1997 and 1998–2004 (an increase of 11 percentage points from 72% to 83%), after a period of very little change between 1987–1991 and 1992–1997 (Figure 40.1).
- Survival increased for both boys and girls—by 17 and 19 percentage points, respectively.
- Survival doubled for myeloid leukaemia over this period, increasing by 32 percentage points, compared with 16 percentage points for lymphoid leukaemia. Despite this, survival for myeloid leukaemia remains lower than that for lymphoid leukaemia.

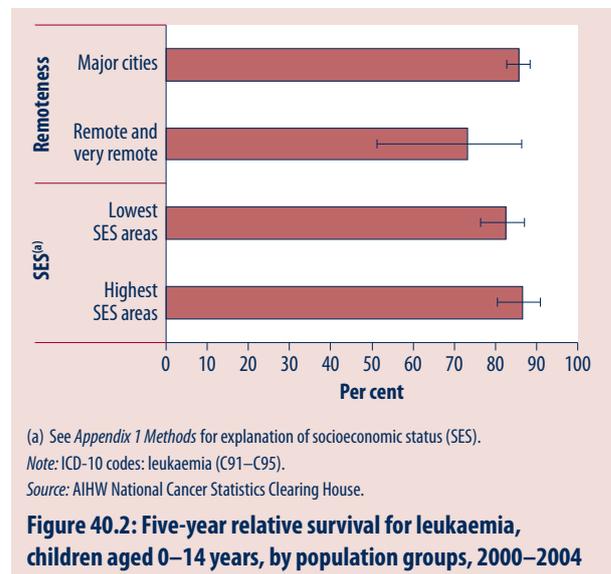


**Figure 40.1: Trends in 5-year relative survival for leukaemia, children aged 0–14 years**

## How does leukaemia survival vary across population groups?

Between 2000–2004:

- Although leukaemia survival appeared higher among children in *Major cities* than in *Remote and very remote* areas (86% compared with 73%), this difference was not statistically significant (Figure 40.2).
- There was no statistically significant difference in leukaemia survival for children by socioeconomic status (87% for children from the lowest socioeconomic status (SES) areas compared with 83% from the highest SES areas) (Figure 40.2).



**Figure 40.2: Five-year relative survival for leukaemia, children aged 0–14 years, by population groups, 2000–2004**

## 41 Quality child care

Good-quality child care provides support for a child's learning, socialisation, development and their transition to school. Conversely, poor-quality child care may be associated with developmental risk.

No national data are available on quality child care due to definition and measurement difficulties.

The substantial and positive effects of quality early childhood care and education on children's social and cognitive development are well established. High-quality and integrated early childhood education and care services are seen as critical to increasing the proportion of children entering school with the basic skills for life and learning (COAG 2006).

There is strong evidence on the importance of birth to 3 years in children's development. The importance of quality child care provision has been increasingly recognised due to the increasing number of children being cared for outside their homes, and an increase in the average time children spend in care during these years (NCAC 2007a).

Extensive research into the effect of the quality of child care in the 'early years', has found high-quality child care to be beneficial to a child as it provides a stimulating, educational and caring environment that helps a child's social, educational and physical development (Cassells et al. 2005). High-quality care has also been found to have positive effects on children's social and emotional wellbeing, and has important social and economic effects on families (Elliot 2006; Harrison 2008). Further, children who attend high-quality child care centres perform better in cognitive and social skills, and are more ready to make the transition to preschool and primary school (House of Representatives Standing Committee on Family and Human Services 2006).

Evidence shows high-quality early childhood education and care can also be an effective intervention for children from socioeconomically disadvantaged backgrounds, and has been found to reduce future social problems such as crime, unemployment and teenage pregnancies (Buckingham 2007; Cassells et al. 2005).

The beneficial effects of child care are also dependent on factors such as the child's home environment, their age, the quality and type of care, time spent in care, stability of care arrangements and temperament of the child (Buckingham 2007).

### HOW TO DEFINE 'QUALITY CHILD CARE'

Identification of the essential elements of high-quality child care is not straightforward. In Australia, there is presently no consensus on how 'quality child care' should be defined. Difficulty arises as to how to measure quality, whether quality means the same things across different types of care settings (such as long day care centres, family day care services, outside school hours services and Indigenous services), and what aspects of quality make a meaningful difference in the outcomes for children.

In relation to the development of strong quality standards, research indicates that the prime structural indicators of quality of formal care, sometimes referred to as the 'iron triangle', are staff to child ratios, qualified staff and group size. These factors affect the quality of interactions that can occur.

There is not, however, definitive evidence on what the actual ratios should be, and there is no research related to Australian settings and qualifications. Research suggests that smaller groups enable children to form caring relationships with one another, engage in meaningful shared experiences and discovery through play. Large groups can lead to a loss of intimacy, can be overly restrictive or controlling, and may lead to detached and uninvolved care giving. Group size affects factors such as noise level, the amount of stimulation and level of confusion. Small groups are particularly important for infants, as they are associated with a lower risk of infection and appear to improve the safety of children (CCCH 2006).

Further consultation and research are required in order to identify the important elements of a key national indicator on quality child care. As a result, there is currently no defined indicator.

**Key national indicator: Under development**

In the absence of a defined indicator, information on child care quality assurance is presented in this chapter. While the quality assurance systems are designed to assess the performance of the child care centres and child care providers according to a set of quality areas and principles, it has been argued that they are not a measure of quality child care as they do not taken into account many of the factors listed in the preceding paragraphs.

## CHILD CARE QUALITY ASSURANCE

Currently in Australia, legislative regulations and accreditation systems are the two mechanisms for ensuring quality in the child care sector. Regulations specify the minimum standards that must be met for the service to operate, and accreditation processes focus on measuring the quality aspects of the services to be delivered (NCAC 2007a).

In December 2007, the COAG agreed to a partnership between the Commonwealth and state and territory governments to develop a national quality framework for early childhood education and care. This will include the development of a new integrated national quality standard and a quality rating system, to align regulatory and accreditation arrangements (Early Childhood Development Sub-group of the Productivity Agenda 2008).

## Child care accreditation status

The National Childcare Accreditation Council publishes statistics on the accreditation status of approved long day care, family day care and outside school hours care services. Of the 5,597 long day care centres that were registered as at 30 June 2008, 4,796 (86%) had completed the five steps to accreditation and of these 4,419 (92%) were subsequently accredited (Table 41.1). While this is similar to the proportion of accredited long day care centres in 2007 (92%), it is a decline in the proportion of accredited long day care centres since 2006 (97%).

**Table 41.1: Accreditation status of approved long day care centres, 2006 to 2008**

	June 2006		June 2007		June 2008	
	Number	Per cent	Number	Per cent	Number	Per cent
Accredited	4,187	97.2	4,208	92.4	4,419	92.1
Not accredited	121	2.8	348	7.6	377	7.9
<i>Total completed five steps to accreditation</i>	4,308	100.0	4,556	100.0	4,796	100.0
New services	735	14.6	804	15.0	801	14.3
<b>Total registered services</b>	<b>5,043</b>	<b>100.0</b>	<b>5,360</b>	<b>100.0</b>	<b>5,597</b>	<b>100.0</b>

Source: NCAC 2006, 2007b, 2008.

## 42 Child protection resubstantiations

Resubstantiation rates are one measure of how well child protection systems are performing in preventing the recurrence of child abuse or neglect.

National data on resubstantiations are not available, as data are not comparable across jurisdictions.

Rates of child protection substantiation and children on care and protection orders are key indicators of reported levels of child abuse and neglect (see *Chapter 34 Child abuse and neglect*). A related indicator, the rate of children who were the subject of child protection resubstantiation, is one measure of how well child protection systems are performing in protecting children from abuse and neglect:

The 'resubstantiation rate' is an indicator of governments' objective to reduce the risk of harm and to prevent the recurrence of abuse and neglect or harm to children. This indicator also partly reveals the extent to which intervention by child protection services has succeeded in preventing further harm (SCRGSP 2009:15.47).

In recent years, state and territory departments responsible for child protection have been increasingly concerned about rising rates of re-notifications and resubstantiations (AIHW 2009c). A Victorian study in 2002 found that key underlying features leading to some families coming into contact with child protection systems, such as low income, substance abuse, mental health issues and the burden of sole parenting, were complex and chronic. The child protection system often did not effectively deal with these problems and many children were subject to re-notifications and resubstantiations. The report noted that helping families to deal with these problems required more sustained and less intrusive support than usually provided. It highlighted the need for strengthened prevention and early intervention services, and improved service responses for children and young people with longer term involvement in the child protection system (Vic DHS 2002).

### RESUBSTANTIATIONS OF CHILD ABUSE AND NEGLECT

The resubstantiation rate is measured as the number of children who were the subject of a substantiation in a year, and who were the subject of a subsequent substantiation within 3 or 12 months. The data are reported against the year of the original substantiation, rather than the year of resubstantiation, and it is important to note that the resubstantiation does not necessarily refer to the same source or risk as the original substantiation (SCRGSP 2009).

Resubstantiation data should be interpreted with caution, as cases of resubstantiation do not necessarily imply that child protection agencies have failed to protect children from repeated abuse. The resubstantiation rate is affected by the finalisation of investigations into notifications of child abuse or neglect, and by factors beyond the control of the child protection system, such as changes in family situations (for example, illness, pregnancy or unemployment), which may place children in danger of being re-abused or neglected (see AIHW 2006b). Given the complexity of this issue, it can not be expected that the resubstantiation rate could ever be zero.

Data on resubstantiations are not comparable across jurisdictions because definitions of substantiation vary considerably, and this has a flow-on effect to rates of resubstantiation (AIHW 2008c; see also *Chapter 34 Child abuse and neglect*). Variations between jurisdictions in recorded cases of child abuse or neglect reflect the different legislation, policies and practices in each jurisdiction, rather than a true variation in the levels of abuse and neglect (see Bromfield & Higgins 2005).

**Key national indicator:** Rate of children aged 0–12 years who were the subject of child protection resubstantiation in a given year

Because data are not comparable across jurisdictions, national data can not be presented on child protection resubstantiations. Furthermore, only data for the 0–17 year age group are available for reporting on this indicator.

In 2006–07, rates of resubstantiation for 0–17 year olds varied considerably between jurisdictions, ranging from 1.8% of substantiations to 12.9% within 3 months, and from 7.9 to 28.2% within 12 months (Table 42.1).

**Table 42.1: Children aged 0–17 years who were the subject of a resubstantiation within 3 and/or 12 months, 2006–07<sup>(a)</sup>**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
<b>Subject of a resubstantiation within 3 months</b>								
Number	1,316	119	681	40	167	46	88	32
Per cent <sup>(b)</sup>	10.0	1.8	6.2	2.8	9.5	4.3	12.9	5.0
<b>Subject of a resubstantiation within 12 months<sup>(c)</sup></b>								
Number	2,866	713	1,691	113	377	156	193	80
Per cent <sup>(b)</sup>	21.8	10.7	15.3	7.9	21.5	14.4	28.2	12.5

(a) Data are not comparable across jurisdictions because definitions of substantiation vary significantly. Refer to SCRGSP 2009:15.46 for further notes related to this data.

(b) Per cent of all children who were the subject of a substantiation.

(c) This includes children who were the subject of a resubstantiation within 3 months.

Source: SCRGSP 2009.

# Part IX

## ABORIGINAL AND TORRES STRAIT ISLANDER CHILDREN

### 43 Health and wellbeing of Indigenous children

Aboriginal and Torres Strait Islander Australians tend to have much worse health than other Australians. On average, they die at younger ages and are more likely to experience disability and reduced quality of life because of ill health (AIHW 2008b). This health disadvantage begins at an early age and continues to adversely affect their wellbeing throughout life. At all ages, the burden of disease and injury among Indigenous Australians is higher than for other Australians. For Indigenous children, this burden is driven by neonatal causes (such as low birthweight), mental disorders, congenital anomalies and asthma.

The health inequality of Indigenous Australians, compared with the rest of the population, reflects broader disadvantage across a range of socioeconomic factors that affect health and wellbeing. There is good evidence from Australia and other developed countries to show that low socioeconomic status, which arises from problems such as low levels of education, employment and income, is associated with poor health and increased exposure to health risk factors (Blakely et al. 2004; Turrell & Mathers 2000). The Indigenous population is disadvantaged on a range of socioeconomic dimensions compared with the non-Indigenous population: they report lower incomes, higher rates of unemployment, lower educational attainment and lower rates of home ownership (AIHW 2007a, 2008b).

This socioeconomic disadvantage places Indigenous Australians at greater risk to factors such as smoking, poor nutrition, alcohol misuse, overcrowded living conditions and violence (ABS & AIHW 2008).

However, conventional measures of socioeconomic disadvantage do not explain all the health differences between Indigenous and non-Indigenous Australians (Carson et al. 2007; Glover et al. 2004). The determinants of health are many and complex—cultural, historical, environmental and socioeconomic factors all contribute to health and wellbeing. Aspects of the living, working and social conditions of Indigenous Australians, along with a reduced sense of control over their own lives, may also explain the generally poorer health of Aboriginal and Torres Strait Islander peoples (AIHW 2008b).

*Part IX* presents an overview of the health and wellbeing of Aboriginal and Torres Strait Islander children, and highlights areas where there are opportunities for further gains. It draws together the information on Indigenous children presented throughout the report, but also includes additional information on issues affecting these children. This Part follows the general framework of the overall report. It begins with a comparative table of indicator results for which data are available, and proceeds to discuss data quality issues, demographics and families, and key issues in the following areas:

- health status
- determinants of health
- health system performance
- early learning and development
- families and communities
- safety and security.

## COMPARATIVE SNAPSHOT OF INDIGENOUS CHILD HEALTH AND WELLBEING

Indicator		Indigenous	Non-Indigenous	Rate ratio	Chapter
<b>How healthy are Australia's children?</b>					
<b>Mortality</b>	Infant mortality per 1,000 live born infants (2006)	12	4.3	2.9	4
	Sudden infant death syndrome (SIDS) deaths per 100,000 live births (2002–2006)	106	20	5.4	4
	Deaths per 100,000 children aged 1–14 years (2006)	39	13	2.9	4
<b>Chronic conditions</b>	Percentage of children aged 0–14 years with asthma as a long-term condition (2004–05)	14	11	1.2	5
<b>Congenital anomalies</b>	Rate of selected congenital anomalies among infants per 10,000 births (1998–2003):				
	neural tube defects	11	4.3	2.6	7
	Down syndrome	11	11	1.0	7
	abdominal wall defects	7	4.3	1.5	7
	orofacial clefts	25	17	1.5	7
<b>How well are we promoting healthy child development?</b>					
<b>Dental health</b>	Percentage of children decay-free (2002):				
	at age 6 years	21	54	0.4	10
	at age 12 years	48	60	0.9	10
	Mean number of decayed, missing or filled teeth (DMFT) at 12 years (2002)	1.8	1.0	1.8	10
<b>How well are Australia's children learning and developing?</b>					
<b>Literacy and numeracy</b>	Percentage of children in Year 5 who achieved at or above the national minimum standards (2008):				
	reading	63	91 <sup>(a)</sup>	0.7	16
	numeracy	69	93 <sup>(a)</sup>	0.7	16
<b>What factors can affect children adversely?</b>					
<b>Teenage births</b>	Age-specific birth rate per 1,000 15–19 year old women (2006)	80	15	5.4	18
<b>Birthweight</b>	Percentage of live born infants of low birthweight (2006)	12	6	2.0	21
<b>Tobacco use</b>	Percentage of children aged 12–15 years who are current smokers (2005)	17	7	2.4	24
<b>What kind of families and communities do Australia's children live in?</b>					
<b>Children in non-parental care</b>	Number of children per 1,000 aged 0–14 years in out-of-home care (2008)	44	5 <sup>(b)</sup>	9.2	28
<b>Parental health status</b>	Percentage of parents with mental health problems (2006)	29	21	*	29
<b>Social capital</b>	Percentage of households with children aged 0–14 years where respondent was able to get support in time of crisis from persons living outside the household	91	95	1.0	31
<b>How safe and secure are Australia's children?</b>					
<b>Injuries</b>	Age-specific death rates from all injuries for children aged 0–14 years, per 100,000 (2006)	21	7	3.2	32
	Injury hospitalisation rate for children aged 0–14 years, per 100,000 (2006–07)	1,941	1,378	1.4	32
	Assault hospitalisation rate for children aged 0–14 years, per 100,000 (2006–07)	106	15	7.2	32
<b>Child abuse and neglect</b>	Children aged 0–12 years who were the subject of a substantiation of a child protection notification received in 2007–08, per 1000	45	6 <sup>(b)</sup>	8.0	34
	Children aged 0–12 years who were the subject of care and protection orders, per 1,000 (2008)	44	5 <sup>(b)</sup>	8.2	34
<b>Homelessness</b>	Number of accompanying children aged 0–14 years attending agencies funded under the Supported Accommodation Assistance Program, per 1,000 (2006–07)	87	12	7.3	36
<b>Children and crime</b>	Number of children aged 10–14 years who are under juvenile justice supervision, per 1,000 (2006–07)	20	0.8	23.8	37
<b>How well is the system performing in delivering quality health and wellbeing actions to Australia's children?</b>					
<b>Childhood immunisation</b>	Percentage of children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age as at 30 September 2008	91	93 <sup>(b)</sup>	1.0	39

\* Difference between Indigenous and non-Indigenous is not statistically significant.

(a) Indicates that the comparison group is 'all children', rather than non-Indigenous children.

(b) Indicates that the comparison group is 'other children', rather than non-Indigenous children.

Note: Rate ratio is Indigenous rate divided by non-Indigenous rate. See *Appendix 1 Methods* for further explanation of rate ratios.

## QUALITY OF INFORMATION ON INDIGENOUS CHILDREN

There has been much progress in collecting information on the health and wellbeing of Aboriginal and Torres Strait Islander peoples over the last decade, but many logistical, analytical and conceptual challenges remain (AIHW & ABS 2006). This is due partly to varying levels of identification of Indigenous people in administrative records and partly to the statistical and practical challenges of surveying a population that is relatively small and less accessible—2.5% of the total population, one-quarter of whom live in remote or very remote areas. Improving both the counting of Indigenous Australians in the ABS Census of Population and Housing and identifying them in administrative data sets are key strategies towards better quality information about the Indigenous population.

For Australia generally, administrative data sets and household surveys are used to provide useful information on specific diseases, risk factors, living conditions, and access to and use of services. These include birth and death registrations, hospital use, disease registers, use of community services, and health and social surveys.

The coverage of Indigenous Australians in birth registrations is improving, but Indigenous deaths registrations are not yet complete enough in all states and territories to provide national estimates. Indigenous identification has been assessed by the ABS and AIHW as adequate for reporting in Queensland, Western Australia, South Australia and the Northern Territory (from 1998 onwards). These four jurisdictions represent around 60% of the Indigenous child population aged 0–14 years in Australia.

Until recently, only data from Queensland, Western Australia, South Australia and the Northern Territory were used to provide information on hospital use by Indigenous Australians. The extent of under-counting of Indigenous people in hospital records has been assessed recently by the AIHW. The results show that there have been significant improvements in the quality of Indigenous identification in both New South Wales and Victoria. Therefore, data from all jurisdictions, except Tasmania and the Australian Capital Territory, can now be used for reporting on hospital use by Indigenous Australians. These six jurisdictions represent 96% of the Indigenous child population aged 0–14 years in Australia.

Refer to *Appendix 1 Methods* for further information on the presentation of deaths and hospital data for Indigenous Australians.

### Data gaps

As discussed, accurately assessing the health and wellbeing of Indigenous children is difficult. Although there are a number of surveys specifically about the Indigenous population, such as the ABS National Aboriginal and Torres Strait Islander Health and Social Survey, these surveys do not collect information for many of the key national indicators in this report.

Additionally, aspects of health, development and wellbeing may be thought about differently by Indigenous Australians, compared with other Australians. This may require the development and use of specific survey instruments for the Indigenous population, which can make comparisons between the population groups difficult.

The small size of the Indigenous child population is a further impediment and not just due to the difficulties of surveying a small population. Estimates based on a small number of events are subject to uncertainty, and data for many of the key national indicators are therefore not sufficiently robust to present.

As a result, there are many areas considered integral to child health, development and wellbeing where there is a lack of robust information to assess how well Indigenous children are faring, or how they compare with non-Indigenous children. In terms of the key national indicators in this report (including the Children's Headline Indicators), robust national data on Indigenous children are not available for almost half of the indicators. Data are not available for indicators in the following areas:

- chronic conditions (new cases of cancer and diabetes)
- disability
- mental health
- breastfeeding
- physical activity
- overweight and obesity
- alcohol use
- survival for leukaemia
- alcohol use in pregnancy

- neonatal hearing screening
- parental health status (parents rating their health as 'fair' or 'poor'; parents with disability)
- early learning (children aged < 1 year being read to by an adult)
- quality child care
- attendance at early childhood education programs
- transition to primary school
- attendance at primary school
- family functioning
- family economic situation
- neighbourhood safety
- school relationships and bullying
- children as victims of violence
- children in grandparent families
- child protection resubstantiations.

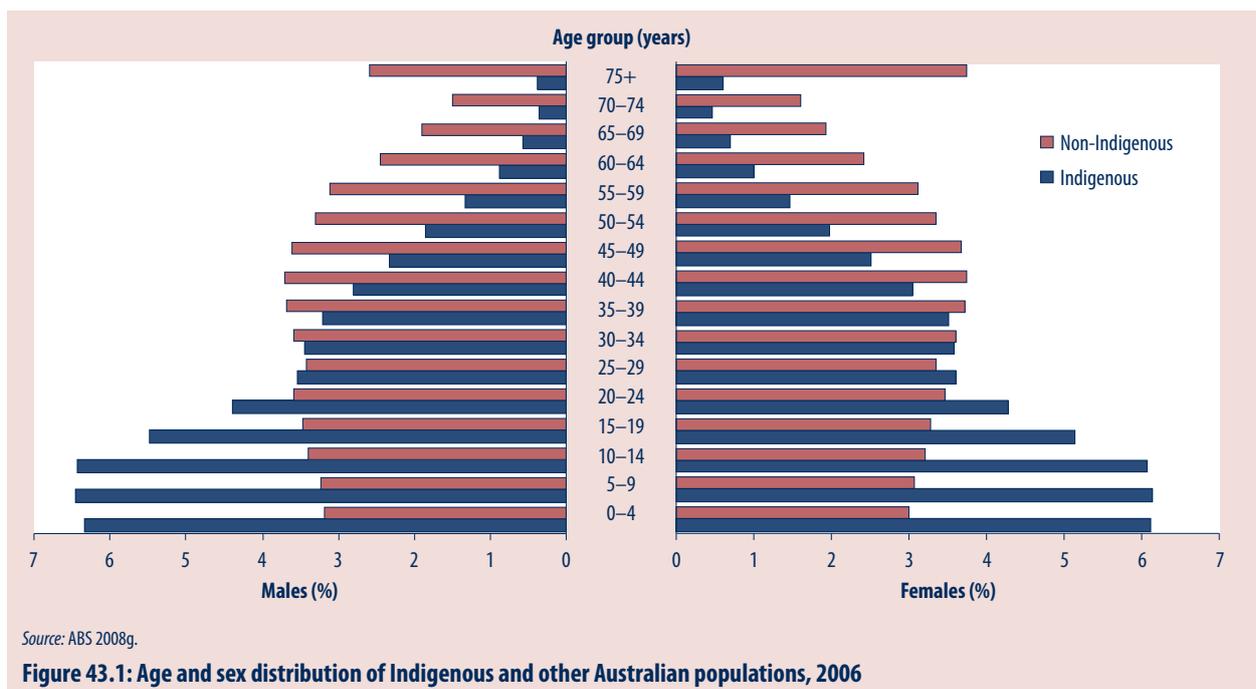
Where national data are not available, information is presented in this report from states and territories, smaller research studies or sources that may not have comparable data for non-Indigenous children.

## INDIGENOUS AUSTRALIAN CHILDREN: DEMOGRAPHIC OVERVIEW

This section describes Australia's Indigenous child population in terms of its size, composition and geographical distribution. It provides a context for the health and wellbeing information presented in this chapter; and, importantly, provides information for service planning and delivery.

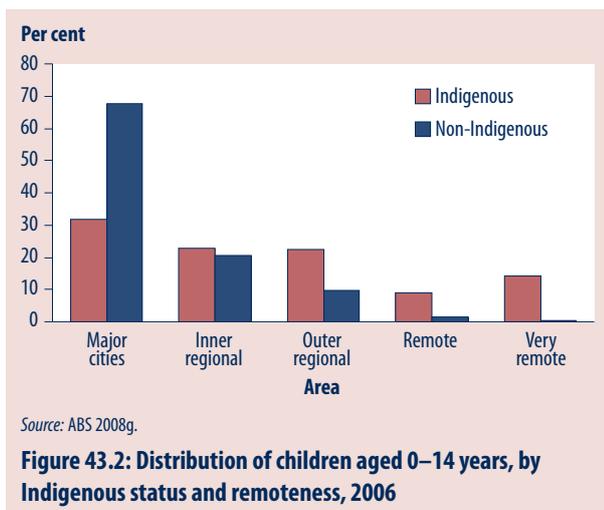
There were an estimated 194,200 Aboriginal and Torres Strait Islander children aged 0–14 years in Australia in 2006, representing 4.8% of all children in Australia (ABS 2008g) (see Table 2.2).

In contrast to the non-Indigenous population, the Indigenous population has a much younger age structure (Figure 43.1). This reflects the higher birth rate among Indigenous women compared with all Australian women (2.4 births compared with 1.9 in 2007), as well as the higher mortality rate among Indigenous Australians. Indigenous children aged less than 15 years make up 38% of the total Indigenous population, whereas non-Indigenous children in this age group represent about 20% of the total non-Indigenous Australian population. Conversely, those aged 65 years and over comprise only 3% of the Indigenous population, compared with 13% of the non-Indigenous Australian population.



### Where do Indigenous children live?

The majority of Indigenous Australian children live in *Major cities and regional areas*—77%, or 149,400 children in 2006. However, a greater proportion of Indigenous children (24%) live in *Remote and very remote* areas compared with non-Indigenous Australian children (3%) (Figure 43.2; see also Table 2.4). Indigenous children accounted for 38% of all children in *Remote and very remote* areas, despite accounting for less than 5% of all children in Australia in 2006.



The majority of Aboriginal and Torres Strait Islander children lived in New South Wales (30% of the Indigenous child population), Queensland (29%), Western Australia (13%) and the Northern Territory (12%) in 2006. Indigenous children comprised 44% of the Northern Territory child population, but 7% or less in all other states and territories (Table 43.1).

### INDIGENOUS FAMILIES

There is evidence that Indigenous Australians have more extensive and complex family relationships than most non-Indigenous Australians. These important relationships may be difficult to translate into Anglo-Celtic terms, which are built around the nuclear family, and in some cases this results in a loss of complexity or miscategorisation of the relationships in Indigenous families (Morphy 2006). Indigenous households differ from non-Indigenous households in that they tend to be larger, non-nuclear and more fluid in composition (ABS & AIHW 2008).

Penman, citing Daly and Smith (1999), wrote that:

Indigenous households who make common provision for food and the like are often spread over more than one dwelling, just as Indigenous residents in the one dwelling may sleep there but eat elsewhere (Penman 2008).

These extended family structures are important for Indigenous Australians living in remote, traditionally orientated communities and also those living in more densely populated and urbanised areas, and these relationships may form an important safety net for many children (Daly & Smith 2005; Morphy 2006).

The ABS has acknowledged that the household and family structures used in the 2006 Census may not 'fully reflect the richness and complexity of household and family relationships relevant to the Indigenous population...' (ABS 2008k). Despite these limitations, the Census is still the preferred source of information on the composition of Indigenous households.

**Table 43.1: Distribution of Indigenous children across the states and territories, June 2006**

Age group	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia <sup>(a)</sup>
<b>Per cent of state or territory child population<sup>(b)</sup></b>									
0–4 years	4.4	1.3	7.1	6.5	3.7	7.2	2.5	43.9	4.9
5–9 years	4.4	1.3	6.8	6.6	3.7	6.9	2.6	44.1	4.9
10–14 years	4.4	1.2	6.4	6.0	3.4	7.0	2.4	42.6	4.6
0–14 years	4.4	1.3	6.8	6.3	3.6	7.0	2.5	43.5	4.8
<b>Per cent of Indigenous population 0–14 years<sup>(c)</sup></b>									
0–14 years	30.0	6.4	29.0	13.4	5.3	3.5	0.8	11.5	100.0

(a) Includes 'Other Territories' comprising Jervis Bay Territory, Christmas Island and the Cocos (Keeling) Islands.

(b) The denominator is the state/territory population of the same age.

(c) The denominator is the total Indigenous Australian population aged 0–14 years.

Source: ABS 2008g.

An 'Indigenous household' was defined in the Census as any household that had at least one person of any age as a resident at the time of the Census who identified as Aboriginal and/or Torres Strait Islander.

### Household structure

According to the 2006 Census, Indigenous households were, on average, larger than other Australian households (3.3 people compared with 2.5, respectively), and there were more children aged under 15 years per household (1.1 compared with 0.5). One-third of Indigenous households with dependent children had three or more children and 15% had four or more children, compared with one-fifth and 5% of other Australian households, respectively (ABS 2008k).

Compared with other Australian households, Indigenous households were also:

- more than 3 times as likely to be one-parent families with dependent children (23% compared with 7%), or multi-family households (5% compared with 1%)
- less likely to be one-family households without dependent children (25% compared with 37%), or lone person households (14% compared with 25%) (Table 43.2).

**Table 43.2: Household composition, occupied private dwellings, 2006 (per cent)**

Household type	Indigenous households	Other households
One-family households		
Couples with dependent children <sup>(a)</sup>	28.2	26.4
One-parent families with dependent children <sup>(a)</sup>	23.0	6.8
Families without dependent children <sup>(a)</sup>	24.8	37.1
Multi-family households	5.3	1.2
Group households	4.9	3.9
Lone person households	13.8	24.6
<b>Total (per cent)</b>	<b>100.0</b>	<b>100.0</b>
<b>Total (number)</b>	<b>166,668</b>	<b>6,977,424</b>

(a) A dependent child is either under 15 years of age or a dependent student aged 15–24 years. In 2006, 90% of the 178,292 Indigenous dependent children living in occupied private dwellings were children aged under 15 years.

**Notes**

1. Proportions exclude 'Not classifiable households'.
2. An Indigenous household is any household that had at least one person of any age as a resident at the time who identified as Aboriginal and/or Torres Strait Islander.

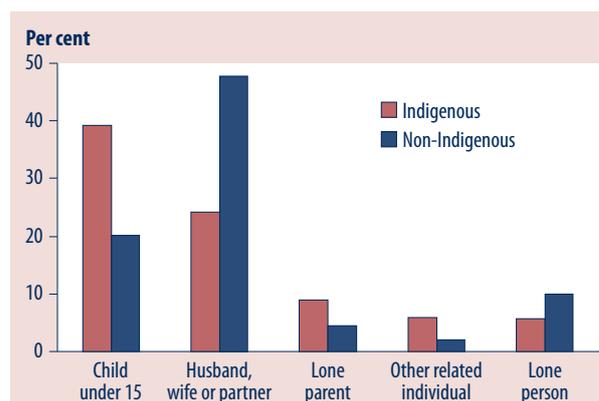
Source: ABS 2008k.

The structure of Indigenous households varied with remoteness in 2006:

- One-parent families, families without dependent children and group households were more common in *Major cities* than in *Very remote* areas. For example, one-parent families with dependent children comprised 24% of Indigenous households in *Major cities* compared with 14% in *Very remote* areas.
- Couples with dependent children and multi-family households were more common in *Very remote* areas than in *Major cities*—20% of Indigenous households in *Very remote* areas were multi-family households compared with 4% in *Major cities*.

### Relationships within households

The patterns seen for Indigenous household composition are reflected in household relationships. Of Indigenous Australians who lived in a private dwelling in 2006, 39% were children aged under 15 years, almost twice the proportion for non-Indigenous Australians (20%). This was consistent with the younger age profile of the Indigenous population (see Figure 43.1). In contrast, Indigenous Australians were half as likely as non-Indigenous Australians to report that they were a husband, wife or partner (24% compared with 48%), were more likely to be lone parents (9% compared with 5%) or 'other related individuals' (6% compared with 2%), and less likely to live alone (6% compared with 10%) (Figure 43.3).



Source: ABS 2008k.

**Figure 43.3: Selected relationships in household for persons in occupied private dwellings, by Indigenous status, 2006**

## HEALTH STATUS

As with the Aboriginal and Torres Strait Islander population as a whole, Indigenous children suffer poorer health than their non-Indigenous counterparts. Indigenous children experience higher rates of death, and are more likely to be born with certain congenital anomalies and to live with some chronic health conditions. Indigenous children are also more likely to suffer health problems that are seldom found in developed countries, and are virtually unknown in non-Indigenous Australian children. This reflects their greater socioeconomic disadvantage and poorer socio-environmental living conditions, especially in remote areas. Such health problems include rheumatic heart disease, trachoma, scabies, invasive pneumococcal disease and the consequences of severe ear infections.

This section looks at factors directly related to health status, including mortality and health conditions such as chronic conditions, congenital anomalies, disability and mental health.

### Mortality

Mortality rates and cause of death are key indicators of the health of a population. Indigenous infant and child deaths were 3 times that of non-Indigenous children in 2002–2006, reflecting the large disparities in environmental, health and social conditions experienced by Indigenous children (see also *Chapter 4 Mortality*).

### Infant mortality

The infant mortality rate is measured as the number of deaths of infants less than 1 year of age in a given year, expressed per 1,000 live births in the same year. Disparities in infant mortality, such as those seen between Indigenous and non-Indigenous Australian infants, are indications of inequalities in social and economic status and in the availability of health care (Freemantle et al. 2006).

In 2002–2006, one-fifth of infant deaths (461 out of 2,431) were identified as Indigenous (data are for Queensland, Western Australia, South Australia and the Northern Territory only):

- The mortality rate for Indigenous infants was 3 times the rate of non-Indigenous infants—12.5 per 1,000 live births compared with 4.3, respectively.
- Perinatal conditions were the leading cause of death for Indigenous infants (46% of infant deaths), followed by symptoms, signs and abnormal findings (22%) and congenital anomalies (12%) (Table 43.3). The leading causes for non-Indigenous infants were perinatal conditions (50%), congenital anomalies (23%) and symptoms, signs and abnormal findings (11%).
- The greatest disparities in cause of death between Indigenous and non-Indigenous infants were for respiratory conditions; symptoms, signs and abnormal findings (including SIDS); and injury (including poisoning), with Indigenous rates 9, 6 and 4 times the non-Indigenous rates, respectively.

**Table 43.3: Leading causes of infant death by Indigenous status, Qld, WA, SA and NT, 2002–2006**

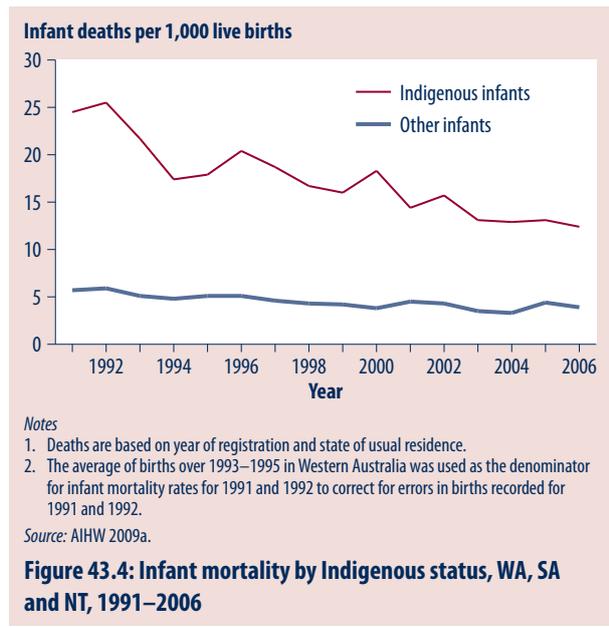
Cause of death	Indigenous		Non-Indigenous		Rate ratio
	Number	Number per 1,000	Number	Number per 1,000	
Perinatal conditions	211	5.7	954	2.1	2.7
Symptoms, signs and abnormal findings	100	2.7	216	0.5	5.6
Congenital anomalies	56	1.5	445	1.0	1.5
Respiratory conditions	35	0.9	49	0.1	8.6
Injury and poisoning	22	0.6	61	0.1	4.4
Other	37	1.0	186	0.4	2.4
<b>Total</b>	<b>461</b>	<b>12.5</b>	<b>1,911</b>	<b>4.3</b>	<b>2.9</b>

#### Notes

1. Refer to Table A1.2 for ICD-10 codes.
2. Indigenous rate divided by non-Indigenous rate. See *Appendix 1 Methods* for further explanation of rate ratios.

Source: AIHW National Mortality Database.

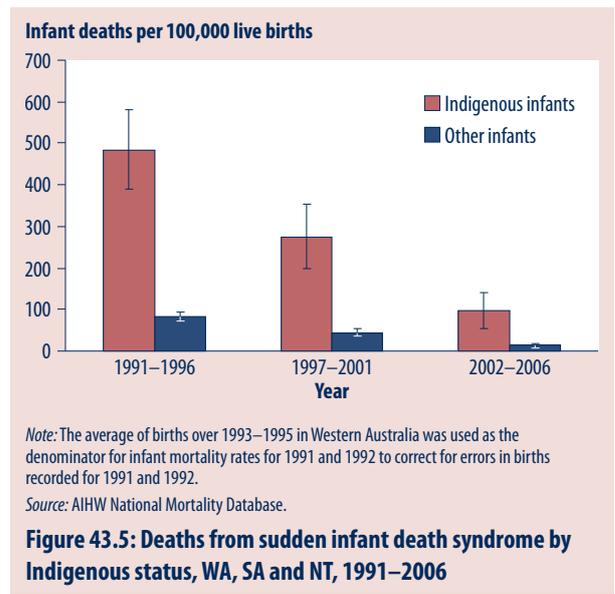
There has been a statistically significant decline in the infant mortality rate for Indigenous and other infants in Western Australia, South Australia and the Northern Territory between 1991 and 2006 (Figure 43.4). The Indigenous infant mortality rate fell by 47% over this period, compared with 34% for other infants (average yearly declines of around 0.8 and 0.1 per 1,000 live births, respectively) (AIHW 2009a).



**SUDDEN INFANT DEATH SYNDROME**

In 2002–2006, Indigenous infants were 5.4 times as likely to die from SIDS as non-Indigenous infants, with rates of 106 and 20 per 100,000 live births, respectively—this difference was statistically significant (data are for Queensland, Western Australia, South Australia and the Northern Territory only).

Almost one-third of all SIDS deaths (175 of 540) occurring between 1991 and 2006 were for Indigenous infants (data for Western Australia, South Australia and the Northern Territory only). The gap between SIDS rates for Indigenous and other Australian infants narrowed progressively between 1991 and 2006 (from a gap of 401 per 100,000 children in 1991–1996 to 83 in 2002–2006) (Figure 43.5). The SIDS rate for Indigenous infants may be higher than that presented due to changes in the investigation and reporting of SIDS and/or the under-reporting of Indigenous status in death registrations (see also Chapter 4).



**Child mortality**

In 2002–2006, 16% of deaths of children aged 1–14 years were identified as Indigenous (195 of 1,189 deaths) (data are for Queensland, Western Australia, South Australia and the Northern Territory only):

- Indigenous children were around 3 times as likely to die as non-Indigenous children (39 per 100,000 children and 13, respectively) (Table 43.4).
- Injury (including poisoning) was the leading cause of death for Indigenous children, accounting for almost half of deaths (46%). This was followed by diseases of the nervous system (12%) and diseases of the circulatory system (8%). Injury (including poisoning) and cancer were leading causes of death for non-Indigenous children, followed by diseases of the nervous system.
- The greatest disparities in cause of death between Indigenous and non-Indigenous children were for diseases of the circulatory system; signs, symptoms and abnormal findings; diseases of the nervous system; and injury (including poisoning). Due to the small number of Indigenous deaths due to these conditions, these results should be interpreted with caution.

**Table 43.4: Leading causes of death among children aged 1–14 years by Indigenous status, Qld, WA, SA and NT, 2002–2006**

Cause of death	Indigenous		Non-Indigenous		Rate ratio
	Number	Number per 100,000	Number	Number per 100,000	
Injury and poisoning	89	17.6	389	5.3	3.3
Diseases of the nervous system	23	4.6	95	1.3	3.5
Diseases of the circulatory system	16	3.2	37	0.5	6.2
Symptoms, signs and abnormal findings	15	3.0	58	0.8	3.7
Cancer	14	2.8	180	2.5	1.1
Other	38	7.5	207	2.8	2.6
<b>Total</b>	<b>195</b>	<b>38.6</b>	<b>966</b>	<b>13.3</b>	<b>2.9</b>

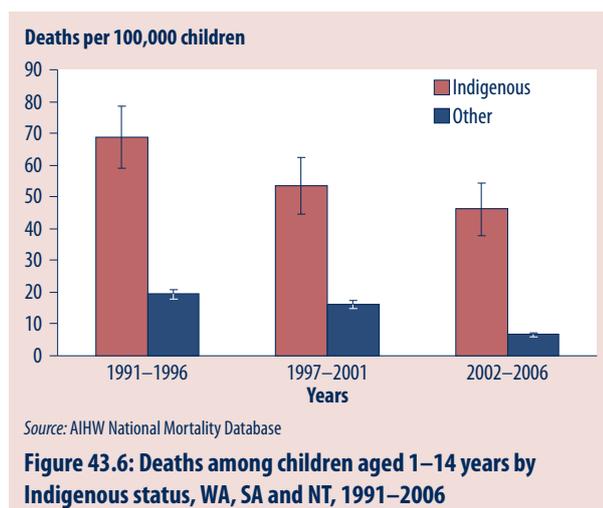
**Notes**

1. Refer to Table A1.2 for ICD-10 codes.
2. Indigenous rate divided by non-Indigenous rate.

Source: AIHW National Mortality Database.

Between 1991–1996 and 2002–2006, among children aged 1–14 years (data for Western Australia, South Australia and the Northern Territory only):

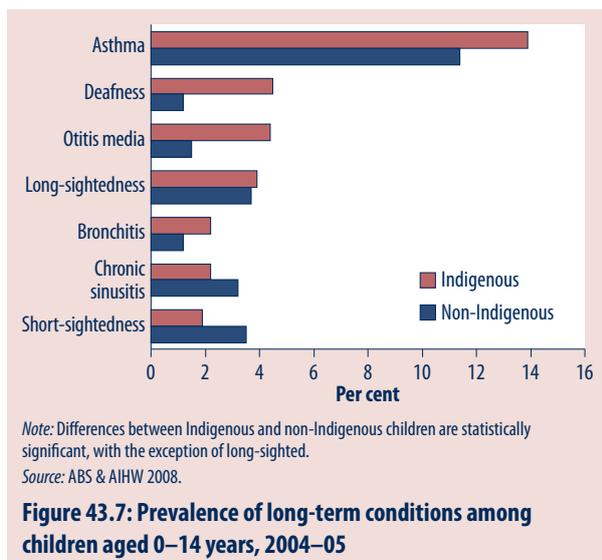
- There was a statistically significant decrease in death rates for Indigenous and other children (69 to 46 per 100,000 Indigenous children and 19 to 7 per 100,000 other children, respectively) (Figure 43.6).
- The gap in deaths rates between Indigenous and other children narrowed from 49 deaths per 100,000 children to 39.

**Chronic conditions**

A chronic condition is an ongoing impairment characterised by a diagnosis of a specific physical or mental condition, functional limitation, and service use or need beyond routine care (see *Chapter 5* for further information). Information on chronic diseases among Indigenous children is limited due to the small number of representative studies in this population. The ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey provides the most recent national estimates of the prevalence of long-term health conditions among Indigenous children.

According to this survey, in 2004–05, among children aged 0–14 years:

- There was no statistically significant difference in the overall prevalence of a long-term condition between Indigenous children (44%) and non-Indigenous children (41%).
- Among Indigenous children, the prevalence of respiratory diseases (asthma and bronchitis) and diseases of the ear and mastoid (deafness and otitis media) were statistically significantly higher than for non-Indigenous children (Figure 43.7).
- Indigenous children had a statistically significantly lower prevalence of chronic sinusitis and short-sightedness than non-Indigenous children.



### Eye health

There is limited information on the eye health of Indigenous children. According to the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey, there was little difference in the prevalence of all long-term eye conditions between Indigenous and non-Indigenous children aged 0–14 years (8% compared with 10%, respectively) (AIHW 2008g).

Recent data from the Northern Territory Emergency Response Child Health Checks indicate that 8% of Indigenous children aged 6–15 years had trachoma in at least one eye and that visual impairment was found to be very low (less than 1%) (AIHW & DoHA 2008). In a study of selected Indigenous communities in Western Australia, South Australia and the Northern Territory, the overall prevalence of trachoma was found to be 18% and 14% in 2006 and 2007, respectively, among Indigenous children aged 1–9 years (Tellis et al. 2008).

### Skin infections

There are no national data on the incidence and prevalence of skin infections among Indigenous children. Data from the Northern Territory Child Health Checks show that 31% of Indigenous children had a skin condition, 10% had four or more skin sores, and 8% had scabies (AIHW & DoHA 2008). In a study by Clucas and colleagues (2008), the prevalence of scabies was found to be around 50% among Indigenous children in some remote Indigenous communities in the Northern Territory in 2005. Scabies sores may increase the risk of other infections that lead to acute rheumatic fever (see Box 43.1) and kidney disease (Clucas et al. 2008).

In 2006–07, hospital separations for skin diseases were over 3 times as high among Indigenous children aged 0–14 years than among non-Indigenous children (1,030 and 292 per 100,000 children, respectively) (data exclude Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory).

### Box 43.1: Acute rheumatic fever and rheumatic heart disease among Indigenous children

Both acute rheumatic fever (ARF) and its consequence, rheumatic heart disease (RHD), are preventable causes of ill health and death. Indigenous Australians have the highest recorded rates of ARF and RHD in the world, and this is almost exclusively restricted to regional and remote areas in Northern and Central Australia (Carapetis et al. 2007). In contrast, these conditions are very rare in other Australians.

ARF is a delayed complication of untreated throat infection with Group A streptococcus bacteria ('strep throat'), but may also follow streptococcal skin sores. ARF occurs mainly in children and young adults. RHD is caused by the long-term damage done to the heart muscle or heart valves by ARF—RHD increases the risk of recurrent infections and further heart damage (AIHW: Field 2004).

ARF is believed to be under-reported, partly because it is difficult to diagnose. Therefore, the reported incidence is likely to be an underestimate (AIHW: Field 2004).

#### Incidence of acute rheumatic fever

For new and recurrent cases of ARF in the Top End of the Northern Territory and Central Australia between 2003 and 2006 (AIHW 2009a):

- Almost all cases (247) were for Indigenous people (98.4%).
- Over half of cases among Indigenous people were for 5–14 year olds (133 of 247), with rates of 2.0 per 1,000 for Indigenous boys and 2.9 for Indigenous girls.

#### Prevalence of rheumatic heart disease

There were 326 cases of RHD among Indigenous children aged 0–14 years living in the Top End of the Northern Territory and Central Australia as at 31 December 2006. The rate of RHD among these children was 16 per 1,000 children—more than 50 times as high as non-Indigenous children (AIHW 2009a).

## Diabetes

At the national level, there are no reliable estimates of the prevalence or incidence of diabetes among Indigenous children aged 0–14 years. A New South Wales study of young people aged 10–18 years between 2001 and 2006 found no significant difference in incidence rates for Type 1 diabetes between Indigenous and non-Indigenous young people (15 per 100,000 and 21 per 100,000 young people, respectively). However, Type 2 diabetes was 6 times as high among Indigenous than non-Indigenous young people (13 per 100,000 young people and 2, respectively) (Craig et al. 2007).

In 2006–07, there were 149 hospital separations for diabetes for Indigenous children aged 0–14 years. The rate for Indigenous children was 4 times as high as for other Australian children, with rates of 273 per 100,000 children and 69, respectively (data exclude Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory).

## Disability

Overall, Indigenous Australians experience higher rates of disability than other Australians (ABS & AIHW 2008); however, information specifically about the prevalence and type of disability among Indigenous children is limited and there are currently no reliable national estimates.

The ABS 2006 Census of Population and Housing asked questions about the need for assistance with core activities of self-care, mobility and communication. Indigenous children aged 0–14 years were 30% more likely than non-Indigenous children to require assistance with a core activity (ABS & AIHW 2008).

The 2000–2002 Western Australian Aboriginal Child Health Survey found that between 1.2% and 2.2% of Indigenous children aged 4 to 17 years required assistance with self-care and more than one in four (between 25% and 29%) were limited in one or more sensory functions (hearing, vision, or speech), or experienced pain (Zubrick et al. 2004).

Although the current national picture on disability among Indigenous children is patchy, a long-held view that rates are high (AIHW 1997) is supported by evidence on common health conditions. Aboriginal children have high rates of hearing problems due to recurrent, often untreated, middle ear infection, which is associated with a high rate of learning disability (Couzos et al. 2001; Zubrick et al. 2004). The high incidence of acute rheumatic fever among Aboriginal children and the high prevalence of rheumatic heart disease (see Box 43.1) and some congenital anomalies are further indications of disability related to preventable chronic health conditions at young ages.

See *Chapter 6* for further information on disability.

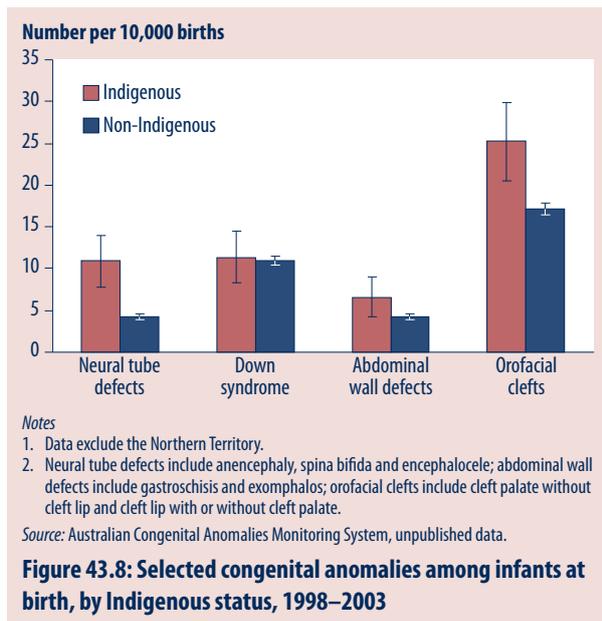
## Congenital anomalies

Congenital anomalies can cause death or contribute significantly to morbidity—they are a major cause of short- and long-term disability, and have lifelong implications for health and development.

Over the 6 year period, 1998–2003:

- Indigenous infants were more than twice as likely as non-Indigenous infants to be born with neural tube defects—a congenital anomaly that is largely preventable through maternal folic acid supplementation. Abeywardana and Sullivan (2008b) found a decreasing trend in the rate of Indigenous infants born with neural tube defects between 1998 and 2005, although the rate has remained higher than for non-Indigenous infants. This trend may be affected by under-reporting of Indigenous status.
- Birth rates for orofacial clefts were 50% higher among Indigenous infants compared with non-Indigenous infants.
- The birth rate of Down syndrome, a genetic disorder, was similar for Indigenous and non-Indigenous infants. Similarly, no statistically significant difference was found for abdominal wall defects (Figure 43.8).

See *Chapter 7* for further information on congenital anomalies.



### Mental health

From the perspective of Indigenous Australians, mental health and social and emotional wellbeing are part of a holistic understanding of life that encompasses not only the wellbeing of the individual, but also the wellbeing of their family and community (Swan & Raphael 1995). Social and emotional wellbeing refers to more than simply the presence or absence of illness; it also incorporates a strengths perspective that refers to wellness (ABS & AIHW 2008).

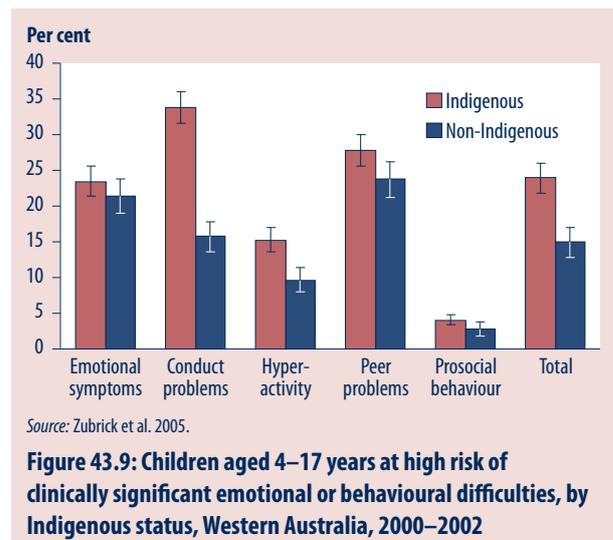
While there is a scarcity of national data on the mental health and wellbeing of Indigenous children, results from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey indicate that Indigenous adults were twice as likely as non-Indigenous adults to report high or very high levels of psychological stress and were 40% more likely to have experienced a life stressor in the previous 12 months (AIHW 2009e). Comparable measures for Indigenous children have not been developed; however, information is available from this survey on mental and behavioural problems among children, as parent-reported long-term conditions. According to this survey, Indigenous children aged 4–14 years were statistically significantly more likely to have a mental or behavioural problem as a long-term condition than non-Indigenous children (13% compared with 8%).

The Strengths and Difficulties Questionnaire (Goodman 2001), used in the Western Australian Aboriginal Child Health Survey, collected information on children’s mental health and behaviour. According to the 2000–2002 Western Australian survey:

- Indigenous children were statistically significantly more likely to be at high risk of a clinically significant emotional or behavioural difficulty, compared with non-Indigenous children (24% and 15%, respectively) (Figure 43.9).
- Of the specific emotional or behavioural difficulties, Indigenous children were statistically significantly more likely to be at high risk of conduct problems (34%) and hyperactivity (15%) compared with non-Indigenous children (16% and 10%, respectively).

Reflecting the higher prevalence of mental health conditions among Indigenous children, as indicated by data from the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey, Indigenous children also have a higher hospital separation rate for mental and behavioural disorders. In 2006–07, Indigenous children aged 4–14 years were admitted to hospital for a mental and behavioural disorder at a rate 40% higher than for other Australian children (rates of 314 and 223 per 100,000 children, respectively) (data exclude Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory).

See *Chapter 8* for further information on mental health.



## DETERMINANTS OF HEALTH

The health and wellbeing of individuals and populations is influenced and determined by many factors acting in various combinations, that is, the causes of health and wellbeing are multifactorial. Cultural, socioeconomic and physical factors have a demonstrated strong association with disease and ill health (ABS & AIHW 2008) and interact to result in the poorer health and wellbeing of Indigenous Australians (Abbot & Close 2002; Booth & Carroll 2005). This section considers health risk and protective factors.

### Maternal health and risk factors

Overall, the health of Indigenous mothers and their babies is poorer compared with their non-Indigenous counterparts, reflecting the relative social and economic disadvantage experienced by many Indigenous families. Poor maternal health and wellbeing before conception and during pregnancy and lactation can affect the health and wellbeing of the infant, particularly through a poor diet, chronic infection, and exposure to alcohol or tobacco. These risk factors pose a greater risk to the developing fetus early in pregnancy, often before women know that they are pregnant and can modify their risk behaviours.

A poor diet before and during pregnancy and lactation can lead to deficiencies of vitamins and minerals such as iron, folate and iodine. Deficiencies of these micronutrients are known to contribute to poor maternal and infant health (Allen 2005). Although these deficiencies can be managed by improving the diet of the mother and through supplementation, for some Indigenous communities access to a quality diet that includes fresh fruit and vegetables may be limited by cost and geographical remoteness.

Teenage motherhood and fetal exposure to risk factors such as alcohol and tobacco pose significant risks to the health and wellbeing of the infant and contribute to a higher risk of low birthweight and to poorer outcomes, such as higher infant mortality rates.

#### *Teenage births*

Teenage mothers are more likely to delay having their pregnancy confirmed and/or seek antenatal care, and may continue to engage in risky behaviours such as binge drinking and tobacco use.

There are social and cultural factors that increase the vulnerability of Indigenous adolescents to early pregnancy and birth, including poverty, early school leaving, community norms, and lower awareness of services and contraception use. Furthermore, a large proportion of Indigenous adolescents live in remote and very remote areas (23% of 15–19 year old women in 2006) where educational and employment opportunities for youth are limited and access to appropriate services can be difficult due to lack of choice, a lack of female doctors and distance. Culturally appropriate service provision to young Indigenous women is important; however, patient confidentiality issues may arise in Indigenous-specific services, particularly in remote areas (Slowinski 2001).

In 2006, the Indigenous teenage birth rate was 5 times the non-Indigenous rate—80 births per 1,000 Indigenous 15–19 year olds, compared with 15 for non-Indigenous teenagers (Table 43.5). This high birth rate among Indigenous women at younger ages contributes to the relatively high birth rate of Indigenous women overall (2.4 babies per woman in 2007—around 25% higher than for all women (1.9) (ABS 2008d)).

See *Chapter 18* for further information on teenage births.

#### *Smoking and alcohol use in pregnancy*

Smoking and alcohol use in pregnancy are associated with poor health outcomes for mother and child.

Although it is not known how many Indigenous women reduce or quit smoking while pregnant, it is known that, in 2006, more than half (52%) of Aboriginal and Torres Strait Islander mothers reported smoking during pregnancy—more than 3 times the rate of non-Indigenous mothers (16%) (excludes data from Victoria) (Table 43.5). Wood and colleagues (2008) found that Indigenous women's understanding of the health consequences of smoking during pregnancy was low, and that smoking cessation during pregnancy was not a priority due to the social and economic pressures they faced in their lives.

In the Northern Territory in 2002, one in ten (9.8%) women reported at the time of their first antenatal visit that they consumed alcohol in pregnancy (first trimester). There has been little change over time in the proportion of Indigenous women in the Northern Territory consuming alcohol during pregnancy (d'Espaignet et al. 1999; Stewart & Li 2005).

See *Chapter 19* and *Chapter 20* for further information on smoking and alcohol use in pregnancy.

## Birthweight

Many of the factors that contribute to low birthweight such as young maternal age, smoking, excessive alcohol consumption and poor nutrition are modifiable and susceptible to intervention.

In 2006, Indigenous mothers were twice as likely as non-Indigenous mothers to have a low birthweight infant (13% compared with 6%, respectively) (Table 43.5). During the period 1991–2004, there was a small, but statistically significant, widening in the gap between Indigenous and non-Indigenous infants of low birthweight (Leeds et al. 2007).

The proportion of low birthweight infants born to Indigenous mothers was similar across all remoteness areas of Australia in 2006. However, the mean birthweight of babies born to Indigenous mothers differed by remoteness of the mother's usual place of residence—in 2001–2004, Indigenous mothers in *Major cities* had heavier babies (mean 3,188 grams) than those in *Very remote* areas (mean 3,123 grams) (Leeds et al. 2007).

See *Chapter 21* for further information on birthweight.

**Table 43.5: Selected risk factors for infant health, by Indigenous status, 2006**

	Teenage births	Smoking in pregnancy	Low birthweight
	Number per 1,000	Per cent	Per cent
Indigenous	79.6	52.2	12.4
Non-Indigenous	14.7	15.6	6.2
Rate ratio	5.4	3.3	2.0

### Notes

1. Smoked during pregnancy is defined as the proportion of mothers who smoked at any time during pregnancy. Excludes data from Victoria.

2. Low birthweight is defined as birthweight less than 2,500 grams.

Source: AIHW National Perinatal Data Collection.

## Breastfeeding

There is currently no national data collection to gather consistent information on breastfeeding, and different studies have measured breastfeeding using different definitions (see Box 9.1 in *Chapter 9*), making comparison between studies difficult.

The ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey collected information on breastfeeding. According to these surveys, among infants aged 0–3 years in non-remote areas:

- Indigenous infants were less likely to have ever been breastfed than non-Indigenous infants (79% compared with 88%) (AIHW 2009a).
- An estimated 80% of Indigenous infants aged 1 year in 2004–05 were breastfed (either exclusive or complementary) at less than 1 month of age, dropping to 62% and 48% at 4 and 6 months of age, respectively. The corresponding proportions for non-Indigenous infants were 88%, 58% and 52%.

With regard to exclusive breastfeeding, according to the 2000–2002 Western Australian Aboriginal Child Health Survey, over half (53%) of Indigenous infants aged less than 6 months were reported as being exclusively breastfed, dropping to 7% at age 6–11 months. The survey also found that the proportion of Indigenous children who had ever been breastfed increased with remoteness, as did the length of time for which children were breastfed (Zubrick et al. 2004).

See *Chapter 9* for further information on breastfeeding.

## Dental health

The dental health of Indigenous children is poorer than for non-Indigenous children, as measured by the number of decayed, missing or filled deciduous or permanent teeth (dmft and DMFT scores, respectively) and the proportion of children who are decay-free. Indigenous children are more likely than non-Indigenous children to be living outside of major cities, in areas where fluoride in the water supply is not of optimal concentration and the accessibility and affordability of dental health services are critical issues (AIHW DRSU: Jamieson et al. 2007). These factors may contribute to their poorer dental health outcomes.

The 2002 Child Dental Health Survey found that, based on data from Victoria, Queensland, South Australia and the Northern Territory:

- The mean number of decayed, missing or filled teeth for Indigenous 6 year olds was 4.8 (dmft) and among 12 year olds was 1.8 (DMFT). On average, Indigenous children had more decayed, missing or filled teeth than non-Indigenous children (2.6 and 1.8 times as many for 6 and 12 year olds, respectively).
- The proportion of children decay-free at age 6 years was much lower for Indigenous children (21% compared with 54% for non-Indigenous children) and was also lower at age 12 years (48% compared with 60% for non-Indigenous children).

See *Chapter 10* for further information on dental health.

## Overweight and obesity

There are currently no robust national data available on overweight and obesity among Indigenous children. However, it is known that in the general population rates of self-reported obesity among Indigenous adults are higher than for other Australian adults (AIHW 2008b). This may reflect dietary changes over a long period from the traditional fibre-rich, high protein, low saturated fat diet of many Indigenous communities to one that is high in refined carbohydrates and saturated fats (Burns & Thompson 2008).

Growth faltering is particularly a problem among Indigenous children. A complex mix of factors, including poor nutrition, acute and chronic infections, and parasitic diseases, combine to hinder the healthy growth of Indigenous children in remote communities (McDonald et al. 2008). Among Indigenous children under 5 years in remote Northern Territory communities, high levels of underweight (15%), stunting (11%) and wasting (9%) were found. In a healthy population profile, the expected prevalence of underweight is around 2% (Li et al. 2007).

See *Chapter 11* and *Chapter 22* for further information on physical activity and nutrition, and overweight and obesity.

## Tobacco use and exposure to environmental tobacco smoke

The detrimental health effects of tobacco smoking are well established. Data from the Australian Secondary School Students' Alcohol and Drug Survey show that, in 2005, 17% of Indigenous students aged 12 to 15 years were current smokers (had smoked in the week before the survey), higher than the 7% of non-Indigenous students. The proportion of Indigenous students who were current smokers had declined by 10 percentage points between 1996 and 2005 (from 27% to 17%), while the proportion of non-Indigenous current smokers declined by 11 percentage points (from 18% to 7%) over the same period (White et al. 2009).

There is evidence that Indigenous adults are much more likely to smoke tobacco than non-Indigenous adults. In 2004–05, after adjusting for age differences, half (50%) of Indigenous Australians aged 18 years and over were current daily smokers, more than twice the rate for non-Indigenous Australians (ABS & AIHW 2008). This could have the effect of normalising smoking for Indigenous

children resulting in increased smoking uptake, and it could also expose them to environmental tobacco smoke which poses a substantial risk to their health. Analysis of the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey and National Health Survey show that among children aged 0–14 years:

- Indigenous children were around 3 times as likely to have been exposed to tobacco smoke in the home as non-Indigenous children (28% and 9%, respectively).
- Indigenous children living in *Very remote* areas were more likely to have been exposed to tobacco smoke in the home (41%) than were Indigenous children in *Major cities, Inner regional, Outer regional* or *Remote* areas (between 20% and 29% of children living in these areas) (AIHW 2009a).

See *Chapter 23* and *Chapter 24* for further information on environmental tobacco smoke and tobacco use among children.

## Alcohol misuse

Indigenous Australians are hospitalised for diagnoses related to alcohol use at a greater rate than non-Indigenous Australians, and are more likely to die from alcohol-related causes (AIHW 2009a). This suggests that harm from alcohol consumption is greater among Indigenous than non-Indigenous Australians; however, there is currently no reliable national information available on the extent of alcohol consumption among Indigenous children.

According to the ABS 2004–05 National Aboriginal and Torres Strait Islander Health Survey and National Health Survey, after age-standardisation, around twice the proportion of Indigenous adults reported that they had not drunk alcohol in the previous 12 months (29% of Indigenous Australians compared with 15% of non-Indigenous Australians). Despite this, a greater proportion of Indigenous adults had drunk at risky or high risk levels for short-term harm in the previous 12 months (47% compared with 40% of non-Indigenous adults), and similar proportions of Indigenous and non-Indigenous adults had drunk at risky or high-risk levels for long-term harm in the week before the survey (15% and 14%, respectively) (AIHW 2009a).

See *Chapter 25* for information on alcohol misuse among all Australian children.

## HEALTH SYSTEM PERFORMANCE

The capacity of the health system to deliver high-quality services plays a major role in influencing the health and wellbeing of children.

Activities of a health system can range from clinical and preventive services and programs through to efforts to improve the physical, social and economic environment for groups or individuals. Further, various strategies within a health system aim at developing individuals' personal skills to exercise more control over their own environments and decision making, and enhancing a community's capacity to provide culturally relevant services (AIHW 2006a). There are many aspects of health system performance, with some more relevant to the Indigenous population, such as the recruitment and retention of Indigenous people in Indigenous-specific health services.

The information presented here has particular relevance for Indigenous children. See *Part VIII* for further information on system performance.

### Antenatal care

Antenatal care provides essential information and support to expectant mothers throughout pregnancy, and can greatly reduce the risk of mortality during childbirth. A number of factors which have been found to contribute to successful antenatal services in Indigenous communities include community-based or community-controlled services; integrated services; respect for Indigenous people and culture; and a focus on communication, relationship building and trust (see Herceg 2005 for further information).

In 2005, in New South Wales, Queensland, South Australia and the Northern Territory, about 96% of Indigenous mothers, and 99% of non-Indigenous mothers, attended at least one antenatal care session—there was little difference according to remoteness (AIHW 2009a).

### Immunisation and notifiable diseases

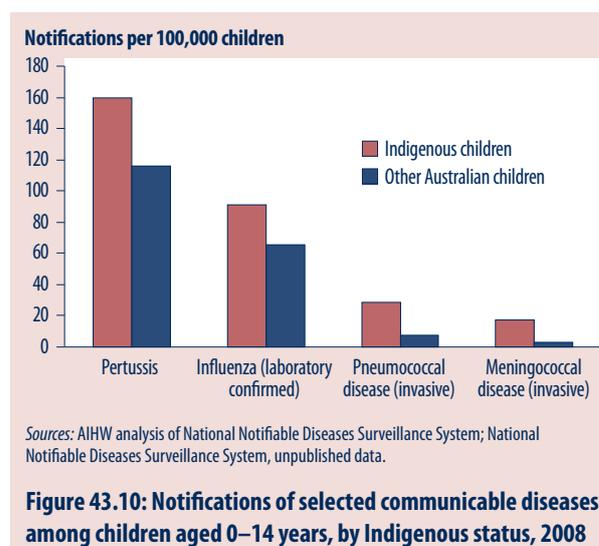
Information on immunisation coverage of Indigenous children and other children are available from the ACIR (see *Appendix 2 Data sources*). Indigenous identification in the ACIR has improved in recent years, reaching 95% of the estimated Indigenous child population in 2005, and a minimum coverage of at least 75% across all jurisdictions (NCIRS 2008).

Immunisation coverage at 2 years of age was similar for Indigenous and other Australian children as at 30 September 2008 (91% and 93%, respectively). In contrast, coverage at one year of age was lower for Indigenous children (85%) compared with other children (92%).

Notification rates for vaccine-preventable diseases are influenced by immunisation coverage. According to the National Notifiable Diseases Surveillance System, among children aged 0–14 years in 2008:

- The pertussis notification rate was higher among Indigenous than other children (160 per 100,000 children and 116, respectively) (Figure 43.10). Pertussis notification rates for Indigenous and other children have increased sharply since 2007 when rates were 12 per 100,000 children and 16, respectively.
- Notification rates for invasive meningococcal disease and invasive pneumococcal disease were around 6 and 4 times as high among Indigenous children as other children.
- There were less than 5 notifications of hepatitis A among Indigenous children, a substantial fall from 142 notifications in 1998. Hepatitis A notifications for other children were also low in 2008 (less than 5 notifications), down from 431 in 1998.
- Laboratory-confirmed influenza notifications were 40% higher for Indigenous children than for other children (91 per 100,000 children and 66, respectively).

See *Chapter 39* for further information on immunisation and notifiable diseases.



## EARLY LEARNING AND DEVELOPMENT

There is a positive association between education and health. Education may allow people to access and then make better use of health-related information, and often leads to higher incomes that allow purchases that can positively affect health, for example, medication and health insurance. On the other hand, poor health may prevent children from attending school (ABS & AIHW 2008). The educational experience of children is also important. Carson and colleagues (2007) cite research suggesting that, at least historically, a 'western education' may not have been a positive experience for Indigenous Australians as there was a lack of cultural awareness and respect; the western educational system failed to 'conserve and reaffirm elements of traditional culture'.

Despite general improvements, in 2006 Indigenous Australians continued to achieve poorer educational outcomes than non-Indigenous Australians in terms of retention to Year 12 and proportion with non-school qualifications (ABS & AIHW 2008). Circumstances more often experienced by Indigenous children such as living in a geographically remote location, speaking English as a second language or suffering a chronic health condition can lead to poorer educational outcomes for Indigenous children (Zubrick et al. 2006).

Improving the educational experience and outcomes for Indigenous Australians, and in the process closing the gap between Indigenous and non-Indigenous students, is a priority for the Australian, state and territory governments (MCEETYA 2008a).

### Attending early childhood education programs

The ABS 2005 Child Care Survey, used in *Chapter 13* for children attending preschool or long day care, does not permit a breakdown by Indigenous status. There are a range of other data sources that report on Indigenous preschool participation, including the ABS Census of Population and Housing, and administrative data from the states and territories that is published in the *Report on government services*. Due to differences in survey methodologies, these sources returned different counts of Indigenous preschool attendees. The National Preschool Census is used here because the level of Indigenous education program funding provided has been linked to the Indigenous enrolment

figures collected in the National Preschool Census since 1998 (DEEWR 2008c). It should be noted that enrolment figures do not necessarily reflect attendance.

The National Preschool Census showed that in 2007:

- There were 9,627 Indigenous children enrolled in preschool programs Australia-wide, a 10% increase compared with 2002 (DEEWR 2008c, 2008d). Indigenous children comprised about 5% of the 212,402 total children enrolled in 2007.
- A comparatively high proportion of Indigenous children were enrolled in government preschools (56% compared with 24% of all children).
- Indigenous children were far more likely to have attended a preschool in a provincial or remote region than all children (73% compared with 31% of all children).

The COAG has also committed to providing universal access to early childhood education programs to all 4 year olds for 15 hours per week, for a minimum of 40 weeks per year, by 2013, with a particular focus on Indigenous 4 year olds in remote Indigenous communities (COAG 2008b).

See *Chapter 13* for further information on children attending early childhood education programs.

### Transition to primary school

Children entering school with basic skills for life and learning are more likely to experience a successful transition to primary school. The Australian Early Development Index (AEDI) is used to assess the performance of children across a number of domains that are important for a successful transition to school. It will be able to provide this information for Indigenous children at the state, territory and national level once implemented Australia-wide.

In the meantime, the data presented here are derived from Indigenous Education Program performance reports of the Australian Government Department of Education, Employment and Workplace Relations. Indigenous Education Program funded preschools report on the literacy and numeracy awareness of students and assess students' readiness for entry into primary school in the following year. It should be noted that literacy and numeracy readiness is just one aspect of overall school readiness.

In 2006, a smaller proportion of Indigenous children met the literacy and numeracy requirements compared with non-Indigenous children:

- Australia-wide, 74% of Indigenous children and 88% of non-Indigenous children were assessed as being literacy ready for primary school in the following year. The corresponding proportions for being numeracy ready were 71% and 87%.
- Indigenous children who attended government preschools were less likely to be assessed as being literacy or numeracy ready when compared with Indigenous students in non-government preschools (DEEWR unpublished data).

A study that assessed programs to help with the transition of Indigenous children to primary school found some common characteristics among successful programs. Some of these included:

- a focus on relationship building
- a meaningful, relevant and challenging curriculum that makes clear the benefits that school can provide
- valuing Indigenous culture within the program and school
- recognising the strengths within Indigenous communities and tapping into existing programs and networks (Dockett et al. 2008).

See *Chapter 14* for further information on transition to primary school.

### Attendance at primary school

School attendance among Aboriginal and Torres Strait Islander students is of particular concern. Data for this section are primarily drawn from the *National report on schooling in Australia 2007* (MCEETYA 2009). Attendance data from this report is available by year level and state and territory for each school sector (government, Catholic or independent).

As the data cannot be aggregated further, the attendance of Year 5 students is presented here.

In 2007, Indigenous Year 5 students generally had lower attendance rates than non-Indigenous students:

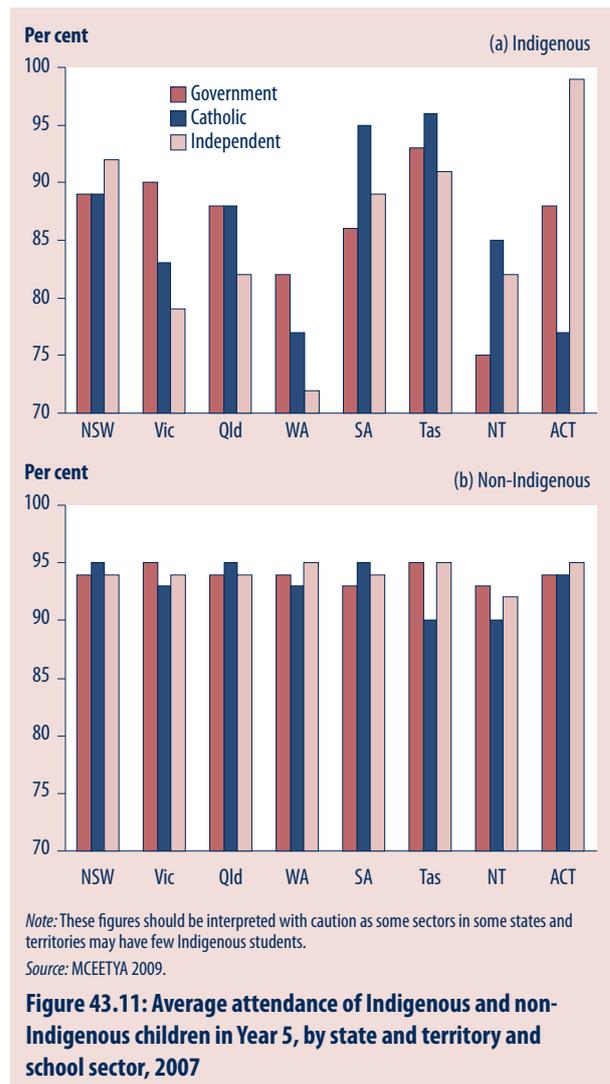
- In the government sector, the average attendance for Indigenous students was generally between 5 and 7 percentage points lower, with larger gaps seen in the Northern Territory and Western Australia (18 and 12

percentage points, respectively), and a smaller difference in Tasmania (2 percentage points) (Figure 43.11).

According to the ABS 2007 National School Statistics Collection, 89% of Indigenous Year 5 students were enrolled in government schools (unpublished data).

- The attendance rates for Year 5 Indigenous students were also generally lower than the non-Indigenous rates in the Catholic and independent sectors. Smaller proportions of Indigenous Year 5 students were enrolled in these schools in 2007 (8% and 3%, respectively).

In 2007, there was more variation in the attendance of Indigenous students than of non-Indigenous students across Years 1 to 7 (MCEETYA 2009). This variation was greater in the Catholic and independent sectors than for the government sector, which is possibly the result of the smaller number of Indigenous students enrolled in Catholic and independent schools.



Data from the Western Australian Aboriginal Child Health Survey, conducted in 2000–2002, also found lower attendance rates for Indigenous students. The median number of days missed by Indigenous students aged 4–17 years was 26 days (12.5% of the school year), compared with 8 days for all Western Australian students in the 1993 Western Australian Child Health Survey. Factors found to be associated with higher rates of absenteeism were speaking a language other than English (such as an Indigenous language), a teacher-assessed risk of clinically significant emotional or behavioural difficulties, a lower level of academic performance, having a carer with fewer years of formal education, not living in a home that was owned or being purchased by a member of the household, and not having accessed day care or early childhood education (Zubrick et al. 2006).

See Chapter 15 for further information on attendance at primary school.

### Literacy and numeracy

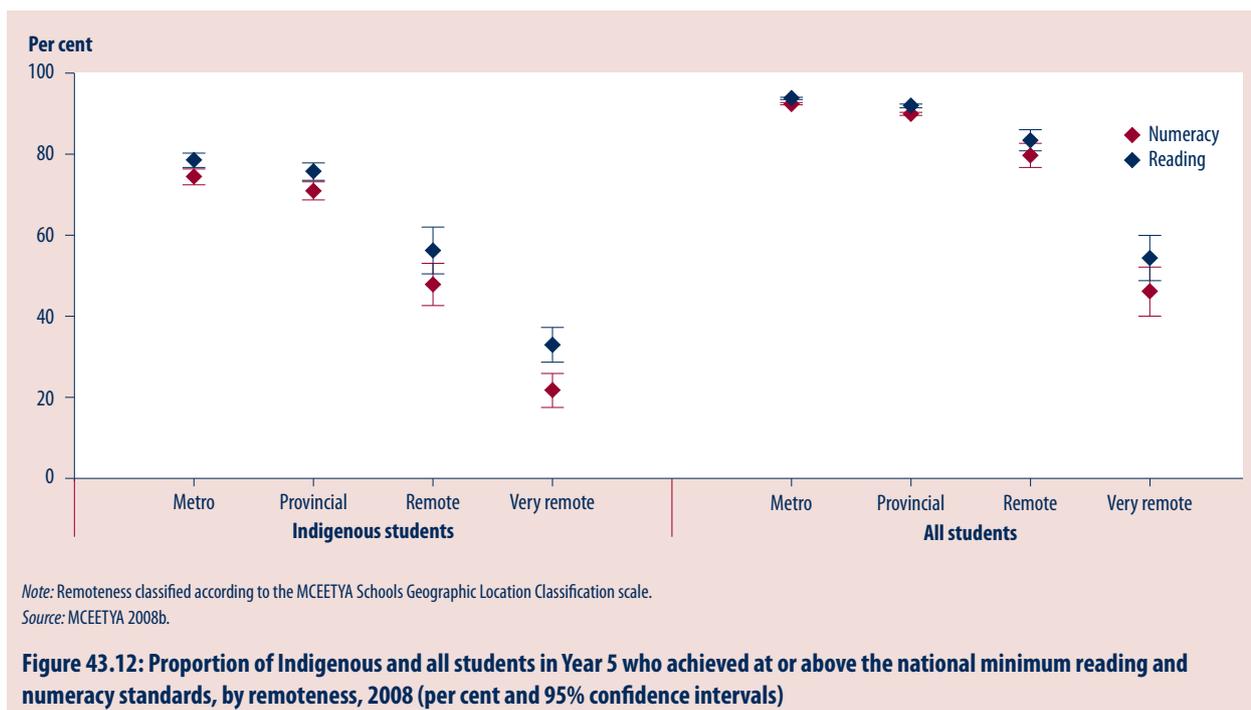
Indigenous Year 5 students assessed as part of the National Assessment Program—Literacy and Numeracy (NAPLAN) were less likely to have achieved the minimum standards for reading and numeracy—63% and 69% respectively, 28 and 24 percentage points lower than the proportion of all students who met the minimum

standards. The gap between the proportion of Indigenous and all students who met the minimum standards was larger for Year 5 than for either Year 3 or Year 7 (24 and 16 percentage points for reading and numeracy respectively in Year 3; 22 and 17 percentage points in Year 7).

The proportion of Indigenous year 5 students meeting the minimum standards varied with the remoteness of the school:

- Of Indigenous students in *Metropolitan* areas, 74% and 79% met the reading and numeracy minimum standards, compared with 92% and 94% of all students in *Metropolitan* areas (Figure 43.12).
- Indigenous students in *Very remote* areas were the least likely to have met the minimum standards—22% for reading and 33% for numeracy. This was also the case for all students (46% for reading and 54% for numeracy). As Indigenous children make up 59% of the child population in *Very remote* areas, it is likely that the lower proportion of Indigenous children achieving the minimum standards had a significant effect on the proportion for all students in *Very remote* areas.

The introduction of the NAPLAN has meant that 2008 data could not be compared with results from previous years. Between 1999 and 2007, some progress was made towards closing the gap between the proportion of Indigenous and all Year 5 students who met the reading



benchmark; the gap narrowed by 5 percentage points over this time, from a 27 percentage point gap in 1999 to a 22 percentage point gap in 2007. A statistically significant change in the numeracy gap was not seen over this period (MCEETYA 2008c). In 2008, the Australian Government committed to halve the gap in literacy and numeracy achievement between Indigenous and non-Indigenous children within the decade (Rudd 2008).

See *Chapter 16* for further information on literacy and numeracy.

## FAMILIES AND COMMUNITIES

### Family functioning

Family functioning is about how families interact, communicate, make decisions, solve problems and maintain relationships. There are currently no national data on the functioning of families with children aged 0–14 years, and this is also the case for Indigenous families and children.

The 2000–2002 Western Australian Aboriginal Child Health Survey measured family functioning using a culturally appropriate scale developed specifically for the survey—it included questions on support, communication, financial management and traditions within the family. Most Indigenous families scored highly on the scale (Silburn et al. 2006).

Financial strain, a low-quality diet for the children, and having a primary carer who was ‘not at all’ interested in religion or spirituality were found to be independently associated with poor family functioning. The level of education of the primary carer was also associated; families where the primary carer had not attended school were more likely to have had ‘poor’ family functioning than families where the primary carer had attended school for 1 to 12 years. Perhaps unexpectedly, families where the primary carer had 13 or more years of education were also more likely to have had poor family functioning.

Some factors were associated with ‘very good’ but were not associated with ‘poor’ family functioning. Carers who had been forcibly removed from their family, and those who had a medical condition that limited their daily activities were more likely to have been living in a family with ‘very good’ family

functioning than those carers who were neither forcibly removed or suffering such a medical condition.

See *Chapter 26* for further information on family functioning.

### Family economic situation

By several economic measures, Indigenous Australians are faring more poorly than other Australians.

Figures derived from the 2006 Census of Population and Housing showed that, on average, Indigenous Australians had lower equivalised household incomes than other Australians (\$460 per week compared with \$740 per week). Between the 2001 and 2006 Censuses, the equivalised household income for Indigenous Australians increased by 9% in real terms, which matched the increase recorded for non-Indigenous Australians over the same period (ABS 2008k).

Employment is generally the most important determinant of income (ABS 2009). At the time of the 2006 Census, Indigenous Australians had a lower labour force participation rate (that is, either working or unemployed but actively looking for work) and a higher unemployment rate, than non-Indigenous Australians (ABS 2008k). Daly and Smith (2005), in research based on the 2001 Census, found that 47% of Indigenous families (couple and one-parent) with dependants were jobless families, (that is, they had no parent working)—more than twice the rate of other Australian families, at 20%.

See *Chapter 27* for further information on family economic situation.

### Children in non-parental care

Indigenous children are over-represented in formal out-of-home care under the auspices of the child protection system—they were 9 times as likely to be in out-of-home care compared with other children (44 in every 1,000 children aged 0–14 years compared with 5) (Table 43.6). The over-representation has been a consistent trend over the past decade, and one that appears to be accelerating. There are a number of factors that contribute to this over-representation, including the intergenerational effects of separation from family and culture, socioeconomic disadvantage, domestic violence, unemployment, and alcohol and substance abuse; however, improved Indigenous identification may also be a factor (Ring & Wenitong 2007; Stanley et al. 2003; see also AIHW 2009c).

**Table 43.6: Children aged 0–14 years in out-of-home care by Indigenous status, 30 June 2008**

Age	Relatives/kin		Foster care		Residential care		Other		Total	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
<b>Aboriginal or Torres Strait Islander children</b>										
<1 year	112	8.6	208	16	4	0.3	2	0.2	326	25
1–4 years	1,058	21	1,078	22	16	0.3	27	0.5	2,179	44
5–9 years	1,673	28	1,147	19	25	0.4	37	0.6	2,882	48
10–14 years	1,555	25	962	16	122	2.0	48	0.8	2,687	44
<b>Total</b>	<b>4,398</b>	<b>24</b>	<b>3,395</b>	<b>18</b>	<b>167</b>	<b>0.9</b>	<b>114</b>	<b>0.6</b>	<b>8,074</b>	<b>44</b>
<b>Other children</b>										
<1 year	244	0.9	493	1.8	16	0.1	4	<0.1	757	2.8
1–4 years	1,892	1.8	2,464	2.4	30	<0.1	59	0.1	4,445	4.3
5–9 years	2,817	2.2	3,341	2.6	98	0.1	135	0.1	6,391	5.0
10–14 years	2,910	2.2	3,442	2.6	534	0.4	164	0.1	7,050	5.3
<b>Total</b>	<b>7,863</b>	<b>2.0</b>	<b>9,740</b>	<b>2.5</b>	<b>678</b>	<b>0.2</b>	<b>362</b>	<b>0.1</b>	<b>18,643</b>	<b>4.8</b>

Note: Rate per 1,000 children.

Source: AIHW Child Protection Data Collection.

Indigenous children aged 5 to 9 years were the age group most likely to have been in out-of-home care (48 in every 1,000 children), while infants were the least likely (25 in every 1,000). Indigenous children were staying with relatives or kin at 12 times the rate of other children, and were staying in foster, residential or other care settings at between 5 and 7 times the rate. This greater over-representation in relative or kin care may be a reflection of the Aboriginal Child Placement Principle, which states a preference for Aboriginal children who are unable to live with immediate family to remain living within their community (Lock 1997).

See *Chapter 28* for further information on children in non-parental care.

## Social capital

Social capital can be considered to be networks of social relationships characterised by norms of trust and reciprocity. Several authors, when discussing social capital in an Indigenous context, highlight different types of relationships. Examples of these types are 'bonding', 'bridging' or 'linking' relationships (ABS 2004b; Baum 2007; Hunter 2004). Bonding relationships occur 'between relatively closely knit groups who are likely to share many characteristics in common' (Baum 2007), while bridging or linking relationships occur between people who have less in common, such as different cultural backgrounds or different positions in

society. Indigenous Australians may be rich in bonding relationships, but relatively poor in bridging or linking relationships (Baum 2007). Bonding relationships can reduce social isolation and provide sources of support in times of need, while bridging and linking relationships can provide a connection with 'mainstream' sources of employment, health care or education.

This adds complexity to the measurement of social capital, as it is not just the existence or number of relationships that matters, but who the relationships are with. It has also been suggested that social capital 'is essentially a western concept that has not been adapted to Indigenous cultural understandings' (Baum 2007).

According to the ABS 2002 National Aboriginal and Torres Strait Islander Social Survey, the majority (91%) of households with an Indigenous respondent with children aged 0–14 years were able to get support in a time of crisis from someone living outside the household. This was slightly lower than the proportion of all households with children (95%). The most common sources of support for Indigenous respondents were family members (89% of households), friends (60%), or neighbours (21%), and these were also the most common sources of support for all respondents in households with children (88%, 75%, and 32%, respectively) (AIHW analysis of the 2002 National Aboriginal and Torres Strait Islander Social Survey and General Social Survey confidentialised unit record files).

Access to support in a time of crisis varied by the labour force status of the respondent and by remoteness:

- Households where the respondent was employed were more likely to have access to support in a time of crisis (94% compared with 87% of households where the respondent was unemployed).
- A greater proportion of respondents from households in non-remote locations (*Major cities, Inner and outer regional areas*) had access to support than those in remote locations (*Remote and very remote areas*) (92% compared with 88%).

See *Chapter 31* for further information on social capital.

## Indigenous culture

The ABS 2002 National Aboriginal and Torres Strait Islander Social Survey also collected information on participation in cultural activities by Indigenous Australians. Of Indigenous Australians aged 15 years and over living in a one-family household with children aged 0–14 years:

- 70% had attended a cultural event in the 12 months before the survey
- a little over half (53%) identified with a clan, tribal or language group
- 17% spoke an Indigenous language (Table 43.7).

Respondents living in a remote location were more likely to have responded positively to each of these measures of cultural participation (Table 43.7). In particular, 42% of respondents living in a remote location spoke an Indigenous language compared with 9% of respondents living in non-remote locations. Those who were unemployed had lower rates of positive response than

those who were employed or not in the labour force.

Those who were members of couple families with children were more likely to identify with clan, tribal or language groups or to speak an Indigenous language, but were less likely to have attended a cultural event in the 12 months before the survey, compared with one-parent families.

## SAFETY AND SECURITY

The family and community environment has a vital role to play in protecting children from physical and emotional harm, which can have a significant impact on the health and wellbeing of children in both the short term and throughout life.

### Injuries

Injuries sustained during childhood can have profound and lifelong effects on health and development by causing death, permanent physical disabilities or long-term cognitive or psychological damage (for example, traumatic brain injury). Hospitalisation and mortality rates due to injury are higher among Indigenous children than non-Indigenous children. Refer to *Appendix 1 Methods* for technical notes regarding the analysis of injury data.

### Injury hospitalisations

The overall hospital separation rate due to injury is higher for Indigenous children than for other children, and for each leading specific cause (Table 43.8). In 2006–07, among children aged 0–14 years:

- The injury hospital separation rate was 40% higher for Indigenous children than for other children.

**Table 43.7: Indigenous Australians aged 15 years and over living in one-family households with children aged 0–14 years: measures of Indigenous cultural participation, 2002 (per cent)**

	Family type		Employment status			Remoteness <sup>(a)</sup>		Total
	Couple family	One-parent family	Employed	Unemployed	NILF <sup>(b)</sup>	Remote	Non-remote	
Attended cultural event(s) in last 12 months <sup>(c)</sup>	68.0	73.4	70.5	62.7	71.8	86.4	64.9	69.8
Identifies with clan, tribal or language group <sup>(c)</sup>	54.5	50.9	56.7	44.1	52.5	72.9	47.4	53.2
Speaks an Indigenous language	19.8	10.9	18.2	11.1	17.1	41.6	9.3	16.7

(a) Remote includes *Remote* and *Very remote* areas; Non-remote includes *Major cities, Inner regional* and *Outer regional* areas.

(b) NILF: Not in Labour Force.

(c) Proportions exclude a small number of records where a response for these questions was not returned.

Source: AIHW analysis of ABS 2002 National Aboriginal and Torres Strait Islander Social Survey confidentialised unit record file.

**Table 43.8: Injury hospital separations for children aged 0–14 years, leading external cause 2006–07, by Indigenous status (per 100,000)**

External cause	Indigenous children		Other children		Rate ratio
	Number	Rate	Number	Rate	
Falls	1,184	676.7	22,857	585.8	1.2
Land transport accidents	396	226.3	7,430	190.4	1.2
Assault	186	106.3	576	14.8	7.2
Accidental poisoning	167	95.4	1,896	48.6	2.0
Burns and scalds	128	73.2	1,492	38.2	1.9
Exposure to smoke, fire and flames	91	52.0	296	7.6	6.9
<b>All injuries</b>	<b>3,397</b>	<b>1,941.4</b>	<b>53,752</b>	<b>1,377.6</b>	<b>1.4</b>

*Notes*

1. Exposure to inanimate mechanical forces, accidental exposure to other and unspecified factors, and exposure to animate mechanical forces were also leading causes of injury hospitalisation for children. These categories are diverse and are not useful for reporting purposes.
2. Rate ratio is Indigenous rate divided by Other rate. See *Appendix 1 Methods* for further explanation of rate ratios.
3. For data quality reasons, data exclude Tasmania, the Australian Capital Territory and private hospitals in the Northern Territory.

Source: AIHW National Hospital Morbidity Database.

- Falls were the leading cause of injury for Indigenous children, accounting for 35% of all injury hospital separations for Indigenous children. The rate for Indigenous children was 20% greater than for other children.
- Land transport accidents accounted for around one in nine (12%) injury hospital separations of Indigenous children—a rate of 226 per 100,000 children. The rate for Indigenous children was 20% greater than for other children.
- Among the leading causes of injury, the greatest disparity between Indigenous and other children was for assault. Overall, the assault hospital separation rate for Indigenous children was 7 times the rate for other children; however, this differed by sex. Indigenous boys were almost 5 times as likely as other boys to be hospitalised for assault (rates of 97 and 21 per 100,000 children, respectively), whereas Indigenous girls were 14 times as likely as other girls to be hospitalised (116 and 8, respectively).

### Injury mortality

In 2002–2006, injury contributed to 116 deaths of Indigenous children aged 0–14 years—a rate of 21 per 100,000 children. The injury death rate for Indigenous children was more than 3 times the rate for non-Indigenous children (477 deaths or 7 per 100,000 non-Indigenous children) (data from Queensland, Western Australia, South Australia and the Northern Territory only).

During this period, land transport accidents were the leading cause of injury death for both Indigenous and

non-Indigenous children (38 and 172 deaths, respectively), and the rate for Indigenous children was more than 3 times the non-Indigenous rate (7 and 2 per 100,000 children).

See *Chapter 32* for further information on injuries among children.

### Child abuse and neglect

Aboriginal and Torres Strait Islander children are over-represented in the child protection system. The reasons for this are complex and include the intergenerational effects of separation from family and culture (a legacy of the Stolen Generations), perceptions arising from the cultural differences in child-rearing practices, and the relative socioeconomic disadvantage of Indigenous Australians (HREOC 1997; Stanley et al. 2003).

Data presented here relate to substantiations of notifications received in 2007–08, and care and protection orders. When there has been a substantiation of child abuse or neglect, children may be placed on a care and protection order when further intervention is required.

In 2007–08, among children aged 0–12 years:

- A total of 6,265 Indigenous children were the subject of a substantiation of a notification received in 2007–08—a rate of 45 per 1,000 children<sup>1</sup>. The rate for Indigenous children was 8 times the rate for other Australian children (5.6 per 1,000 children) (Figure 43.13).

<sup>1</sup> In 2007–08, the Indigenous status of a relatively high proportion of children in Queensland and Tasmania was unknown, and therefore the number of substantiations for Indigenous children should be interpreted with caution. The rate of substantiations for Indigenous and other children exclude data from Queensland and Tasmania.

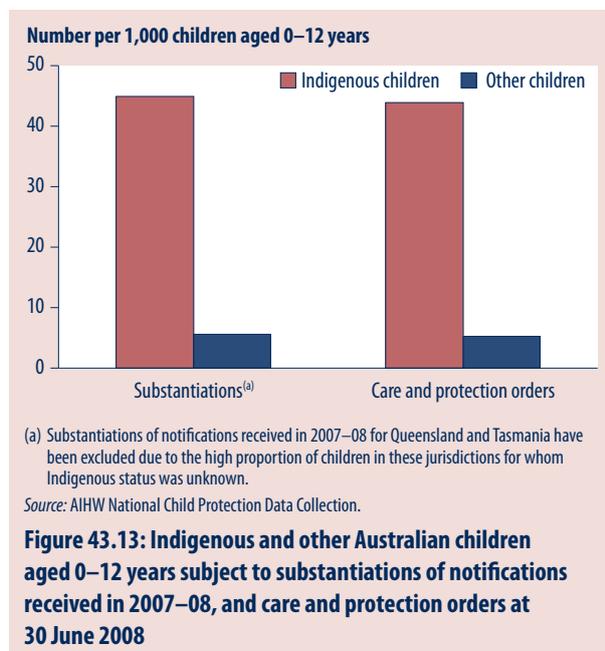
- A recorded 6,989 Indigenous children were the subject of a care and protection order—a rate of 44 per 1,000 children. The rate for Indigenous children was 8 times that of other Australian children (5.3 orders per 1,000 children).

Over recent years, the number of substantiations and care and protection orders for Indigenous children has increased markedly:

- Between 2004–05 and 2007–08, the number of Indigenous children who were the subject of a child protection substantiation increased by 50%, while for other children the number of substantiations decreased by 16%.
- Between June 2005 and June 2008 the number of Indigenous children who were put on a care and protection order increased by 63% compared with a 30% increase for other children.

It should be noted that the quality of Indigenous data varies across jurisdictions and over time. Increases in the number of Indigenous children in the child protection system could be a result of improvements in Indigenous identification as well as increases in the actual numbers.

See *Chapter 34* for further information on child abuse and neglect.



## Children as victims of violence

There are no national data available on the incidence of physical and sexual assault among Indigenous children. The information that is available indicates that the occurrence of violence in Indigenous communities and among Indigenous people is disproportionately high in comparison with the Australian population as a whole (Memmott et al. 2001).

Data from New South Wales and the AIHW National Child Protection Data Collection show that Aboriginal and Torres Strait Islander children were over-represented among victims of physical or sexual assault (Aboriginal Child Sexual Assault Taskforce 2006; AIHW 2009c).

Of the cases of child sexual assault recorded by police in New South Wales in 2004, 82% were female victims, and Indigenous females under 16 years were over-represented among this group (469 per 100,000 compared with 192 for non-Indigenous females under 16) (Aboriginal Child Sexual Assault Taskforce 2006).

Indigenous children were overrepresented among those for whom a substantiated physical or sexual abuse notification was received during 2007–08. Indigenous children made up 20% and 16% of all children who were the subject of substantiations where sexual or physical abuse was the main type of abuse (see Box 34.1 in *Chapter 34* for definitions) (AIHW 2009c). This is despite comprising only around 5% of all children aged 0–17 years.

See *Chapter 35* for further information on children as victims of violence.

## Housing

The condition of housing can affect the health of residents. There is evidence that the housing of some Indigenous Australians, such as those living in more remote regions or in Indigenous communities, may be increasing their risk of adverse health effects.

A survey of 4,343 houses in Indigenous communities across four states and the Northern Territory conducted between 1999 and 2006 found that many houses did not meet health and safety criteria and, in the majority of cases, houses provided unhealthy living conditions due to a lack of maintenance or poor initial construction:

- only 11% of houses were deemed to be electrically safe at initial assessment
- only 50% of houses had a tub or bath in which a child could be washed
- only 35% had a functioning shower
- just 6% had adequate facilities to store, prepare and cook meals (Torzillo et al. 2008).

The inability to wash a child can increase their risk of diseases such as diarrhoea and skin infections—diseases that are suffered at a higher rate by Indigenous children (see *Skin infections* in this chapter; Healthabitat 2009). Indigenous Australians are also more likely to suffer a range of diseases where poor diet may be a contributing factor, and the ability to safely store, prepare and cook food could help to improve the diet.

### Overcrowding

Overcrowding can lead to the spread of infectious diseases such as meningococcal meningitis or septicaemia, tuberculosis, acute rheumatic fever, respiratory diseases and skin infections (Bailie & Runcie 2001; Waters 2001). It has also been associated with poorer self-reported health and higher rates of smoking (Waters 2001).

Information from the ABS 2006 Census of Population and Housing showed that Indigenous households were, on average, larger than other Australian households, with 3.4 residents per household compared with 2.6 in non-Indigenous households. Over one-quarter (27%) of the Indigenous population were living in overcrowded households (ABS & AIHW 2008).

Overcrowding can be a subjective concept and there is a cultural dimension that needs to be considered (Memcott et al. 2003). In a survey conducted in remote Northern Territory communities, the average number of permanent residents per house was 8.9, and 3.2 per bedroom. Residents of these households may not have considered these conditions to be overcrowded, as those occupying individual rooms may have been doing so in accordance with cultural norms and/or kinship ties, and the overall household may have constituted an extended family (Memcott et al. 2003). Nevertheless, this cultural tendency towards larger households, particularly if not taken into account when housing is designed, can have negative effects on health and wellbeing.

### Homelessness

Indigenous Australians are over-represented both in Supported Accommodation Assistance Program (SAAP) services and in the homeless population enumerated in the Counting the Homeless project (see *Chapter 36*). The causes of this over-representation are complex and require important cultural elements to be taken into account (Berry et al. 2001; Memcott et al. 2003). Keys Young (1998) identified five broad causes of Indigenous homelessness: spiritual homelessness, overcrowding, transient homelessness, an unsafe home, and having nowhere to go. These causes were either unique to Indigenous Australians (for example, spiritual homelessness) or had taken on particular importance either because of the scale of the problem they posed, or because the nature of the problem was somewhat different to that faced by the non-Indigenous population.

In 2006–07, 27% of accompanying children aged 0–17 years in SAAP were Indigenous, despite accounting for only around 5% of all 0–17 year olds (AIHW 2009d).

In 2006–07, for accompanying children aged 0–17 years:

- SAAP agencies located outside *Major cities* provided 63% of accompanying child support periods for Indigenous children, compared with only 33% of the support periods for non-Indigenous accompanying children.
- Indigenous accompanying children received the majority of their support periods from SAAP agencies primarily targeting women escaping domestic or family violence (58%); greater than the proportion for non-Indigenous accompanying children (48%).
- Indigenous accompanying children most often required SAAP accommodation (in 74% of their closed support periods), meals (in 57%) and shower or hygiene services (in 53%). These services were provided by the agency and/or the child was referred elsewhere to receive them in 96% or more of the closed support periods in which they were required.

See *Chapter 36* for further information on homelessness.

## Children and crime

Children who have been found guilty of a criminal offence or who are awaiting sentencing may be placed in juvenile justice supervision in the community or in detention. Indigenous children 10–14 years are over-represented in juvenile justice supervision, accounting for over half of all children under supervision in 2006–07:

- Indigenous children were 24 times as likely to have been under juvenile justice supervision at some time during the year as other Australian children (20 and 1 per 1,000 children, respectively). This pattern was similar for both Indigenous boys and girls—24 and 20 times the rates for other children, respectively (see Figure 37.2).
- Rates were higher for Indigenous children compared with other children for both community-based supervision (25 times) and detention (28 times).
- Rates of community-based supervision and detention have remained stable for Indigenous children between 2003–04 and 2006–07.

See *Chapter 37* for further information on children in juvenile justice supervision.

# Part X

## CHILDREN'S HEADLINE INDICATORS

### 44 Headline Indicators for children's health, development and wellbeing

#### BACKGROUND

In 2005, the Australian Health Ministers' Conference (AHMC) and the Community and Disability Services Ministers' Conference (CDSMC) approved a project to develop a set of national, jurisdictionally agreed headline indicators to monitor the health, development and wellbeing of children in Australia and to facilitate ongoing data development, collection, analysis and reporting in these areas. The project began in 2005–06 as a subproject of the Child Health and Wellbeing Reform Initiative. Following extensive consultation with state and territory government agencies and data committees, 19 priority areas were endorsed by the AHMC, the CDSMC and the Australian Education Systems Officials Committee (AESOC) in July 2006. For further information on these Children's Headline Indicators and their development, see the project report *Headline Indicators for children's health, development and wellbeing* (Vic DHS 2008).

The establishment of the Children's Headline Indicators reporting complements the national reporting undertaken by the AIHW, by presenting jurisdictional and subpopulation data on a selected set of indicators. These indicators are designed to focus government policy attention on identified priorities for children's health, development and wellbeing. This will be facilitated by the comparison of state and territory data, and data from subpopulations of children, including Aboriginal and Torres Strait Islander children, children living in remote and disadvantaged areas, and children from culturally and linguistically diverse backgrounds. Disability was initially identified as a subpopulation for disaggregation; however, it is not feasible to report on due to a lack of information on disability status in data collections.

The Children's Headline Indicators are not intended to provide detailed knowledge about the cause of specific improvements. They are a mechanism to help in guiding and evaluating policy development, by measuring progress on a set of indicators that are potentially amenable to change over time by prevention or early intervention.

#### REPORTING ON THE CHILDREN'S HEADLINE INDICATORS

The AIHW has been contracted to develop, analyse and report on the Children's Headline Indicators. This report presents information on these indicators for the first time. Reporting will occur on a biennial basis, with a stand-alone Children's Headline Indicator report to be released in 2011.

This chapter presents data for 10 of the 19 priority areas with defined Children's Headline Indicators and available data, with the level of disaggregation dependent on the data source. These data are also available online at <[www.aihw.gov.au/chilyouth/chilyouthhealth/childhealth/index.cfm](http://www.aihw.gov.au/chilyouth/chilyouthhealth/childhealth/index.cfm)>. A further six priority areas with defined Children's Headline Indicators require varying levels of data development before reporting (see Table 44.1). These priority areas have been discussed in the relevant chapters throughout this report, and also in *Part XI Data gaps and developments*. A Children's Headline Indicator is yet to be defined for the remaining three priority areas—these are not discussed in this report.

Due to these varying levels of indicator and data development, the Children's Headline Indicator project comprises a reporting stream and a data development stream. The AIHW will be undertaking further development work for those indicators that are currently not defined or for which data are not currently available.

**Table 44.1: Headline Indicators for children's health, development and wellbeing**

Priority areas	Headline Indicators
Infant mortality	Mortality rate for infants less than 1 year of age
Dental health	Mean number of decayed, missing or filled teeth (DMFT) among primary school children aged 12 years
Literacy	Proportion of children in Year 5 achieving at or above the national minimum standards for reading
Numeracy	Proportion of children in Year 5 achieving at or above the national minimum standards for numeracy
Teenage births	Age-specific birth rate for 15 to 19 year old women
Birthweight	Proportion of live born infants of low birthweight
Family economic situation	Average real equivalised disposable household income for households with children in the 2nd and 3rd income deciles
Injuries	Age-specific death rates from all injuries for children aged 0–4, 5–9 and 10–14 years
Child abuse and neglect	Rate of children aged 0–12 who were the subject of child protection substantiation in a given year
Immunisation	Proportion of children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age
Overweight and obesity	Proportion of children whose body mass index (BMI) score is above the international cut-off points for 'overweight' and 'obese' for their age and sex
Smoking in pregnancy	Proportion of women who smoked during the first 20 weeks of pregnancy <sup>#</sup>
Breastfeeding	Proportion of infants exclusively breastfed at 4 months of age <sup>#</sup>
Attending early childhood education programs	Proportion of children attending an early education program in the 2 years before beginning primary school <sup>#</sup>
Attendance at primary school	Attendance rate of children at primary school <sup>#</sup>
Transition to primary school	Proportion of children entering school with basic skills for life and learning <sup>*</sup>
Social and emotional wellbeing	<i>Indicator to be developed*</i>
Shelter	<i>Indicator to be developed*</i>
Family social network	<i>Indicator to be developed*</i>

**Notes**

Shaded Data available for reporting.

# Data not currently available or not suitable for reporting.

\* Further development to the indicator needed before data collection and/or reporting.

## INFANT MORTALITY

**Headline Indicator:** Mortality rate for infants less than 1 year of age

**Table 44.2: Deaths of infants aged less than 1 year, 2006**

	State/territory of usual residence								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	<b>Number</b>								
<b>Sex</b>									
Males	257	158	178	66	25	16	12	15	727
Females	167	125	101	70	34	9	11	18	535
Persons	424	283	279	136	59	25	23	33	1,262
<b>Indigenous status (2002–2006)<sup>(a)</sup></b>									
Indigenous	n.p.	n.p.	198	111	31	n.p.	n.p.	121	461
Non-Indigenous	n.p.	n.p.	1,117	417	331	n.p.	n.p.	46	1,911
<b>Remoteness (2004–2006)</b>									
Major cities	861	635	395	234	132	0	75	0	2,332
Inner regional	251	194	182	40	29	43	0	0	739
Outer regional	103	55	170	40	33	22	0	35	458
Remote and very remote	17	n.p.	46	41	9	n.p.	0	70	185
	<b>Number per 1,000 live births</b>								
<b>Sex</b>									
Males	5.7	4.7	6.6	4.7	2.7	4.8	5.2	8.1	5.3
Females	4.0	3.9	4.0	5.1	3.8	2.9	5.0	9.8	4.1
Persons	4.9	4.3	5.3	4.9	3.2	3.9	5.1	8.9	4.7
<b>Indigenous status (2002–2006)<sup>(a)</sup></b>									
Indigenous	n.p.	n.p.	11.4	13.0	9.2	n.p.	n.p.	15.7	12.5
Non-Indigenous	n.p.	n.p.	4.8	3.5	3.9	n.p.	n.p.	4.3	4.3
<b>Remoteness (2004–2006)</b>									
Major cities	4.4	4.4	4.6	4.3	3.5	..	6.8	..	4.4
Inner regional	5.5	5.3	5.1	4.2	4.4	3.6	—	..	5.0
Outer regional	6.6	6.7	6.4	5.0	5.2	3.6	..	6.4	6.0
Remote and very remote	10.2	n.p.	7.1	6.1	4.0	n.p.	..	13.0	8.0

(a) For data quality reasons, 'Australia' data for Indigenous status are for Qld, WA, SA and the NT only (state/territory of registration of death). The data presented are not necessarily representative of the jurisdictions excluded.

Source: AIHW National Mortality Database.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 4 Mortality*.

## DENTAL HEALTH

**Headline Indicator:** Mean number of decayed, missing or filled teeth (DMFT) among primary school children aged 12 years

**Table 44.3: Mean number of decayed, missing or filled teeth (DMFT) among primary school children aged 12 years, 2002**

	State/territory of usual residence								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
<b>Mean DMFT</b>									
Decayed	n.a.	0.6	0.6	0.3	0.3	0.6	0.6	0.5	0.5
Missing/filled	n.a.	0.4	0.7	0.6	0.5	0.6	0.7	0.4	0.5
<i>Total mean DMFT</i>	<i>n.a.</i>	<i>1.0</i>	<i>1.3</i>	<i>0.9</i>	<i>0.8</i>	<i>1.2</i>	<i>1.3</i>	<i>0.8</i>	<i>1.0</i>
<b>Sex</b>									
Boys	n.a.	0.9	1.3	0.8	0.8	1.1	0.8	0.7	0.9
Girls	n.a.	1.1	1.3	1.0	0.9	1.3	1.8	1.0	1.1
<b>Indigenous status</b>									
Indigenous children	n.a.	2.9	1.9	n.a.	1.4	n.a.	n.a.	1.1	1.8
Other children	n.a.	1.0	1.3	n.a.	0.8	n.a.	n.a.	0.7	1.0
<b>Remoteness</b>									
Major cities	n.a.	0.7	1.2	0.9	0.8	n.a.	1.4	..	0.9
Inner regional	n.a.	1.5	1.6	0.9	1.0	n.a.	1.7	..	1.4
Outer regional	n.a.	1.3	1.2	0.9	1.0	n.a.	..	0.7	1.1
Remote and very remote	n.a.	—	2.0	1.1	0.9	n.a.	..	1.0	1.3
<b>Socioeconomic status<sup>(a)</sup></b>									
Highest SES areas	n.a.	0.4	1.4	0.8	0.8	n.a.	—	0.8	0.8
Lowest SES areas	n.a.	1.2	1.3	1.2	1.1	n.a.	1.7	—	1.2

(a) Socioeconomic status is based on 2001 SEIFA Index of Relative Socioeconomic Disadvantage (IRSD). See *Appendix 1 Methods* for further information.

Note: Data for NSW are excluded due to a lack of representativeness of the sample. See AIHW DSRU: Armfield et al. 2007 for further information.

Sources: AIHW DSRU: Armfield et al. 2007; 2002 Child Dental Health Survey, unpublished data.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 10 Dental health*.

## LITERACY AND NUMERACY

**Headline Indicators:**

Proportion of children in Year 5 achieving at or above the national minimum standards for reading

Proportion of children in Year 5 achieving at or above the national minimum standards for numeracy

**Table 44.4: Year 5 students who achieve at or above the national minimum standards for reading and numeracy, 2008<sup>(a)</sup>**  
(per cent and 95% confidence intervals)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Reading</b>									
<b>Sex</b>									
Boys	92.1 ±0.5	92.2 ±0.5	84.3 ±0.9	87.1 ±1.0	88.2 ±1.4	88.7 ±1.9	93.5 ±1.7	60.2 ±6.4	89.3 ±0.3
Girls	95.0 ±0.4	95.2 ±0.4	89.6 ±0.7	91.1 ±0.9	91.7 ±1.1	90.7 ±1.5	96.0 ±1.2	65.1 ±7.0	92.8 ±0.3
<b>Indigenous</b>	77.6 ±2.0	83.0 ±3.3	62.9 ±3.2	51.8 ±3.4	60.6 ±5.9	84.5 ±4.5	81.1 ±8.0	25.8 ±5.7	63.4 ±1.8
<b>LBOTE<sup>(b)</sup></b>	91.2 ±0.9	91.9 ±0.7	74.2 ±3.4	86.1 ±2.1	81.3 ±4.1	83.8 ±6.0	88.8 ±5.6	31.3 ±8.1	87.5 ±0.7
<b>Remoteness<sup>(c)</sup></b>									
Metropolitan	93.9 ±0.5	94.0 ±0.5	88.5 ±0.8	91.4 ±0.9	90.8 ±1.3	91.0 ±2.1	94.8 ±1.2	..	92.4 ±0.3
Provincial	92.6 ±0.7	92.8 ±0.7	85.8 ±1.0	88.0 ±1.7	89.0 ±1.7	88.7 ±1.7	n.p.	82.1 ±4.0	90.0 ±0.4
Remote	81.3 ±7.0	96.0 ±8.1	74.8 ±5.9	82.0 ±4.9	89.2 ±4.2	86.2 ±9.7	..	72.5 ±10.0	79.7 ±2.9
Very remote	76.7 ±18.4	..	57.6 ±10.1	56.5 ±9.2	54.1 ±17.3	n.p.	..	19.1 ±11.5	46.1 ±6.1
<b>All children</b>	<b>93.5 ±0.4</b>	<b>93.7 ±0.3</b>	<b>86.9 ±0.7</b>	<b>89.1 ±0.9</b>	<b>89.9 ±1.1</b>	<b>89.7 ±1.4</b>	<b>94.8 ±1.2</b>	<b>62.5 ±6.6</b>	<b>91.0 ±0.3</b>
<b>Numeracy</b>									
<b>Sex</b>									
Boys	94.6 ±0.4	94.5 ±0.5	90.7 ±0.6	91.5 ±0.9	91.1 ±1.1	91.8 ±1.4	94.6 ±1.4	70.2 ±5.7	92.8 ±0.3
Girls	94.2 ±0.4	94.8 ±0.5	90.1 ±0.7	90.7 ±0.9	89.9 ±1.1	92.4 ±1.3	95.2 ±1.4	67.9 ±6.3	92.5 ±0.3
<b>Indigenous</b>	78.9 ±1.9	83.3 ±3.5	69.5 ±3.1	61.6 ±3.4	68.5 ±5.3	87.8 ±3.9	82.3 ±8.5	38.3 ±6.3	69.2 ±1.7
<b>LBOTE<sup>(b)</sup></b>	94.4 ±0.7	93.5 ±0.6	81.0 ±3.1	89.7 ±2.0	84.9 ±3.9	83.9 ±6.8	90.3 ±5.7	40.5 ±7.7	90.7 ±0.7
<b>Remoteness<sup>(c)</sup></b>									
Metropolitan	95.0 ±0.4	94.8 ±0.4	91.5 ±0.7	93.3 ±0.8	91.1 ±1.3	92.7 ±2.0	95.0 ±1.1	..	93.8 ±0.3
Provincial	93.1 ±0.6	94.0 ±0.6	90.2 ±1.0	90.2 ±1.6	89.8 ±1.6	91.7 ±1.5	n.p.	86.7 ±3.7	91.9 ±0.4
Remote	82.9 ±7.4	100.0 ±0.0	80.8 ±5.6	84.4 ±4.1	90.3 ±4.0	89.1 ±11.6	..	78.0 ±8.8	83.4 ±2.6
Very remote	79.8 ±17.1	..	64.8 ±9.9	62.2 ±8.7	68.6 ±13.7	n.p.	..	30.2 ±10.9	54.3 ±5.6
<b>All children</b>	<b>94.4 ±0.3</b>	<b>94.6 ±0.3</b>	<b>90.4 ±0.6</b>	<b>91.1 ±0.8</b>	<b>90.5 ±1.0</b>	<b>92.1 ±1.2</b>	<b>94.9 ±1.2</b>	<b>69.1 ±5.9</b>	<b>92.7 ±0.2</b>

(a) Estimated percentage meeting the national minimum standards is based on assessed students. Year 5 corresponds to different average duration of formal schooling and average student age across the states and territories. Refer to source for details.

(b) LBOTE refers to language background other than English.

(c) Remoteness categories are based on the MCEETYA Schools Geographic Location Classification Scale.

Source: MCEETYA 2008b.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 16 Literacy and numeracy*.

## TEENAGE BIRTHS

**Headline Indicator:** Age-specific birth rate for 15 to 19 year old women

**Table 44.5: Number of live births to teenage mothers aged 15–19 years, 2006**

	State/territory of birth								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT <sup>(a)</sup>	NT	
	<b>Number</b>								
<b>Teenage births</b>	<b>3,466</b>	<b>1,918</b>	<b>3,061</b>	<b>1,523</b>	<b>883</b>	<b>436</b>	<b>132</b>	<b>484</b>	<b>11,903</b>
<b>Indigenous status of mother</b>									
Indigenous	535	104	532	415	123	31	8	371	2,119
Non-Indigenous	2,913	1,813	2,528	1,108	760	405	124	113	9,764
<b>Remoteness<sup>(b)</sup></b>									
Major cities	1,976	1,027	1,565	866	558	..	106	..	6,098
Inner regional	1,048	624	748	177	110	289	—	..	2,996
Outer regional	461	195	557	215	163	143	..	132	1,866
Remote and very remote	65	—	202	273	60	7	..	333	940
	<b>Number per 1,000 females</b>								
<b>Teenage births</b>	<b>15.5</b>	<b>11.3</b>	<b>22.1</b>	<b>21.5</b>	<b>17.4</b>	<b>26.5</b>	<b>11.1</b>	<b>65.4</b>	<b>17.3</b>
<b>Indigenous status of mother</b>									
Indigenous	68.5	58.3	72.3	114.0	78.9	30.2	36.4	115.7	79.6
Non-Indigenous	13.5	10.8	19.3	16.5	15.4	26.2	10.6	26.9	14.7
<b>Remoteness<sup>(b)</sup></b>									
Major cities	12.3	8.2	18.6	16.5	14.7	..	8.9	..	12.9
Inner regional	21.8	17.3	24.6	20.6	18.1	25.9	—	..	21.3
Outer regional	33.8	24.2	28.0	36.3	31.4	28.2	..	36.8	30.4
Remote and very remote	61.8	—	49.5	68.8	38.0	29.4	..	87.2	63.2

(a) 15.5% of women who gave birth in the ACT were non-ACT residents.

(b) Based on mother's usual place of residence.

Source: AIHW National Perinatal Data Collection, unpublished data.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 18 Teenage births*.

## BIRTHWEIGHT

**Headline Indicator:** Proportion of live born infants of low birthweight

**Table 44.6: Live born infants with a birthweight of less than 2,500 grams, 2006**

	State/territory of birth								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT <sup>(a)</sup>	NT	
	<b>Number</b>								
<b>Sex</b>									
Males	2,633	2,115	1,862	873	542	169	203	162	8,559
Females	2,870	2,329	1,979	951	650	211	197	200	9,387
Persons	5,508	4,445	3,841	1,826	1,192	380	400	362	17,954
<b>Indigenous status of mother</b>									
Indigenous	314	74	312	247	74	17	20	207	1,265
Non-Indigenous	5,165	4,366	3,529	1,579	1,118	363	375	153	16,648
<b>Birthplace of mother</b>									
Born in Australia	3,955	3,373	3,185	1,348	1,028	365	335	304	13,893
Overseas-born	1,505	1,072	655	448	164	15	65	26	3,950
<b>Remoteness<sup>(b)</sup></b>									
Major cities	4,234	n.p.	2,208	1,214	852	..	n.p.	..	12,039
Inner regional	1,010	924	722	214	125	n.p.	n.p.	..	3,271
Outer regional	423	197	678	186	130	105	..	159	1,878
Remote and very remote	65	n.p.	194	211	69	n.p.	..	195	739
<b>Socioeconomic status<sup>(b)</sup></b>									
Highest SES areas	1,191	759	462	360	136	11	141	—	3,060
Lowest SES areas	1,486	904	655	282	432	198	—	161	4,118
	<b>Per cent</b>								
<b>Sex</b>									
Males	5.5	5.9	6.4	6.1	5.7	5.3	7.2	8.6	5.9
Females	6.5	7.0	7.3	6.8	7.1	7.2	7.5	11.0	6.9
Persons	6.0	6.4	6.8	6.4	6.4	6.2	7.4	9.8	6.4
<b>Indigenous status of mother</b>									
Indigenous	11.9	13.1	10.7	14.2	13.4	7.9	18.9	14.2	12.4
Non-Indigenous	5.8	6.4	6.6	5.9	6.2	6.2	7.1	6.9	6.2
<b>Birthplace of mother</b>									
Born in Australia	6.0	6.5	6.8	6.5	6.5	6.4	7.7	11.0	6.5
Overseas-born	5.8	6.3	6.7	6.3	5.7	3.9	6.1	6.8	6.1
<b>Remoteness<sup>(b)</sup></b>									
Major cities	6.0	n.p.	6.6	6.1	6.3	..	n.p.	..	6.2
Inner regional	6.0	7.0	6.3	6.4	5.8	n.p.	n.p.	..	6.4
Outer regional	7.5	6.6	7.5	6.7	5.9	5.2	..	8.4	7.1
Remote and very remote	9.9	n.p.	8.2	8.5	8.8	n.p.	..	11.2	9.0
<b>Socioeconomic status<sup>(b)</sup></b>									
Highest SES areas	5.2	5.6	6.3	5.3	5.1	4.8	5.7	—	5.5
Lowest SES areas	6.8	7.4	7.4	8.5	7.3	6.6	—	12.4	7.3

(a) 15.5% of women who gave birth in the ACT were non-ACT residents; 6.1% of live births to ACT residents who gave birth in the ACT were low birthweight infants.

(b) Based on mother's usual place of residence.

Source: AIHW National Perinatal Data Collection, unpublished data.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 21 Birthweight*.

## FAMILY ECONOMIC SITUATION

**Headline Indicator:** Average real equivalised disposable household income for households with children in the 2nd and 3rd income deciles

**Table 44.7: Mean equivalised disposable household income for low-income households with dependent children aged 0–12 years, and the difference between low- and middle-income households, 2005–06 (\$ per week)<sup>(a)</sup>**

	Household income (low-income households)										Difference between low- and middle-income households									
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust. <sup>(b)</sup>		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust. <sup>(b)</sup>	
<b>Age of eldest child</b>																				
0–4 years	353	355	352	354	356	337	n.p.	345	353	217	208	205	221	199	252	n.p.	265	213		
5–12 years	345	354	344	347	343	344	373	377	347	224	214	219	220	207	232	196	196	219		
0–12 years	345	350	345	351	347	342	357	371	347	222	218	215	216	208	236	217	212	218		
<b>Birthplace of reference person</b>																				
Born in Australia	339	349	343	347	347	344	339	371	344	228	218	215	217	208	234	238	222	220		
Overseas-born	355	352	351	358	348	332	381	n.p.	354	211	219	221	214	209	244	182	n.p.	214		
<b>Remoteness</b>																				
Major cities	343	356	349	354	351	..	357	..	349	225	216	207	210	212	..	217	..	217		
Inner regional	350	341	340	321	369	338	—	..	343	214	221	224	257	136	242	—	..	221		
Outer regional	345	331	342	358	327	349	..	371	344	215	232	221	215	194	226	..	212	221		
Remote and very remote	n.p.	—	326	365	—	n.p.	..	n.p.	348	n.p.	—	247	191	—	n.p.	..	n.p.	212		
<b>Family type</b>																				
Couple, one-family households	347	362	343	357	349	347	373	381	351	220	210	219	214	207	223	201	199	216		
One-parent, one-family households	337	333	337	333	336	329	343	362	335	209	207	210	193	212	270	225	206	211		
Multiple family households	351	—	372	n.p.	n.p.	—	—	—	363	223	—	189	n.p.	n.p.	—	—	—	206		

(a) Low-income households based on the 2nd and 3rd income deciles; middle-income households based on the 5th and 6th deciles. Deciles formed using equivalised disposable household income of all households.

(b) The data for Australia include Other territories, comprising Christmas Island, Cocos (Keeling) Islands and Jervis Bay Territory.

Source: ABS 2005–06 Survey of Income and Housing, unpublished data.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 27 Family economic situation*.

## INJURIES

**Headline Indicator:** Age-specific death rates from all injuries for children aged 0–4, 5–9 and 10–14 years

**Table 44.8: Injury deaths for children aged 0–14 years, 2004–2006**

	State/territory of usual residence								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
	<b>Number</b>								
<b>Age group</b>									
0–4 years	124	53	108	42	36	10	5	17	395
5–9 years	51	25	21	17	8	6	n.p.	9	138
10–14 years	47	38	44	18	16	15	n.p.	6	187
<i>0–14 years</i>	<i>222</i>	<i>116</i>	<i>173</i>	<i>77</i>	<i>60</i>	<i>31</i>	<i>9</i>	<i>32</i>	<i>720</i>
<b>Sex</b>									
Boys	138	71	104	52	34	18	n.p.	14	435
Girls	84	45	69	25	26	13	n.p.	18	285
<b>Indigenous status<sup>(a)</sup> (2002–2006)</b>									
Indigenous	n.p.	n.p.	47	32	9	n.p.	n.p.	28	116
Non-Indigenous	n.p.	n.p.	256	113	88	n.p.	n.p.	20	477
<b>Remoteness</b>									
Major cities	118	56	67	47	32	..	9	..	329
Inner regional	62	41	44	11	n.p.	13	—	..	174
Other areas <sup>(b)</sup>	42	19	62	18	23	18	..	32	214
	<b>Deaths per 100,000</b>								
<b>Age group</b>									
0–4 years	9.6	5.7	13.7	11.0	13.4	11.1	8.2	32.0	10.2
5–9 years	3.8	2.6	2.6	4.2	2.8	6.2	n.p.	17.7	3.4
10–14 years	3.4	3.8	5.1	4.2	5.2	14.5	n.p.	11.9	4.5
<i>0–14 years</i>	<i>5.6</i>	<i>4.0</i>	<i>7.0</i>	<i>6.3</i>	<i>7.0</i>	<i>10.7</i>	<i>4.8</i>	<i>20.8</i>	<i>6.0</i>
<b>Sex</b>									
Boys	6.7	4.8	8.2	8.3	7.7	12.0	n.p.	17.6	7.0
Girls	4.3	3.2	5.7	4.2	6.2	9.2	n.p.	24.1	4.8
<b>Indigenous status<sup>(a)</sup> (2002–2006)</b>									
Indigenous	n.p.	n.p.	18.1	24.8	18.2	n.p.	n.p.	27.1	21.4
Non-Indigenous	n.p.	n.p.	6.8	6.0	6.3	n.p.	n.p.	13.1	6.6
<b>Remoteness</b>									
Major cities	4.2	2.7	5.2	5.8	5.4	..	4.8	..	4.3
Inner regional	7.2	6.2	7.0	6.6	n.p.	7.1	—	..	6.7
Other areas <sup>(b)</sup>	12.9	11.8	11.6	7.9	15.4	16.8	..	21.0	12.9

(a) Based on state/territory of death registration. For data quality reasons, 'Australia' data for Indigenous status are for Qld, WA, SA and the NT only. The data presented here are not necessarily representative of the jurisdictions excluded.

(b) Other areas includes *Outer regional*, *Remote* and *Very remote* areas combined.

Note: ICD-10 codes S00–T75, T79 (multiple cause of death) or V01–Y36, Y85–Y87, Y89 (underlying cause of death).

Source: AIHW National Mortality Database.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 32 Injuries*.

## CHILD ABUSE AND NEGLECT

**Headline Indicator:** Rate of children aged 0–12 years who were the subject of a substantiation of a notification received in 2007–08

**Table 44.9: Children aged 0–12 years who were the subject of a substantiation of a notification received in 2007–08**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	<b>Number</b>								
<b>Sex</b>									
Boys	5,506	2,574	3,046	540	815	376	236	281	13,374
Girls	5,141	2,435	2,879	610	774	320	209	314	12,682
<i>Children</i>	<i>10,717</i>	<i>5,031</i>	<i>5,975</i>	<i>1,151</i>	<i>1,601</i>	<i>719</i>	<i>448</i>	<i>595</i>	<i>26,237</i>
<b>Age</b>									
Less than 1 year	1,856	989	1,002	203	289	115	69	93	4,616
1–4 years	3,368	1,495	1,748	324	553	222	133	223	8,066
5–12 years	5,493	2,547	3,225	624	759	382	246	279	13,555
<b>Indigenous status<sup>(a)</sup></b>									
Indigenous	2,768	580	1,389	441	483	33	79	492	6,265
Other children	7,949	4,451	4,586	710	1,118	686	369	103	19,972
	<b>Number per 1,000 children</b>								
<b>Sex</b>									
Boys	9.3	5.9	8.0	2.9	6.4	8.8	8.5	12.0	7.4
Girls	9.2	5.9	8.0	3.5	6.4	7.9	7.7	14.2	7.4
<i>Children</i>	<i>9.3</i>	<i>5.9</i>	<i>8.1</i>	<i>3.2</i>	<i>6.5</i>	<i>8.7</i>	<i>8.1</i>	<i>13.1</i>	<i>7.4</i>
<b>Age</b>									
Less than 1 year	20.8	13.7	16.7	7.0	14.8	17.2	14.7	24.4	16.2
1–4 years	9.6	5.7	7.8	3.0	7.5	9.0	7.7	15.7	7.5
5–12 years	7.7	4.9	7.1	2.8	4.9	7.4	7.5	10.2	6.2
<b>Indigenous status<sup>(a)</sup></b>									
Indigenous	58.4	62.2	n.a.	19.4	56.1	n.a.	54.4	27.4	45.0
Other children	7.2	5.3	n.a.	2.1	4.7	n.a.	6.9	3.7	5.6

(a) In 2007–08, the Indigenous status of a relatively high proportion of children in Queensland and Tasmania was unknown, and these children have been assigned to the 'other' category. For this reason the number of substantiations for Indigenous and other children should be interpreted with caution, and rates have not been calculated for these states. The rate for 'Australia' by Indigenous status exclude Queensland and Tasmania.

Note: Variations across the states and territories may be a reflection of different legislation, departmental policies and practices, definitions and data systems in each jurisdiction rather than a variation in the reported levels of child abuse and neglect.

Source: AIHW National Child Protection Data Collection.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 34 Child abuse and neglect*.

## IMMUNISATION

**Headline Indicator:** Proportion of children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age

**Table 44.10: Children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age, 30 September 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
<b>Sex</b>									
Boys	91.8	92.9	91.5	90.9	91.6	93.8	94.4	94.9	92.0
Girls	93.2	93.8	92.3	91.4	93.3	93.2	95.5	92.3	93.0
Children	92.4	93.4	91.9	91.2	92.4	93.5	94.9	93.6	92.5
<b>Indigenous status<sup>(a)</sup></b>									
Indigenous	91.7	88.0	91.7	85.7	88.2	90.8	89.7	94.7	90.7
Other children	92.5	93.4	91.9	91.6	92.5	93.7	95.0	92.6	92.6
<b>Remoteness</b>									
Major cities	92.2	92.9	91.5	91.0	92.0	—	94.9	—	92.2
Inner regional	93.2	94.8	91.9	91.6	92.5	93.8	99.2	—	93.2
Outer regional	93.1	95.3	93.1	90.8	94.7	93.1	99.8	91.7	93.1
Remote and very remote	92.7	93.1	93.9	92.1	91.5	90.3	—	95.5	93.3

(a) Other includes children without a reported Indigenous status.

Note: Includes children who have received the scheduled doses of vaccines for diphtheria, tetanus and pertussis; poliomyelitis; hepatitis B; Hib; and measles–mumps–rubella. Excludes other scheduled vaccines for children aged up to 2 years (rotavirus, chicken pox, meningococcal C and pneumococcal conjugate).

Source: Australian Childhood Immunisation Register.

For contextual information and national-level commentary for this Headline Indicator, see *Chapter 39 Childhood immunisation*.



# Part XI

## DATA GAPS AND DEVELOPMENTS

Timely, accurate, and comprehensive information on children's health, development and wellbeing is essential for monitoring the progress of Australia's children, and is critical for the development of evidence-based policy. *A picture of Australia's children 2009* aims to do this, by presenting the latest and most reliable information on key national indicators of children's health, development and wellbeing, and the contributing social, community and economic influences.

The previous report, *A picture of Australia's children* (2005), identified data gaps within the indicator framework and the existing indicators. At that time, there was a notable lack of specific indicators to monitor the performance of systems and services that are available to children and their families. There was also a lack of recent objective national data on risk and protective factors such as overweight and obesity, physical activity, early learning, breastfeeding, smoking and substance use during pregnancy, social and emotional development; and specific conditions among children such as mental health and Type 2 diabetes.

Since 2005, there have been considerable data development and information activities in the areas of children's health, development and wellbeing, increasing the available information for a number of indicators, and filling some of the data gaps identified in the 2005 edition. The 2009 edition includes system performance indicators as well as additional indicators in the following areas: congenital anomalies, physical activity, early learning, transition to and attendance at primary school, teenage births, alcohol use during pregnancy, school relationships and bullying, children in grandparent families, neonatal hearing screening, quality child care, and child protection resubstantiations. The ministerially endorsed Children's Headline Indicators are included for the first time in this report as a subset of the key national indicators.

*Part XI* of this report highlights:

- data gaps in existing indicators
- new data developments relevant to children.

## 45 Data gaps

The indicator framework in this report has been broadened from previous editions, reflecting the key issues facing the health, development and wellbeing of Australia's children today, as well as the availability of additional data sources. However, as with previous editions, there are still a number of indicators for which there is a lack of national data or a lack of recent data.

Table 45.1 identifies where data gaps exist in the national monitoring of children's health, development and wellbeing in Australia. As is evident from Table 45.1, there are eight indicators (shaded) where considerable indicator and data development are required in order to report on these indicators. Further information on these data gaps and indicator developments can be found in the preceding chapters.

Even for those indicators that have a defined measure and recent available data, presenting this information by subpopulations of Australian children, such as

Aboriginal and Torres Strait Islander children, children living in geographically isolated areas or those from socioeconomically disadvantaged areas, was not possible for all of the indicators presented in this report.

While there has been much progress in collecting information on the health and wellbeing of Indigenous children over the last decade, many logistical, analytical and conceptual challenges still remain. This is due partly to varying levels of identification of Indigenous people in administrative records and partly to the statistical and practical challenges of surveying a population that is relatively small. As a result, there are many areas considered integral to child health, development and wellbeing where, at the national level, there is not sufficiently robust information to show how well Indigenous children are faring, or how they compare with non-Indigenous children (see *Part IX* for further information).

**Table 45.1: Data gaps in national indicators**

Indicator	Data limitations and gaps	Data availability
Disability	The most recent national data are from the ABS 2003 Survey of Disability, Ageing and Carers. ABS will be conducting the next survey in 2009.	Data expected to be available 2010/2011
Mental health	No recent national data are available on the mental health of children aged 0–14 years. The most recent data for this indicator are from the 1998 Child and Adolescent Component of the National Survey of Mental Health and Wellbeing.	Data not available
Breastfeeding	No national data are currently available on <i>exclusively</i> breastfed infants. The Australian Government is planning to conduct an Australian National Infant Feeding Survey in 2009, which has the potential to address this indicator.	Data not available
Early learning (infants read to by an adult on a regular basis)	Further development is required to identify and clarify measurement components (such as terms 'regular' and 'adult'). No national data are currently available to address this indicator; however, information has been presented from Growing up in Australia: the Longitudinal Study of Australian Children on parents reading to children aged 2–3 years.	Indicator development required
Attending early childhood education programs	No national data are currently available on children attending an early education program in the 2 years before beginning formal schooling. Information is available from ABS Child Care Surveys on attendance at preschool or long-day care centres. However, these data will overestimate the number of children attending an early educational program. The ABS 2008 Childhood Education and Care Survey will enable improved identification of children attending an early educational program.	Data expected to be available mid-2009
Transition to primary school	Information in this report has been presented from 60 communities across Australia which had implemented the AEDI in 2004–2007. The national implementation of the AEDI from 2009 has the potential to address this indicator.	Data available following national implementation
Social and emotional development	No national data currently available due to definition and measurement difficulties.	Indicator development required
Smoking in pregnancy	Currently no national data are available on women who smoked during the first 20 weeks of pregnancy (defined measure for this Headline Indicator). Information has been presented on women who smoked at any time during pregnancy.	Data expected to be available in 2010
Family functioning	No national data are currently available for families with children. Information has been presented from state-based surveys.	Data not available
School relationships and bullying	Currently no defined measure or national data source for this indicator, due to difficulties in defining and measuring bullying.	Indicator development required
Neonatal hearing screening	No national data are currently available. Information has been presented on children fitted with hearing aids.	Data not available
Quality child care	No national data currently available due to definition and measurement difficulties.	Indicator development required

## 46 New data developments relevant to children

In recent years, there have been a number of new national data development activities relevant to children, significantly contributing to the evidence base in national information on the health, development and wellbeing of Australia's children. Those of particular relevance for this report are described below. Further information on a number of other data development and information activities relevant to children can be found in *Australia's welfare 2007* (AIHW 2007a:63).

### **AUSTRALIAN NATIONAL CHILDREN'S PHYSICAL ACTIVITY AND NUTRITION SURVEY**

This survey was conducted in 2007 by the Commonwealth Scientific and Industrial Research Organisation and the University of Adelaide, with funding from the Australian Government Department of Health and Ageing, the Department of Agriculture, Fisheries and Forestry, and the Australian Food and Grocery Council. The survey collected comprehensive information on overweight and obesity, physical activity and nutrition from more than 4,000 children aged 2–16 years. The survey data can be measured against Australia's Nutrient Reference Values, the Australian Dietary Guidelines for Children and the Australian Physical Activity Guidelines. The results of the survey will inform research and government policy, and influence the promotion of good nutrition and healthy lifestyles in Australia.

### **GROWING UP IN AUSTRALIA: THE LONGITUDINAL STUDY OF AUSTRALIAN CHILDREN (LSAC)**

This study was initiated and funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs as part of the Stronger Families and Communities Strategy, and is being undertaken in partnership with the Australian Institute of Family Studies, with advice provided by a consortium of leading researchers. The study has a broad, multidisciplinary base, exploring family and social issues

relevant to children's development, including family functioning, health, non-parental child care and education.

The LSAC follows two cohorts of children—infants aged 3–19 months and children aged about 4–5 years at Wave 1 (2004)—with data collection occurring every 2 years. Data from Waves 1, 1.5, 2 and 2.5 are currently available, enabling the longitudinal nature of this study to be utilised. A key benefit of this type of longitudinal study is that it allows investigation of how children's outcomes are interlinked with their environment.

### **FOOTPRINTS IN TIME: THE LONGITUDINAL STUDY OF INDIGENOUS CHILDREN (LSIC)**

This study was initiated and funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, and is guided by the LSIC Steering Committee. The study aims to improve understanding on how Indigenous children develop resilience and what helps to improve their wellbeing and future, and to recognise links between early childhood experiences and later life outcomes.

The LSIC follows two cohorts of children—infants aged 6–18 months and children aged 3–4 years. Wave 1 data was collected in 2008, and is expected to be publicly released in August 2009. The long-term objective of the study is to enable the development of practical and effective policies and programs to close the gap of disadvantage experienced by Indigenous families (FaHCSIA 2009).

### **AUSTRALIAN EARLY DEVELOPMENT INDEX: BUILDING BETTER COMMUNITIES FOR CHILDREN (AEDI)**

The Australian Early Development Index is a population measure of how young children prior to school age are developing in different Australian communities. It aims to provide communities with a basis for reviewing the services, supports and environments that

influence children in their first 5 years of life (CCCH & Telethon Institute of Child Health Research 2007).

The AEDI is managed by the Centre for Community Child Health at the Royal Children's Hospital Melbourne, in partnership with the Telethon Institute for Child Health Research, with funding from the Australian Government Department of Education, Employment and Workplace Relations.

The AEDI will be implemented nationally for the first time in 2009. It has previously been successfully piloted in 60 communities across Australia between 2004 and 2007.

## AIHW DATA DEVELOPMENTS

### National Child Protection Data Collection

The AIHW, in collaboration with the National Child Protection and Support Services data group, has undertaken developmental work on a draft national minimum data set for the National Child Protection Data Collection, with the aim of improving analytic potential and national reporting on children and young people in the child protection system. The AIHW will be working with the jurisdictions in developing and implementing a National Child Protection Unit Record Collection.

### Children's Services National Minimum Data Set (CSNMDS)

Development of the Children's Services National Minimum Data Set has been completed with the publication of the final report in February 2007 (NCSIMG 2007). The CSNMDS, endorsed by the Community and Disability Services Ministers' Advisory Council in 2006, aims to provide nationally comparable and comprehensive data about the provision of child care and preschool services including information about the children who use the services, the service providers and their workers. The AIHW has examined the feasibility of implementing the CSNMDS and found that most states and territories have not incorporated the CSNMDS data items into their collections, primarily due to cost and feasibility issues. However, all jurisdictions felt that the data items in the CSNMDS would be useful if there was an agreement to establish a national collection.

The AIHW and the ABS are currently working together to develop national data standards for the performance indicators of the National Partnership Agreement on Early Childhood Education. Data standards in the CSNMDS will be used as the basis for this work.

### Juvenile Justice National Minimum Data Set (JJ NMDS)

The JJ NMDS has been implemented, and four reports have been published between 2006 and 2008. These reports draw on data held in the national database established by the AIHW and the Australasian Juvenile Justice Administrators. This database provides, for the first time, statistical information on all children and young people under juvenile justice supervision, including not only those on detention but also those under community-based supervision.

To further investigate the pathways between child maltreatment, homelessness and juvenile offending, the AIHW is undertaking a project to link the JJ NMDS, the SAAP data collection and available child protection data. The linked data will enable analysis of the characteristics of young people who are involved in more than one of these sectors, which will help inform the development of early intervention and social inclusion policies and programs (AIHW 2008k).

## ABS DATA DEVELOPMENTS

### Childhood Education and Care Survey

This survey was conducted by the ABS in June 2008, covering child care and early years' learning. The survey results, to be released in mid-2009, will provide improved information about the number of children participating in preschool programs in both dedicated preschools and as part of preschool programs conducted in long day care centres. This survey has replaced the former Child Care Survey, with the new survey integrating the overlap between education and care arrangements. The Childhood Education and Care Survey will continue to provide information on the nature, use and cost of child care as well as data on children's learning activities and environments in their early years.

## Family framework

The ABS has started work on the development of an agreed framework to support the further development of national statistics about families. This framework will identify and define the important concepts of family and family statistics, drawing attention to the importance of measuring aspects of family structures, family transitions, family functioning, and transactions—or social exchanges—between the family and the wider community, as important elements of family wellbeing. The framework will then be used to guide data development activities in the area of families, as well as associated research.

## Children and Youth Information Development Plan

The ABS, in conjunction with the Children and Youth Statistics Advisory Group, has developed an information development plan aimed at improving the collection and use of statistics on children and youth. The plan is based on 10 agreed priority areas for statistical data development. It reviews existing data, reports on data gaps and identifies actions required by key agencies to achieve the identified improvements within each of the priority areas. The ABS published an information paper outlining the plan in 2006, and has released annual updates in 2007 and 2008 (ABS 2006f).

# Appendixes

## Appendix 1: Methods

### Crude rates

A crude rate is defined as the number of events over a specified period (for example, a year) divided by the total population at risk of the event.

### Age-specific rates

An age-specific rate is defined as the number of events for a specified age group over a specified period (for example, a year) divided by the total population at risk of the event in that age group. Unless otherwise stated, rates presented throughout this report are age-specific.

Age-specific rates in this report were calculated by dividing, for example, the number of hospital separations or deaths in each specified age group by the corresponding population in the same age group.

### Age-standardised rates

Age-standardised rates enable comparisons to be made between populations that have different age structures. Direct standardisation was used in this report, in which the age-specific rates are multiplied by a constant population. This effectively removes the influence of the age structure on the summary rate. Where age-standardised rates have been used, this is stated throughout the report.

All age-standardised rates in this report have used the June 2001 Australian total estimated resident population as the standard population.

The method used for the calculation of age-standardised rates consists of three steps:

Step 1: Calculate the age-specific rate for each age group.

Step 2: Calculate the expected number of cases in each age group by multiplying the age-specific rates by the corresponding standard population and dividing by 100,000 to get the expected number of cases.

Step 3: Sum the expected number of cases in each age group, divide by the total of the standard population and multiply by 100,000. This gives the age-standardised rate.

### Rate ratio

Rate ratios are calculated by dividing the proportion of the study population (for example, Indigenous Australians) with a particular characteristic by the proportion of the standard population (for example, non-Indigenous Australians) with the same characteristic.

A rate ratio of 1 indicates that the prevalence of the characteristic is the same in the study and standard populations. Rate ratios of greater than 1 indicate higher prevalence in the study population and rate ratios of less than 1 indicate higher prevalence in the standard population.

### Confidence intervals

The observed value of a rate may vary due to chance even where there is no variation in the underlying value of the rate. Therefore, where indicators include a comparison between time periods, geographical locations, socioeconomic groups or by Indigenous status, 95% confidence intervals have been calculated for administrative data (including data from the AIHW National Hospital Morbidity Database, the AIHW National Mortality Database and the AIHW

National Perinatal Data Collection). The confidence intervals are used to provide an approximate indication of the differences between rates.

As with all statistical comparisons, care should be exercised in interpreting the results of the comparison. If two rates are statistically significantly different from each other, this means that the difference is unlikely to have arisen by chance. Judgment should, however, be exercised in deciding whether or not the difference is of any practical significance.

In this report, differences have been reported based on 95% confidence intervals. These confidence intervals are available on request.

For survey data, significance testing was undertaken using information about sampling variability.

## Population data

The ABS estimated resident population (ERP) data were used to calculate most of the rates presented in this report.

Crude and age-specific rates were calculated using the ERP of the reference year as at 30 June for calendar year data (1 January to 30 December) and 31 December for financial year data (1 July to 30 June). For this report, population data for December 2006 and for June 2007 were available as preliminary estimates only. Final estimates were used for all earlier years.

The denominator for rates by socioeconomic status and remoteness area were calculated by applying an ABS concordance between statistical local area (SLA) and socioeconomic status and between SLA and remoteness area, to the relevant ERP by SLA counts.

The most recent direct count of the Indigenous population, for which data was available for this publication, was the 2006 Census. The ABS has also released projected estimates for the Indigenous population for more recent years, based on the 2001 Census.

## Population groups

### *Aboriginal and Torres Strait Islander people*

At present, there is considerable variation across the states and territories in the completeness of mortality and hospital data for Indigenous people. Information concerning the number of hospital separations and

deaths of Indigenous people is limited by the accuracy with which Indigenous persons are identified in deaths and hospital records. Problems associated with identification result in an underestimation of deaths and hospital separations for Indigenous people.

Mortality data for Queensland, Western Australia, South Australia and the Northern Territory are considered to have sufficient coverage to produce reliable statistics on Indigenous Australian deaths for the period 1998–2006. Due to the small numbers of deaths among Indigenous children, 5 years of mortality data have been combined for analysis in this report (2002–2006). Where Indigenous status is 'Not stated/inadequately described', these deaths have been excluded from the analysis. As such, the categories used for presentation of mortality analysis are 'Indigenous Australians' and 'non-Indigenous Australians'.

Hospital separations data from New South Wales, Victoria, Queensland, Western Australia, South Australia and public hospitals in the Northern Territory are considered to have sufficient completeness of Indigenous identification for analysis. Where Indigenous status is 'Not stated/inadequately described', these separations are included with those for non-Indigenous people. As such, the categories used for presentation of hospital separations are 'Indigenous Australians' and 'Other Australians'.

Interpretation of Indigenous mortality and hospital separation results should take into account the relative quality of the data from these jurisdictions and the fact that data from these jurisdictions are not necessarily representative of the excluded jurisdictions.

### *Remoteness area*

Except where otherwise stated, this report uses the Australian Standard Geographical Classification (ASGC), which groups geographic areas into five classes. These classes are based on Census Collection Districts and are defined using the Accessibility/Remoteness Index of Australia (ARIA). ARIA is a measure of the remoteness of a location from the services provided by large towns or cities. A higher ARIA score denotes a more remote location. The five classes of the ASGC Remoteness classification, along with a sixth 'Migratory' class, are listed in Table A1.1.

**Table A1.1: Remoteness areas for the ASGC Remoteness Classification**

Classes	Collection districts (CDs) within class
Major cities of Australia	CDs with an average ARIA index value of 0 to 0.2
Inner regional Australia	CDs with an average ARIA index value greater than 0.2 and less than or equal to 2.4
Outer regional Australia	CDs with an average ARIA index value greater than 2.4 and less than or equal to 5.92
Remote Australia	CDs with an average ARIA index value greater than 5.92 and less than or equal to 10.53
Very remote Australia	CDs with an average ARIA index value greater than 10.53
Migratory	Off-shore, shipping and migratory CDs

Source: ABS 2008c.

### Socioeconomic status

The Socio-Economic Index for Areas (SEIFA) are summary measures of socioeconomic status (SES), and summarise a range of socioeconomic variables associated with disadvantage. Socioeconomic disadvantage is typically associated with low income, high unemployment and low levels of education. Unless otherwise stated, the SEIFA index used in this report is the 2006 SEIFA Index of Relative Socioeconomic Disadvantage (IRSD) developed by the ABS for use at the statistical local area level. See Adhikari (2006) for the complete list of variables and corresponding weights used for the IRSD.

Since the IRSD only summarises variables that indicate disadvantage, a low score indicates that an area has many low-income families, many people with little training and many people working in unskilled occupations; and this area may be considered as disadvantaged relative to other areas. A high score implies that the area has few families with low incomes and few people with little or no training and working in unskilled occupations. These areas with high index scores may be considered less disadvantaged relative to other areas. It is important to understand that a high score reflects a relative lack of disadvantage rather than advantage, and that the IRSD relates to the average disadvantage of all people living in a geographic area and can not be presumed to apply to all individuals living within the area. For further information see Adhikari (2006).

SEIFA quintiles were used for this report, with quintile 1 representing the most relatively disadvantaged areas and quintile 5 representing the least relatively disadvantaged areas. Throughout this report, the most disadvantaged quintile is referred to as 'Lowest SES areas' and the least disadvantaged quintile is referred to as 'Highest SES areas'.

### Mortality data

Mortality data presented in this report are from the AIHW National Mortality Database (see *Appendix 2 Data sources*). Unless otherwise stated, mortality analysis in this report is based on year of registration of death; results may therefore differ slightly from data based on year of death. Data presented by state and territory are based on the state or territory of usual residence, except for analysis by Indigenous status, which is based on state or territory of death registration unless otherwise stated. Data issues relating to a specific mortality analysis are footnoted in tables and figures throughout the report. Mortality analysis in this report is based on underlying cause of death (rather than multiple cause of death), unless otherwise stated.

### Cause of death classification

Australia uses the International Statistical Classification of Diseases and Related Health Problems for coding of causes of death. The ninth revision (ICD-9) is available for the years 1979–1998 and the tenth revision from 1999 onwards. The ABS backcoded the 1997 and 1998 cause of death data in ICD-10 and consequently causes of death were dual-coded in ICD-9 and ICD-10 for these years. In this report, trend data for mortality used ICD-10 from 1997 onwards.

There are comparability factors available between ICD-9 and ICD-10. The comparability factors indicate the effect of the change on a particular code over time and can provide a means of bridging data between two revisions when presenting trend data. Where comparability factors have been applied, this is noted throughout the report.

The ICD-9 and ICD-10 codes used for analysis in this report are listed in Table A1.2.

### Hospital diagnosis classification

For hospital diagnosis, the International Statistical Classification of Diseases and Related Health Problems is used with modifications. ICD-9-CM is a clinical modification of ICD-9, and has been used in the AIHW National Hospital Morbidity Database (NHMD) from 1993–94 to 1997–98. ICD-10-AM is an Australian modification of ICD-10, and has been used in the AIHW NHMD from 1998–99 onwards.

All hospital data presented in this report is based on principal diagnosis. Records where care type was recorded as newborn (unqualified days only), posthumous organ procurement or hospital boarder were excluded from analysis, as they do not represent admitted patient care.

The ICD-9-CM and ICD-10-AM codes used for analysis in this report are listed in Table A1.2.

## Injury and poisoning

There are a number of issues when performing injury and poisoning analysis on mortality and hospital separations. The methods and ICD codes used in this report are consistent with those used by the AIHW National Injury Surveillance Unit. These methods are summarised here, but are described in detail by

Henley and colleagues (2007) (for mortality) and Berry and Harrison (2007) (for hospital separations).

### *Injury mortality analysis*

Injury mortality analysis, based on the AIHW National Mortality Database, uses multiple causes of death, rather than underlying cause of death, as this approach provides more valid estimates of injury incidence, and a more complete and reliable picture of the burden of injury mortality. The criterion used to select injury deaths was an ICD-10 multiple cause of death code in the range S00–T75, or T79; or an underlying cause of death code in the range V01–Y36, Y85–Y87, or Y89. Cases meeting this criterion are referred to as community injury, and exclude cases relating to complications of surgical and medical care.

**Table A1.2: ICD codes used in this report for mortality and hospitals data<sup>(a)</sup>**

	ICD-9 and ICD-9-AM	ICD-10 and ICD-10-AM
Asthma	..	J45–J46
Diabetes	..	E10–E14, O24 (excluding O24.5)
Cancer	140–208, 238.4, 238.6, 238.7, 273.3, 273.8, 273.9	C00–C97, D45–D46, D47.1, D47.3
Brain	..	C71
Kidney	..	C64
Lymphoid leukaemia	..	C91
Myeloid leukaemia	..	C92–C94
Non-Hodgkin lymphoma	..	C82–C85, C96
Mental and behavioural disorders	..	F00–F99
Diseases of the nervous system	..	G00–G99
Diseases of the circulatory system	..	I00–I99
Injury and poisoning <sup>(b)</sup>	..	V01–Y98
Symptoms, signs and ill-defined conditions	..	R00–R99
Sudden infant death syndrome	7980	R95
Other symptoms, signs and abnormal findings	..	R00–R94, R96–R99
Perinatal conditions	..	P00–P96
Disorders of short gestation and low birthweight	..	P07
Fetus and newborn affected by maternal complications of pregnancy	..	P01
Fetus and newborn affected by complications of placenta, cord and membranes	..	P02
Other perinatal conditions	..	P03–P06, P08–P96
Congenital anomalies	..	Q00–Q99
Congenital malformations of the circulatory system	..	Q20–Q28
Other congenital anomalies	..	Q00–Q19, Q29–Q99

(a) Unless otherwise indicated throughout the report.

(b) Injury and poisoning analysis presented in *Chapter 32 Injuries* uses the criteria described in the above section, *Injury and poisoning*.

Accidental drowning is the only specific cause of injury death analysed in this report using the AIHW National Mortality Database. The criterion used to select accidental drowning deaths was a:

- multiple cause of death code: S00–T75, or T79 and W65–W74; or
- multiple cause of death code: T75.1 and V01–X59; or
- underlying cause of death code of V01–Y36, Y85–Y87, or Y89.

### ***Injury hospital morbidity analysis***

In this report, an approximate method has been used to reduce over-counting of injury cases, by omitting records in which the mode of admission is recorded as being a transfer from another acute-care hospital. These records have been excluded, as they are likely to result in multiple counting of the one injury case. This is consistent with other AIHW reports on injury (see, for example, Berry & Harrison 2007).

The criterion used to select injury hospitalisations was an ICD-10-AM principal diagnosis code in the range S00–T75 or T79. Cases meeting this criterion are referred to as community injury, and exclude cases relating to complications of surgical and medical care.

Specific causes of injury hospitalisation are further classified according to external cause codes in the ICD-10-AM range V01–Y98. As multiple external causes can be recorded, only the first reported external cause per hospitalisation was selected (that is, one external cause per injury hospitalisation). See Table A1.3 for the external cause codes used for specific causes of injury hospitalisation.

**Table A1.3: ICD-10-AM codes used in this report for injury hospital morbidity analysis**

	<b>External cause codes</b>
Land transport accidents	V01–V89
Falls	W00–W19
Exposure to smoke, fire and flames	X00–X09
Burns and scalds	X10–X19
Accidental poisoning	X40–X49
Intentional self-harm	X60–X84
Assault	X85–Y09

## Appendix 2: Data sources

### AIHW AND COLLABORATING UNITS DATA SOURCES

#### *AIHW National Child Protection Data Collection*

The AIHW collects annual statistics on child protection in Australia for children and adolescents aged 0–17 years. Data are provided by the state and territory community services departments and are used to produce *Child protection Australia*, and are also provided to the Productivity Commission for the *Report on government services*.

There are four separate child protection collections: child protection notifications, investigations and substantiations; children on care and protection orders; children in out-of-home care; and intensive family support services.

Data availability: Annual from 1991 onwards

Further information: <[www.aihw.gov.au/childyouth/childwelfare/childprotection/index.cfm](http://www.aihw.gov.au/childyouth/childwelfare/childprotection/index.cfm)>

#### *AIHW National Drug Strategy Household Survey (NDSHS)*

The NDSHS is a key data collection under the National Drug Strategy. The survey began in 1985 and has been managed by the AIHW since 1998.

The 2007 NDSHS was conducted between July and November 2007. Almost 25,000 Australians aged 12 years or older participated in the survey, in which they were asked about their knowledge of and attitudes towards drugs, their drug consumption histories and related behaviours.

The data collected from these surveys have contributed to the development of policies for Australia's response to drug-related issues.

Data availability: Triennially from 1985

Further information: AIHW 2008a or <[www.aihw.gov.au/drugs/ndshs07.cfm](http://www.aihw.gov.au/drugs/ndshs07.cfm)>

#### *AIHW National Hospital Morbidity Database (NHMD)*

The NHMD is compiled by the AIHW from data supplied by the state and territory health authorities. It is a collection of electronic confidentialised summary records for separations (that is, episodes of care) in public and private hospitals in Australia.

Hospital records are for 'separations' and not individuals, and as there can be multiple admissions for the same individuals, hospital separation rates do not usually reflect the incidence or prevalence of the disease or condition in question.

The collection contains establishment data (information about the hospital), patient demographic data, administrative data, length of stay data, and clinical and related data.

Data availability: Annual from 1993–94 onwards

Further information: <[www.aihw.gov.au/hospitals/nhm\\_database.cfm](http://www.aihw.gov.au/hospitals/nhm_database.cfm)>

#### *AIHW National Mortality Database*

The AIHW National Mortality Database includes information on the factors that caused death, and other information about the deceased person such as age at death, place of death, country of birth and, where applicable, the circumstances of their death. These data are collected in Australia by the Registrars of Births, Deaths and Marriages in each state and territory. The data are then compiled nationally by the ABS, which codes the data according to the ICD.

Data availability: Annual from 1964 onwards

Further information: <[www.aihw.gov.au/mortality/index.cfm](http://www.aihw.gov.au/mortality/index.cfm)>

#### *AIHW National Perinatal Data Collection (NPDC)*

The AIHW NPDC is a national population-based cross-sectional data collection of pregnancy and childbirth. The data are based on births reported to the perinatal data collection in each state and territory in Australia. Midwives and other staff, using information obtained from mothers

and from hospital or other records, complete notification forms for each birth. Selected information is then compiled annually into this national data set by the AIHW National Perinatal Statistics Unit. Information is included in the NPDC on both live births and stillbirths of at least 400 grams birthweight or at least 20 weeks gestation.

Data availability: Annual from 1991 onwards

Further information:

<[www.npsu.unsw.edu.au/NPSUweb.nsf/page/NPDC](http://www.npsu.unsw.edu.au/NPSUweb.nsf/page/NPDC)>

### ***Australian Congenital Anomalies Monitoring System***

The Australian Congenital Anomalies Monitoring System contains data based on notifications of major congenital anomalies to birth defects registers in New South Wales, Victoria, Western Australia and South Australia, and on data collected on congenital anomalies in Queensland, Tasmania and the Australian Capital Territory. The Northern Territory is currently unable to provide data in a format enabling it to be compiled with data from the other states and territories.

Information is included on live births and stillbirths of 20 weeks gestational age or more, or 400 grams birthweight or more (including induced abortions), with a congenital anomaly, for all states and the Australian Capital Territory. Information on induced abortions of less than 20 weeks gestational age and less than 400 grams weight with a congenital anomaly is only available for four states: New South Wales, Victoria, Western Australia and South Australia.

Data availability: Annual from 1981 onwards

Further information: Abeywardana & Sullivan 2008a or <[www.npsu.unsw.edu.au/NPSUweb.nsf/page/CADC](http://www.npsu.unsw.edu.au/NPSUweb.nsf/page/CADC)>

### ***Bettering the Evaluation and Care of Health (BEACH) survey***

The BEACH survey of general practice activity is a collaborative study between the AIHW and the University of Sydney. For each year's data collection, a random sample of about 1,000 general practitioners each report details of 100 consecutive general practice encounters of all types on structured encounter forms. Each form collects information about the consultations (for example, date and type of consultation), the patient (for example, date of birth, sex and reasons for encounter),

the problems managed and the management of each problem (for example, treatment provided, prescriptions and referrals). Data on patient risk factors, health status and general practitioner characteristics are also collected.

Data availability: Annual from 1998–99 onwards

Further information: Britt et al. 2008.

### ***Child Dental Health Survey***

The Child Dental Health Survey is an annual survey that monitors the dental health of children enrolled in school dental services operated by the Australian state and territory health departments. This survey represents the only data routinely collected by all states and territories on child dental health.

Data for the Child Dental Health Survey are derived from routine examinations of children enrolled in the school dental services. The survey collects information on selected demographic characteristics and dental health status, including decay experience of deciduous and permanent teeth, immediate treatment needs (some states and territories only) and fissure sealants.

Data availability: Annual from 1990

Further information: AIHW DSRU: Armfield et al. 2007.

### ***Children's Services National Minimum Data Set (CSNMDS)***

The development of the CSNMDS has been completed with the publication of the final report in February 2007 (NCSIMG 2007). The CSNMDS, endorsed by the Community and Disability Services Ministers' Advisory Council in 2006, aims to provide nationally comparable and comprehensive data about the provision of child care and preschool services, including information about the children who use the services, the service providers and their workers. Options for the implementation of the data set are now being examined.

Data availability: Not currently available

Further information: NCSIMG 2007.

### **Juvenile Justice National Minimum Data Set (JJ NMDS)**

The JJ NMDS is the annual national collection of information on young people in community supervision and detention in Australia. It contains flow data from 2000–01 for all states and territories in Australia (except the Australian Capital Territory—data are available from 2003–04). Data are provided by the department responsible for juvenile justice in each jurisdiction. The JJ NMDS is designed to provide relevant and comparable information that will contribute to the national monitoring of juvenile justice policies and programs.

Information collected includes the number and characteristics of young people in juvenile justice supervision (age, sex, Indigenous status), patterns of supervision (type, length, location), and juvenile justice detention centre characteristics.

Data availability: Annual from 2000–01 onwards

Further information:

<[www.aihw.gov.au/phjj/juvenilejustice/index.cfm](http://www.aihw.gov.au/phjj/juvenilejustice/index.cfm)>

### **National Cancer Statistics Clearing House (NCSCCH)**

Information on the incidence of cancer in the Australian population is provided by the state and territory cancer registries to the NCSCCH, which is maintained by the AIHW. The NCSCCH is the only national database of cancer incidence in Australia. It contains information on incidence, mortality, specific cancer sites, cancer histology, geographical variation, trends over time and survival.

Data items enable record linkage to be performed (for example, to the National Death Index) and the analysis of cancer by site and behaviour.

Data availability: Annual from 1982 onwards

Further information:

<[www.aihw.gov.au/cancer/ncsch/index.cfm](http://www.aihw.gov.au/cancer/ncsch/index.cfm)>

### **National Diabetes Register (NDR)**

The NDR, held at the AIHW, is a register of people living in Australia with insulin-treated diabetes. This includes persons using insulin to manage Type 1, Type 2, gestational and other types of diabetes. People are eligible to be on the NDR if they use insulin to treat their diabetes and their insulin use began on or after 1 January 1999.

The NDR has two main data sources:

- the National Diabetes Services Scheme database, administered by Diabetes Australia
- the Australasian Paediatric Endocrine Group's state and territory databases.

Data availability: Annual from 1999 onwards

Further information: <[www.aihw.gov.au/diabetes/ndr.cfm](http://www.aihw.gov.au/diabetes/ndr.cfm)>

### **Supported Accommodation Assistance Program (SAAP) National Data Collection**

The SAAP National Data Collection has provided annual information on the provision of assistance through SAAP since 1996–97. The AIHW has had the role of National Data Collection Agency since the collection's inception. The National Data Collection consists of distinct components, each of which can be thought of as a separate collection—the Client Collection, the Administrative Data Collection and the Demand for Accommodation Collection.

The Client Collection collects information about all clients receiving SAAP support of at least 1 hour duration. Data collected include basic sociodemographic information and information on the services requested by, and provided to, each client. Information about each client's situation before and after receiving SAAP support is also collected. The Administrative Data Collection provides information about the agencies providing SAAP accommodation and support services. The Demand for Accommodation Collection is conducted twice a year for two 1-week periods. It measures the level of unmet demand for SAAP accommodation by collecting information about the number of requests for accommodation from SAAP agencies that are not met, for whatever reason.

Data availability: Annual from 1996–97 onwards

Further information:

<[www.aihw.gov.au/housing/sacs/saap/index.cfm](http://www.aihw.gov.au/housing/sacs/saap/index.cfm)>

## ABS DATA SOURCES

### **ABS Births, Australia**

The ABS compiles aggregate statistics on births, based on data provided by the parent(s) of the child to the state and territory Registrars of Births, Deaths and Marriages.

The statistics in the *Births, Australia* publication refer to births registered during the relevant calendar year. As there is usually an interval between the occurrence and registration of a birth, some births occurring in one year are not registered until the following year, or even later.

Data availability: Annual from 1993 onwards

Further information: [www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3301.0](http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3301.0)

### **ABS Census of Population and Housing**

The Census aims to provide an accurate measure of the number of people in Australia on Census night, their key demographic, social and economic characteristics, and the dwellings in which they live. The Census reports on a range of topics including population, cultural diversity, community, living arrangements, education, work, economic resources and housing.

Data availability: 1911 onwards; 5 yearly from 1976

Further information: [www.abs.gov.au/websitedbs/D3310114.nsf/Home/census?opendocument?utm\\_id=GT](http://www.abs.gov.au/websitedbs/D3310114.nsf/Home/census?opendocument?utm_id=GT)

### **ABS Child Care Survey**

The ABS Child Care Survey collects data on the supply of, and demand for, child care and preschool services for children aged 12 years or less. Information is also collected on the receipt of the Child Care Benefit as well as the income and working arrangements of parents. Data are collected for children who are usual residents in the selected dwelling; however children living in *Very remote* areas of Australia have been excluded from the survey. This exclusion has only a minor impact on aggregate statistics at the national level.

This survey has been replaced from 2008 by the Childhood Education and Care Survey. See *Part XI* under new data developments.

Data availability: Triennially since 1969

Further information: [www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4402.0Main+Features1Jun%202005%20Second%20Reissue?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4402.0Main+Features1Jun%202005%20Second%20Reissue?OpenDocument)

### **ABS Family Characteristics and Transitions Survey (FCTS)**

The FCTS collects information on household and family composition including demographics, labour force status and family type. The FCTS has replaced the Family Transitions and History Survey and the Family Characteristics Survey. The FCTS survey provides detailed information on families with children aged 0–17 years such as family structure, the social marital status of parents, parental income and contact arrangements for children with non-resident parents.

Data availability: 1992 (Survey of Families in Australia), 1997 and 2003 (Family Characteristics Survey), 2006–07 (Family Characteristics and Transitions Survey)

Further information: [www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4442.0Main+Features12006-07?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4442.0Main+Features12006-07?OpenDocument)

### **ABS General Social Survey (GSS)**

The ABS conducted the GSS in 2002 and 2006, with plans to repeat the survey at 4-yearly intervals. The aims of the GSS are to collect data on a range of social dimensions of the Australian community at a single point in time; enable analysis of the interrelationship of social circumstances and outcomes, including the exploration of multiple advantage and disadvantage; and provide a base for comparing social circumstances and outcomes over time and across population groups.

The focus of the GSS is on the relationships between characteristics from different areas of social concern, rather than in-depth information about a particular field. Topics include demographic characteristics, health and disability, housing, education, work, income, financial stress, assets and liabilities, information technology, transport, family and community, crime and feelings of safety, attendance at culture and leisure venues, sports attendance and participation, social networks and social participation, voluntary work and visa category.

Data availability: 2002 and 2006

Further information: ABS 2007a or <[www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4159.0Main+Features12006?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4159.0Main+Features12006?OpenDocument)>

### **ABS National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)**

The ABS 2004–05 NATSIHS provides information about the health circumstances of Indigenous Australians. This survey, which was conducted in remote and non-remote areas throughout Australia, collected information from Indigenous Australians about health-related issues, including health status, risk factors and actions, and socioeconomic circumstances. The sample size was considerably larger than the supplementary Indigenous sample in the 2001 National Health Survey.

The aims of the survey were to provide broad information about the health of Indigenous Australians, by remoteness, and at the national and state/territory levels; allow the relationships across the health status, risk factors and health-related actions of Indigenous Australians to be explored; provide comparisons over time in the health of Indigenous Australians; and provide comparisons with results for the non-Indigenous population from the 2001 and 2004–05 National Health Survey.

Data availability: 2001 and 2004–05

Further information: ABS 2006d or <[www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4715.0Main+Features12004-05?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4715.0Main+Features12004-05?OpenDocument)>

### **ABS National Aboriginal and Torres Strait Islander Social Survey (NATSISS)**

The 2002 NATSISS was conducted between August 2002 and April 2003. Information was collected about the Aboriginal and Torres Strait Islander populations for a wide range of areas of social concern including health, education, culture and labour force participation. In 2002, information was collected by personal interview from about 10,000 Aboriginal and Torres Strait Islander people aged 15 years and over throughout Australia, including those living in remote areas.

The 2008 NATSISS was conducted between August 2008 and April 2009; however, data were not available for inclusion in this report.

Data availability: 1994 and 2002

Further information: <[www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4714.0Main+Features12002?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4714.0Main+Features12002?OpenDocument)>

### **ABS National Health Survey (NHS)**

The 2004–05 NHS was conducted between August 2004 and June 2005 and collected information from around 25,900 people. Both urban and rural areas in all states and territories were included, but very remote areas of Australia were excluded. One person aged 18 years and over in each dwelling was selected and interviewed about their own health and, if there were children resident, an adult was asked about the health of one child.

The NHS collected information on the health status of the population, and on health-related aspects of people's lifestyles such as smoking, diet, exercise and alcohol consumption. Other information on the use of health services (such as consultations with health practitioners, visits to hospital, days away from work and other actions people have recently taken for their health) was also collected, along with demographic and socioeconomic characteristics.

The most recent ABS NHS was conducted in 2008–09; however, data were not available for inclusion in this report.

Data availability: 1977–78, 1983, 1989–90, 1995, 2001 and 2004–05

Further information: ABS 2006e or <[www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4364.0Main+Features12004-05?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4364.0Main+Features12004-05?OpenDocument)>

### **ABS Recorded Crime—Victims**

*Recorded crime—victims, Australia* is an annual publication that presents national crime statistics relating to victims of a selected range of offences that have been recorded by police. These statistics provide indicators of the level and nature of recorded crime victimisation in Australia and are a basis for measuring change over time. The statistics for the publication are derived from administrative systems maintained by state and territory police.

Data availability: Annual from 1993

Further information: <[www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/DA3DED213BAE8114CA257178001B6949?opendocument](http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/DA3DED213BAE8114CA257178001B6949?opendocument)>

**ABS Survey of Disability, Ageing and Carers (SDAC)**

The SDAC collects information about people of all ages with a disability, older people (aged 60 years and over), and people who provide assistance to older people and people with disabilities.

The aims of the survey are to measure the prevalence of disability in Australia and the need for support of older people and those with a disability; provide a demographic and socioeconomic profile of people with disabilities, older people and carers compared with the general population; and to estimate the number of, and provide information about, people who provide care to older people and people with disabilities. People with disability were asked questions relating to help and assistance needed and received for self-care, mobility and communication. Those aged 5–20 years (or their proxies) were also asked about schooling restrictions and 15–64 year olds about employment restrictions.

The most recent survey was conducted in 2003, with the next survey expected to be conducted in 2009.

Data availability: 1981, 1988, 1993, 1998, and 2003

Further information: ABS 2004a or <[www.abs.gov.au/AUSSTATS/abs@nsf/Lookup/4430.0Main+Features12003?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@nsf/Lookup/4430.0Main+Features12003?OpenDocument)>

**ABS Survey of Income and Housing (SIH)**

The ABS SIH (previously known as the Survey of Income and Housing Costs) is a household survey that collects information from residents aged 15 years and over on sources of income and amount received, and also housing, household and personal information. In 2005–06, the sample for the SIH was around 10,000 households.

As income received by individuals is often shared between members of a household, equivalised household income can be used in analysis of the SIH. This survey allows analysis of the amount of income received and the source of that income, and how factors such as these vary depending on age, state or territory, the remoteness of the household, or household size. It is also possible to examine housing circumstances such as the rate of home ownership among various groups.

Data availability: Most years from 1994–95 to 2003–04 (no survey was run in 1998–99 or 2001–02), 2005–06

Further information: <[www.abs.gov.au/AUSSTATS/abs@nsf/DOSSbyTopic/F0CDB39ECC092711CA256BD00026C3D5?OpenDocument](http://www.abs.gov.au/AUSSTATS/abs@nsf/DOSSbyTopic/F0CDB39ECC092711CA256BD00026C3D5?OpenDocument)>

**OTHER DATA SOURCES****Australian Childhood Immunisation Register (ACIR)**

The ACIR was established in 1996 and records information on the immunisation status of children aged less than 7 years who are enrolled in Medicare; children not eligible to enrol in Medicare can also be added to the ACIR. The aims of the ACIR are to provide an accurate measure of the immunisation coverage of children in Australia and to provide an effective management tool for monitoring immunisation coverage and service delivery. Health professionals use the ACIR to monitor immunisation coverage levels, service delivery and disease outbreaks.

Data availability: Quarterly from March 1998 onwards

Further information: <[www.medicareaustralia.gov.au/provider/patients/acir/statistics.jsp](http://www.medicareaustralia.gov.au/provider/patients/acir/statistics.jsp)>

**Australian Early Development Index: Building Better Communities for Children (AEDI)**

The AEDI pilot project was conducted by the Centre for Community Child Health at the Royal Children's Hospital Melbourne, in partnership with the Telethon Institute for Child Health Research, with funding from the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs and support from Shell Company of Australia Limited.

The AEDI is a community measure of young children's health and development, based on the scores from a teacher-completed checklist in their first year of formal schooling. It aims to provide communities with a basis for reviewing the services, supports and environments that influence children in their first 5 years of life (CCCH & Telethon Institute for Child Health Research 2007). Data presented in this report were collected between 2004 and 2007 from 37,420 children in 60 communities. The Australian Government has committed to the national implementation of the AEDI from 2009.

Data availability: 2004 onwards (currently for selected communities only)

Further information: <[www.rch.org.au/australianedi/edi.cfm?doc\\_id=6211](http://www.rch.org.au/australianedi/edi.cfm?doc_id=6211)>

### ***Australian Institute of Criminology National Homicide Monitoring Program (NHMP)***

The Australian Institute of Criminology has operated the NHMP since 1990.

The purpose of the program is to identify the characteristics of individuals that place them at risk of homicide victimisation and offending, and the circumstances that contribute to the likelihood of a homicide occurring. The two main data sources used by the program are police records and coronial files.

Data availability: Annual from 1989–90 onwards

Further information: [www.aic.gov.au/research/projects/0001.html](http://www.aic.gov.au/research/projects/0001.html)

### ***Australian Secondary Students' Alcohol and Drug (ASSAD) Survey***

The ASSAD Survey is a triennial secondary school-based survey that monitors the use of tobacco, alcohol and other substances among adolescents in Australia. The first survey was conducted by the Cancer Councils in each Australian state and territory in 1984, and was restricted to secondary school students' use of tobacco and alcohol. In 1996, the federal, state and territory health departments became collaborators with the Cancer Councils, and the survey was expanded to include questions on the use of illicit substances.

The 2005 survey collected information from a representative sample of over 20,000 secondary school students in years 7–12 across Australia. The questionnaire covers the use of tobacco, alcohol, pain relievers, sleeping tablets and the use of illicit substances such as cannabis and hallucinogens.

The most recent survey was conducted in 2008; however, data were not available for inclusion in this report.

Data availability: 1984, 1987, 1993, 1996, 1999, 2002 and 2005

Further information: [www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/publications-monographs](http://www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/publications-monographs) (see Monograph series nos. 58, 59 and 60)

### ***Australian Transport Safety Bureau Fatal Road Crash Database***

The Fatal Road Crash Database contains information on road transport crash fatalities in Australia, as reported by the police each month to the state and territory road safety authorities.

The data can be examined by either fatalities or fatal crashes. Information collected for fatal crashes include date, location and type of crash. Information collected for fatalities include age, gender and road user type.

Data availability: Annual from 1988

Further information: [www.infrastructure.gov.au/roads/safety/road\\_fatality\\_statistics/fatal\\_road\\_crash\\_database.aspx](http://www.infrastructure.gov.au/roads/safety/road_fatality_statistics/fatal_road_crash_database.aspx)

### ***Growing up in Australia: the Longitudinal Study of Australian Children (LSAC)***

This study was initiated and funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs as part of its Stronger Families and Communities Strategy, and is being undertaken in partnership with the Australian Institute of Family Studies, with advice provided by a consortium of leading researchers. The study has a broad, multidisciplinary base, exploring family and social issues relevant to children's development, including family functioning, health, non-parental child care, and education.

The LSAC follows two cohorts of children—infants aged 3–19 months and children aged about 4–5 years at Wave 1 (2004)—with data collection occurring every 2 years. Data from waves 1, 1.5, 2 and 2.5 are currently available, enabling the longitudinal nature of this study to be utilised. A key benefit of this type of longitudinal study is to investigate how children's outcomes are interlinked with their environment.

Data availability: Waves 1 (2004), 1.5 (2005), 2 (2006) and 2.5 (2007)

Further information: [www.aifs.gov.au/growingup/](http://www.aifs.gov.au/growingup/)

### **Household, Income and Labour Dynamics in Australia (HILDA) Survey**

The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs and is managed by the Melbourne Institute of Applied Economic and Social Research. This report uses unit record data from the HILDA Survey. The findings and views reported in this report; however, are those of the authors and should not be attributed to either the department or the Melbourne Institute.

The HILDA Survey is a longitudinal household-based panel survey that began in 2001. It aims to describe the way people's lives are changing by tracking all members of an initial sample of households over an indefinite period. Wave 7 (2007) data are available as at June 2009. Data are collected on a wide range of issues, including household structure, family background, marital history, family formation, education, employment history, current employment, job search, income, health and wellbeing, child care and housing. In addition, in every wave there is scope for additional questions on special topics. Interviews are conducted with all persons in the household aged 15 years and over, although information may be collected on persons aged under 15 years from other household members.

Data availability: Annual from 2001 onwards

Further information:

<[www.melbourneinstitute.com/hilda/](http://www.melbourneinstitute.com/hilda/)>

### **National Children's Physical Activity and Nutrition Survey**

This survey was conducted in 2007 by the Commonwealth Scientific and Industrial Research Organisation and the University of Adelaide, with funding from the Australian Government Department of Health and Ageing, and the Department of Agriculture, Fisheries and Forestry, and the Australian Food and Grocery Council.

The survey collected comprehensive information on overweight and obesity, physical activity and nutrition from more than 4,000 children aged 2–16 years.

The survey data can be measured against Australia's Nutrient Reference Values, the Australian Dietary Guidelines for Children and the Australian Physical Activity Guidelines. As demographic information was not collected for those who refused to participate in this survey, it is not possible to estimate non-response bias. The results of the survey will inform research and government policy, and influence the promotion of good nutrition and healthy lifestyles in Australia.

Data availability: 2007

Further information: DoHA 2008.



# Abbreviations

ABS	Australian Bureau of Statistics	ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
ACIR	Australian Childhood Immunisation Register	IRSD	Index of Relative Socioeconomic Disadvantage
ADHD	attention deficit hyperactivity disorder	LSAC	Growing up in Australia: the Longitudinal Study of Australian Children
AEDI	Australian Early Development Index	MCS	Mental Health Component Summary
AESOC	Australian Education Systems Officials Committee	MMR	measles–mumps–rubella (vaccination)
AHMC	Australian Health Ministers' Conference	NAPLAN	National Assessment Program—Literacy and Numeracy
AIHW	Australian Institute of Health and Welfare	OECD	Organisation for Economic Co-operation and Development
ARIA	Accessibility/Remoteness Index of Australia	PISA	Programme for International Student Assessment
ASGC	Australian Standard Geographical Classification	RSE	relative standard error
BMI	body mass index	SAAP	Supported Accommodation Assistance Program
CDSMC	Community and Disability Services Ministers' Conference	SEIFA	Socio-Economic Indexes for Areas
CI	Confidence interval	SIDS	sudden infant death syndrome
COAG	Council of Australian Governments	SLA	statistical local area
CSTDA	Commonwealth State/Territory Disability Agreement	UN	United Nations
DMFT	decayed, missing or filled permanent teeth	WHO	World Health Organization
dmft	decayed, missing or filled deciduous teeth		
DTP	Diphtheria, tetanus, pertussis		
ERP	Estimated resident population		
FAS	Fetal alcohol syndrome		
Hib	<i>Haemophilus influenzae</i> type b		
HIV	Human immunodeficiency virus		
ICD	International Classification of Diseases		
ICD-9	International Statistical Classification of Diseases and Related Health Problems, 9th Revision		
ICD-9-CM	International Statistical Classification of Diseases and Related Health Problems, 9th Revision, Clinical Modification		
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10th Revision		

## AUSTRALIAN STATES AND TERRITORIES

ACT	Australian Capital Territory
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

## SYMBOLS USED IN TABLES

n.a.	not available
—	rounded to zero, including null cells
..	not applicable
n.p.	not published (data cannot be released due to quality issues, confidentiality or permission not granted)

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## List of tables

Table 2.1:	Children in Australia, June 2007.....	5
Table 2.2:	Indigenous children aged 0–14 years, June 2006.....	6
Table 2.3:	Distribution of children across the states and territories, June 2007.....	7
Table 2.4:	Distribution of Indigenous children and all children aged 0–14 years, by remoteness, 2006.....	7
Table 2.5:	Refugee children aged 0–14 years in Australia, by ethnicity, as at 30 June 2008.....	7
Table 3.1:	Children aged 0–14 years by family structure, 1997, 2003 and 2007.....	9
Table 5.1:	Cancer deaths among children aged 0–14 years, 1997–2006.....	22
Table 5.2:	Hospital separations for children aged 0–14 years, 2006–07.....	23
Table 7.1:	Selected congenital anomalies among infants at birth, 1998–2003.....	29
Table 8.1:	Children scoring 'of concern' on the Strengths and Difficulties Questionnaire, New South Wales and Victoria, 4–12 years.....	31
Table 8.2:	Mental health problems managed for children aged 0–14 years, 2007–08.....	32
Table 10.1:	Proportion of children aged 0–14 years residing in areas with optimum fluoride concentration in the mains water, 2001.....	40
Table 11.1:	Children aged 9–14 years meeting National Physical Activity Guidelines, 2007.....	42
Table 11.2:	Children aged 4–13 years meeting daily Dietary Guidelines, 2007.....	43
Table 16.1:	Students in years 3, 5 and 7 achieving at or above the national reading and numeracy minimum standards, 2008.....	57
Table 20.1:	Reported alcohol use in pregnancy: women with children under 2 years of age, 2006.....	70
Table 22.1:	Australian children aged 2–12 years by BMI category, 2007.....	76
Table 23.1:	Smoking status of households with children aged 0–14 years, 1995–2007.....	78
Table 28.1:	Children aged 0–14 years in out-of-home care, type of care at 30 June 2008.....	90
Table 28.2:	Users of CSTDA-funded services aged 0–14 years, age by residential setting, 2006–07.....	92
Table 29.1:	Children living with a parent with disability, 2003.....	94
Table 29.2:	Alcohol consumption associated with harm among people aged 18 years and over.....	96
Table 30.1:	Households with children aged 0–14 years where neighbourhood is perceived as safe or very safe, 2006.....	98
Table 31.1:	Measures of social support networks in one-family households with children aged 0–14 years, 2006.....	100
Table 32.1:	Injury hospital separation rate for children aged 0–14 years, leading specific causes of injury, 2006–07.....	104
Table 37.1:	Children aged 10–14 years in juvenile detention on an average day, selected countries, 2006–07.....	119
Table 40.1:	Five-year relative survival for leukaemia, children aged 0–14 years, 1998–2004.....	128
Table 41.1:	Accreditation status of approved long day care centres, 2006 to 2008.....	130
Table 42.1:	Children aged 0–17 years who were the subject of a resubstantiation within 3 and/or 12 months, 2006–07.....	132

Table 43.1: Distribution of Indigenous children across the states and territories, June 2006.....	137
Table 43.2: Household composition, occupied private dwellings, 2006.....	138
Table 43.3: Leading causes of infant death by Indigenous status, Qld, WA, SA and NT, 2002–2006 .....	139
Table 43.4: Leading causes of death among children aged 1–14 years by Indigenous status, Qld, WA, SA and NT, 2002–2006.....	141
Table 43.5: Selected risk factors for infant health, by Indigenous status, 2006 .....	146
Table 43.6: Children aged 0–14 years in out-of-home care by Indigenous status, 30 June 2008.....	153
Table 43.7: Indigenous Australians aged 15 years and over living in one-family households with children aged 0–14 years: measures of Indigenous cultural participation, 2002.....	154
Table 43.8: Injury hospital separations for children aged 0–14 years, leading external cause by Indigenous status, 2006–07 .....	155
Table 44.1: Headline Indicators for children’s health, development and wellbeing .....	160
Table 44.2: Deaths of infants aged less than 1 year, 2006 .....	161
Table 44.3: Mean number of decayed, missing or filled teeth (DMFT) among primary school children aged 12 years, 2002 .....	162
Table 44.4: Year 5 students who achieve at or above the national minimum standards for reading and numeracy, 2008.....	163
Table 44.5: Number of live births to teenage mothers aged 15–19 years, 2006.....	164
Table 44.6: Live born infants with a birthweight of less than 2,500 grams, 2006.....	165
Table 44.7: Mean equivalised disposable household income for low income households with dependent children aged 0–12 years, and the difference between low and middle income households, 2005–06.....	166
Table 44.8: Injury deaths for children aged 0–14 years, 2004–2006.....	167
Table 44.9: Children aged 0–12 years who were the subject of a substantiation of a notification received in 2007–08 .....	168
Table 44.10: Children on the Australian Childhood Immunisation Register who are fully immunised at 2 years of age, 30 September 2008.....	169
Table 45.1: Data gaps in existing national indicators.....	173
Table A1.1: Remoteness areas for the ASGC Remoteness Classification .....	179
Table A1.2: ICD codes used in this report for mortality and hospitals data.....	180
Table A1.3: ICD-10-AM codes used in this report for injury hospital morbidity analysis.....	181

## List of figures

Figure 2.1: Number of children and children as a proportion of the total Australian population, 1958–2038.....	5
Figure 2.2: Age and sex distribution of Indigenous and non-Indigenous populations, 2006.....	6
Figure 3.1: Change in selected family types, 1976 Census and 2006 Census.....	9
Figure 4.1: Infant mortality rate, 1986–2006.....	13
Figure 4.2: Leading causes of infant mortality, 2006.....	13
Figure 4.3: Trends in infant deaths due to sudden infant death syndrome, 1986–2006.....	14
Figure 4.4: Death rates for children aged 1–14 years, 1986–2006.....	15
Figure 4.5: Leading causes of death among children aged 1–14 years, 2004–2006.....	15
Figure 4.6: Infant and child deaths by remoteness, 2004–2006.....	16
Figure 4.7: Infant mortality rates among selected OECD countries, 2006.....	16
Figure 5.1: Most frequently reported long-term conditions in children aged 0–14 years, 2004–05.....	18
Figure 5.2: General practice encounters for asthma, 1998 to 2007.....	19
Figure 5.3: Type 1 diabetes incidence for children aged 0–14 years, 2006.....	20
Figure 5.4: Diabetes hospital separations for children aged 0–14 years, 2000–01 to 2006–07.....	20
Figure 5.5: Most common types of new cancers among children aged 0–14 years, 2001–2005.....	21
Figure 5.6: Five-year relative survival for cancer among children aged 0–14 years, 1982–1986 to 1998–2004.....	22
Figure 6.1: Prevalence of disability in children aged 0–14 years, 2003.....	25
Figure 6.2: Disability status of children aged 0–14 years, 2003.....	25
Figure 9.1: Breastfeeding practices for children aged 0–1 years, by month of age, 2004.....	36
Figure 9.2: Proportion of 0–4 year olds exclusively breastfed at 6 months, New South Wales, 2005–06.....	37
Figure 10.1: Mean number of decayed, missing or filled teeth among children aged 6 and 12 years, 1990–2002.....	39
Figure 10.2: Mean number of decayed, missing or filled teeth among children aged 6 and 12 years, 2002.....	40
Figure 10.3: Mean number of decayed, missing or filled teeth (DMFT) among 12 year old children in selected OECD countries.....	40
Figure 12.1: Length of time children aged 2–3 years read to by an adult family member, 2006–07.....	45
Figure 13.1: Trends in preschool and long day care attendance, 1999 to 2005.....	50
Figure 13.2: Children attending preschool or long day care by remoteness, 2005.....	50
Figure 14.1: Children developmentally vulnerable and performing well on AEDI domains, 2004–2007.....	52
Figure 14.2: Children developmentally vulnerable on one or more AEDI domains by socioeconomic status, 2004–2007.....	53
Figure 15.1: Average attendance rate of children in Year 5, by state and territory and school sector, 2007.....	55
Figure 16.1: Proportion of students achieving at or above national minimum reading and numeracy standards, Year 5 students, 2008.....	58
Figure 18.1: Teenage birth rate, Australia, 1991 to 2006.....	65
Figure 18.2: Teenage births by population groups, 2006.....	65

Figure 18.3: Teenage births among selected OECD countries, 2002.....	66
Figure 19.1: Women who smoked during pregnancy, by age of mother, 2006.....	68
Figure 19.2: Women who smoked during pregnancy, by population group, 2006.....	68
Figure 20.1: Women consuming alcohol during pregnancy by socioeconomic status and remoteness, 2007.....	71
Figure 21.1: Proportion of infants by birthweight category, 2006.....	73
Figure 21.2: Low birthweight infants, by maternal age, 2006.....	73
Figure 21.3: Low birthweight infants, by population group of mother, 2006.....	74
Figure 21.4: Low birthweight infants, selected OECD countries, 2006.....	74
Figure 22.1: Children aged 2–12 years who were overweight or obese, by remoteness, 2007.....	76
Figure 23.1: Smoking status of households with children aged 0–14 years, by remoteness and socioeconomic status, 2007.....	78
Figure 24.1: Students aged 12–14 years who were current smokers, 1984–2005.....	80
Figure 25.1: Trends in students aged 12–14 years engaging in risky drinking in the week before the survey, 1990–2005.....	82
Figure 27.1: Mean equivalised disposable income for households with children aged 0–12 years, 1996–97 to 2005–06.....	87
Figure 27.2: Children living in jobless families, by Indigenous status and family type, 2006.....	88
Figure 27.3: Selected financial stress indicators by equivalised household income, households with children aged 0–14 years, 2006.....	88
Figure 28.1: Children aged 0–14 years in out-of-home care, 1997 to 2008.....	90
Figure 29.1: Self-assessed health status of parents with co-resident children aged 0–14 years, 2006.....	94
Figure 29.2: Parents with co-resident children aged 0–14 years with a Mental Health Component Summary score of less than 41, by family type, 2006.....	95
Figure 29.3: Risky and high-risk alcohol use for short- and long-term harm among parents of children aged 0–14 years, 2007.....	96
Figure 30.1: Households with children aged 0–14 years where respondent was a victim of assault or break-in, by socioeconomic status, 2006.....	98
Figure 32.1: Injury deaths for children aged 0–14 years, 2006.....	103
Figure 32.2: Age-specific assault death rates, 2006–07.....	104
Figure 34.1: Children aged 0–12 years who were the subject of a substantiation of a child protection notification received in a given year, 1999–2000 to 2007–08.....	110
Figure 34.2: Children aged 0–12 years on care and protection orders at 30 June, 2000–2008.....	111
Figure 35.1: Victims of physical and sexual assault by age and sex, 2003.....	113
Figure 36.1: SAAP accompanying children, by age and sex, 2006–07.....	115
Figure 36.2: SAAP accompanying child support periods and the child population, by remoteness and socioeconomic status, 2006–07.....	116
Figure 37.1: Children aged 10–14 years under juvenile justice supervision by type of supervision, 2003–04 to 2006–07.....	118
Figure 37.2: Children aged 10–14 years in juvenile justice supervision, by sex and Indigenous status, 2006–07.....	118
Figure 38.1: Children first fitted with hearing aids by 6 and/or 12 months of age, as at 31 December 2007.....	123

Figure 39.1: Trends in immunisation coverage, 1997–2008.....	125
Figure 39.2: Immunisation coverage rates for children aged 1 year among selected OECD countries, 2007.....	125
Figure 39.3: Notification trends of selected communicable diseases, children aged 0–14 years, 1996–2008.....	126
Figure 39.4: Pertussis notification trend, children aged 0–14 years, 1996–2008.....	126
Figure 40.1: Trends in 5-year relative survival for leukaemia, children aged 0–14 years.....	128
Figure 40.2: Five-year relative survival for leukaemia, children aged 0–14 years, by population groups, 2000–2004.....	128
Figure 43.1: Age and sex distribution of Indigenous and other Australian populations, 2006.....	136
Figure 43.2: Distribution of children aged 0–14 years, by Indigenous status and remoteness, 2006.....	137
Figure 43.3: Selected relationships in household for persons in occupied private dwellings, by Indigenous status, 2006.....	138
Figure 43.4: Infant mortality by Indigenous status, WA, SA and NT, 1991–2006.....	140
Figure 43.5: Deaths from sudden infant death syndrome by Indigenous status, WA, SA and NT, 1991–2006.....	140
Figure 43.6: Deaths among children aged 1–14 years by Indigenous status, WA, SA and NT, 1991–2006.....	141
Figure 43.7: Prevalence of long-term conditions among children aged 0–14 years, 2004–05.....	142
Figure 43.8: Selected congenital anomalies among infants at birth, by Indigenous status, 1998–2003.....	144
Figure 43.9: Children aged 4–17 years at high risk of clinically significant emotional or behavioural difficulties, by Indigenous status, Western Australia, 2000–2002.....	144
Figure 43.10: Notifications of selected communicable diseases among children aged 0–14 years, by Indigenous status, 2008.....	148
Figure 43.11: Average attendance of Indigenous and non-Indigenous children in Year 5, by state and territory and school sector, 2007.....	150
Figure 43.12: Proportion of Indigenous and all students in Year 5 who achieved at or above the national reading and numeracy minimum standards, by remoteness, 2008.....	151
Figure 43.13: Indigenous and other Australian children aged 0–12 years subject to substantiations of notifications received in 2007–08, and care and protection orders at 30 June 2008.....	156

