



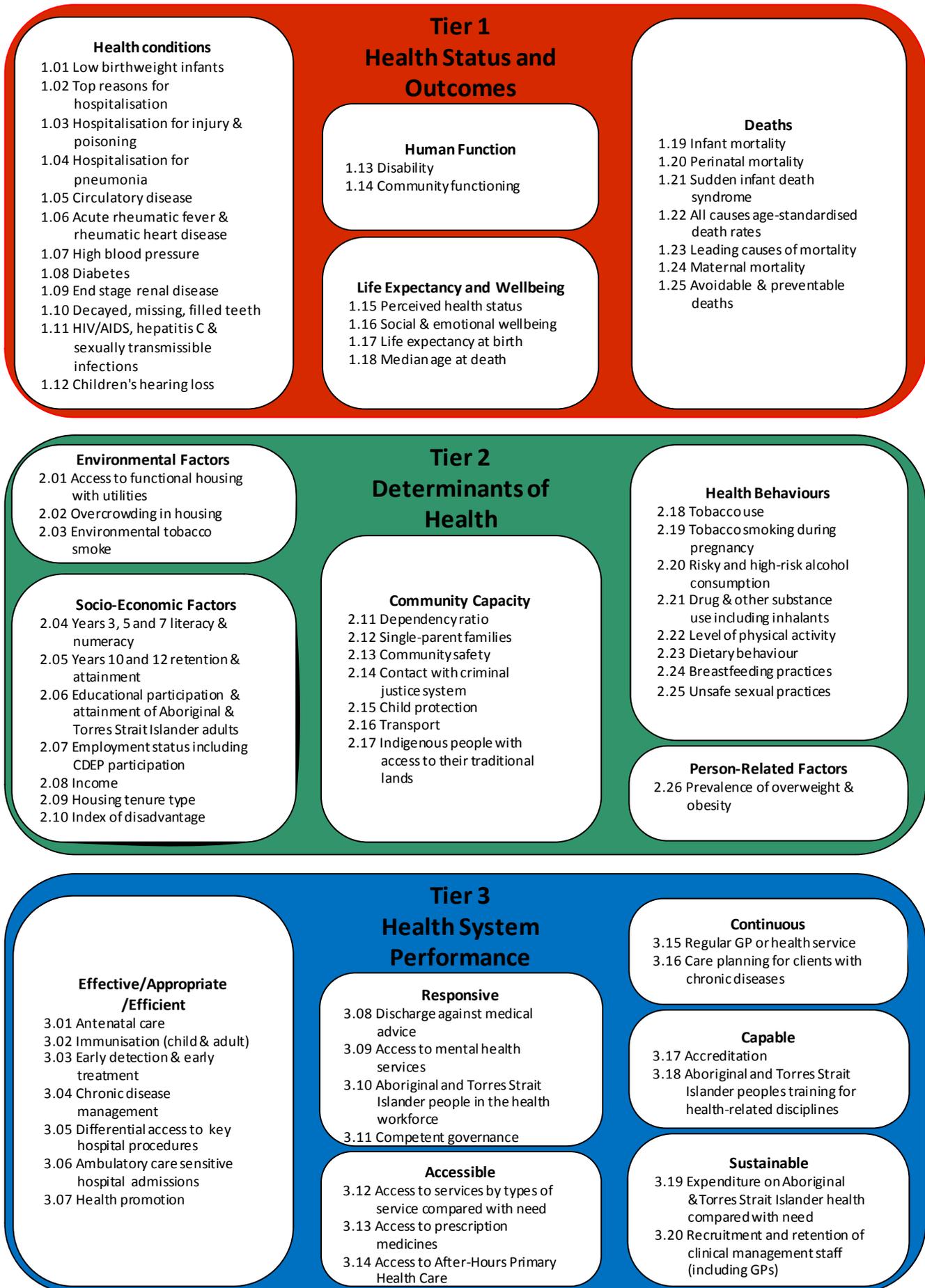
**Australian Government**  
**Department of Health and Ageing**

*Aboriginal and Torres Strait Islander  
Health Performance Framework*



*2010 Report*

**Figure 1 – Aboriginal and Torres Strait Islander Health Performance Framework (HPF)  
Performance Measures**



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# Table of Contents

<b>Executive Summary</b> .....	<b>i</b>	2.19 Tobacco smoking during pregnancy	112
<b>Acknowledgements</b> .....	<b>v</b>	2.20 Risky and high risk alcohol consumption	114
<b>Abbreviations</b> .....	<b>vi</b>	2.21 Drug and other substance use including inhalants	116
<b>Introduction</b> .....	<b>1</b>	2.22 Level of physical activity	118
<b>Key Messages</b> .....	<b>4</b>	2.23 Dietary behaviours	120
<b>National Health Policies and Strategies</b> .....	<b>11</b>	2.24 Breastfeeding practices	122
		2.25 Unsafe sexual practices	124
		2.26 Prevalence of overweight and obesity	126
<b>Tier 1: Health Status and Outcomes</b> .....	<b>13</b>	<b>Tier 3: Health System Performance</b> .....	<b>129</b>
1.01 Low birthweight infants	14	3.01 Antenatal care	130
1.02 Top reasons for hospitalisation	16	3.02 Immunisation (child and adult)	132
1.03 Hospitalisation for injury and poisoning	18	3.03 Early detection and early treatment	134
1.04 Hospitalisation for pneumonia	20	3.04 Chronic disease management	136
1.05 Circulatory disease	22	3.05 Differential access to key hospital procedures	138
1.06 Acute rheumatic fever and rheumatic heart disease	24	3.06 Ambulatory care sensitive hospital admissions	140
1.07 High blood pressure	26	3.07 Health promotion	142
1.08 Diabetes	28	3.08 Discharge against medical advice	144
1.09 End stage renal disease	30	3.09 Access to mental health services	146
1.10 Decayed, missing, filled teeth	32	3.10 Aboriginal and Torres Strait Islander people in the health workforce	148
1.11 HIV/AIDS, hepatitis C and sexually transmissible infections	34	3.11 Competent governance	150
1.12 Children’s hearing loss	36	3.12 Access to services by types of service compared to need	152
1.13 Disability	38	3.13 Access to prescription medicines	156
1.14 Community Functioning	40	3.14 Access to after-hours primary care	158
1.15 Perceived health status	44	3.15 Regular GP or health service	160
1.16 Social and emotional wellbeing	46	3.16 Care planning for clients with chronic diseases	162
1.17 Life expectancy at birth	50	3.17 Accreditation	164
1.18 Median age at death	52	3.18 Aboriginal and Torres Strait Islander people training for health-related disciplines	166
1.19 Infant mortality	54	3.19 Expenditure on Aboriginal and Torres Strait Islander health compared to need	168
1.20 Perinatal mortality	56	3.20 Recruitment and retention of clinical and management staff (including GPs)	172
1.21 Sudden infant death syndrome	58		
1.22 All-causes age-standardised death rate	60	<b>References</b> .....	<b>174</b>
1.23 Leading causes of mortality	62	<b>Technical Appendix</b> .....	<b>189</b>
1.24 Maternal mortality	66	<b>Figures</b> .....	<b>214</b>
1.25 Avoidable and preventable deaths	68	<b>Tables</b> .....	<b>220</b>
<b>Tier 2: Determinants of Health</b> .....	<b>71</b>		
2.01 Access to functional housing with utilities	72		
2.02 Overcrowding in housing	76		
2.03 Environmental tobacco smoke	78		
2.04 Years 3, 5 and 7 literacy and numeracy	80		
2.05 Years 10 and 12 retention and attainment	84		
2.06 Educational participation and attainment of Aboriginal and Torres Strait Islander adults	86		
2.07 Employment status	88		
2.08 Income	90		
2.09 Housing tenure type	92		
2.10 Index of disadvantage	94		
2.11 Dependency ratio	96		
2.12 Single-parent families	98		
2.13 Community safety	100		
2.14 Contact with the criminal justice system	102		
2.15 Child protection	104		
2.16 Transport	106		
2.17 Indigenous people with access to their traditional lands	108		
2.18 Tobacco use	110		

# Executive Summary

## Background

This is the third report against the *Aboriginal and Torres Strait Islander Health Performance Framework* (HPF). The first report, published in 2006, was developed under the auspice of the Australian Health Ministers' Advisory Council to provide the basis for measuring the impact of the *National Strategic Framework for Aboriginal and Torres Strait Islander Health* (NSFATSIH).

The HPF is designed to inform policy analysis, planning and program information to support the goal of the NSFATSIH which is to ensure 'that Aboriginal and Torres Strait Islander peoples enjoy a healthy life equal to that of the general population that is enriched by a strong living culture, dignity and justice.' Results from this report can be used to review current commitments and guide further comprehensive and coordinated effort to close the gap in Indigenous disadvantage.

The HPF monitors progress in closing the gap in Indigenous health outcomes, health system performance and broader determinants of health. Health systems comprise all the organisations, resources and activities whose primary purpose is to improve health. Governments, through their stewardship role in policy, planning and program delivery, have a key role to play in defining vision and direction as well as exerting influence and measuring performance. The HPF comprises three tiers:

### *Tier 1—Health status and outcomes*

Measures of prevalence of disease or injury, human function, life expectancy and wellbeing. How healthy are people? Is it the same for everyone? What are the opportunities for improvement?

### *Tier 2—Determinants of health*

Measures of the determinants of health including socioeconomic status, environmental factors and health behaviours. Are the factors that determine good health changing? Is it the same for everyone? Where and for whom are these factors changing?

### *Tier 3—Health system performance*

Measures of the health system including effectiveness, responsiveness, accessibility and sustainability, and how they are changing over time.

Data quality issues limit the ability to monitor the health outcomes and the performance of the health system in relation to Aboriginal and Torres Strait Islander peoples (see Technical Appendix for details). Initiatives to improve data quality have been introduced in recent years, and are now yielding results. However, while there are clear improvements in several key data collections, the capacity to identify trends is still impaired by poor data from earlier periods.

## COAG Targets

In December 2007, the Council of Australian Governments (COAG) re-affirmed its commitment to closing the gap in Indigenous disadvantage and endorsed a number of high-level targets including to close the life expectancy gap within a generation and to halve the gap in mortality rates for children under 5 years within a decade.

### *Close the gap in life expectancy within a generation*

- According to the latest data available (for the period 2005–07), the gap in life expectancy at birth between Aboriginal and Torres Strait Islander peoples and other Australians is estimated at 11.5 years for males and 9.7 years for females.
- Assuming current improvements in total Australian life expectancy continue, an annual increase in life expectancy of 0.8 years for Indigenous males and 0.6 years for females is needed to close the gap in life expectancy by 2031. As improving life expectancy is dependent on initiatives across the determinants of health, it is still too early for the data to demonstrate progress for this target.
- The next five years will provide a clearer picture of how the mortality gap is changing and the progress towards meeting the life expectancy target by 2031. In the absence of trend data for Indigenous life expectancy, mortality rates provide an indication of progress. While there has been a decline in Indigenous mortality over the last two decades, there has also been a decline in non-Indigenous death rates and although the mortality gap has narrowed it has not closed.

### *Halve the gap in mortality rates for Indigenous children under 5 within a decade*

- In 2008, the national Indigenous child mortality rate was 221 per 100,000 compared to 100 per 100,000 for non-Indigenous children. This makes the baseline gap 121 per 100,000.
- To achieve the target, the gap in national child mortality rates needs to reduce to 60 per 100,000. This would require 18 fewer Indigenous deaths of children aged under five years over the decade.
- Based on historical data, if current trends continue, it is likely that Indigenous child mortality rates will fall within the range of the target by 2018.

Effective primary care underpins almost all the strategies that can be delivered through the health system (e.g. antenatal care, immunisation, early detection and screening and chronic disease management), and many of the strategies targeted at healthy behaviours. Strengthening the system of comprehensive primary care can be expected to have substantial benefits to health outcomes.

## Tier 1: The health status of Aboriginal and Torres Strait Islander peoples

### Improvements

#### *Mortality*

- All-cause mortality rates for Aboriginal and Torres Strait Islander peoples living in Western Australia, South Australia and the Northern Territory declined by 25% between 1991 and 2008 and the gap has narrowed. There have been greater declines for Indigenous women compared with Indigenous men. Recent trends based on data from the above jurisdictions and New South Wales and Queensland combined show no significant changes in Indigenous mortality rates between 2001 and 2008.

#### *Avoidable mortality*

- There has been a significant decline in Indigenous deaths due to avoidable causes and the gap has narrowed.

#### *Circulatory disease*

- Deaths caused by circulatory disease—the most common cause of death for Aboriginal and Torres Strait Islander peoples—declined by 29% between 1997 and 2008.

#### *Infant mortality*

- Indigenous infant mortality declined by 55% between 1991 and 2008 and the gap has narrowed significantly.

#### *Pneumonia*

- Hospitalisation for pneumonia for children aged 0–4 years declined substantially and the gap has narrowed.

### Continuing concern

*Chronic disease contributes to two-thirds of the health gap between Indigenous and non-Indigenous Australians.*

- Fifty-eight per cent of excess deaths are due to chronic diseases (i.e. circulatory disease as well as cancer, diabetes, respiratory disease and kidney disease).
- While deaths from circulatory disease for Aboriginal and Torres Strait Islander peoples decreased significantly between 1997 and 2008, in recent years there has been no further closing of the gap.
- Deaths from respiratory disease also decreased significantly during the period 1997–2008, however the gap has remained.
- The gap between the two populations for deaths due to cancer is widening. The rate of improvement in cancer deaths has been greater for other Australians than for Aboriginal and Torres Strait Islander peoples over recent years.

- For kidney disease the mortality gap has widened in recent years because the rate of increase in deaths is faster for Indigenous Australians.
- There has been no improvement in deaths due to diabetes.
- Incidence of end stage renal disease has more than tripled over the last decade.

#### *Injury and poisoning*

- Injury and poisoning accounted for 15% of Indigenous deaths in 2004–08. Indigenous Australians died from intentional self-harm (suicide) and transport accidents at 2 and 3 times the rate of non-Indigenous Australians respectively.
- Hospitalisation rates for injury and poisoning are twice as common as rates for non-Indigenous Australians.

#### *Disability*

- Half of Aboriginal and Torres Strait Islander Australians aged 15 years and over have a disability or long-term health condition.

#### *Sexually transmissible infections*

- Notifications for chlamydia and gonorrhoea infections have continued to increase.

#### *Hospitalisation*

- Hospitalisation rates for Aboriginal and Torres Strait Islander peoples are 40% higher than for other Australians excluding dialysis and 230% higher including dialysis. The main factors causing the increase are admissions for renal dialysis, circulatory diseases and diabetes complications. The implications of the increase in hospitalisations are not clear. It may reflect increases in the incidence and prevalence of disease, improved access to primary health care, hospital care and/or better identification of Aboriginal and Torres Strait Islander people in hospital data.

#### *Low birthweight*

- This is twice as common for babies born to Aboriginal and Torres Strait Islander mothers than other Australian babies. The rate also appears to be increasing. There is a strong relationship between smoking during pregnancy and low birthweight.

#### *Chronic ear disease*

- Indigenous children are 3 times more likely to be diagnosed with severe otitis media than non-Indigenous children.

#### *Oral health*

- Aboriginal and Torres Strait Islander children have 50% more decayed, missing and filled teeth than non-Indigenous children indicating a large unmet need for dental care.

## Tier 2: Health Determinants

### Improvements

#### *Access to functional housing*

- In 2008, 99% of Indigenous households reported that they had working facilities for washing people, 94% reported working facilities for washing clothes/bedding, 94% reported working facilities for storing/preparing food and 98% reported working sewerage systems.
- This varied considerably by remoteness, with 21% of Aboriginal and Torres Strait Islander people in very remote communities reporting a lack of working facilities for the storage and preparation of food.

#### *Education*

- For reading, there was a slight reduction in the gap between Indigenous and non-Indigenous students for Years 3, 5 and 7 between 2008 and 2009. There was also a decline in the gap for numeracy for Years 5 and 9. Although small, these improvements are in the right direction.

#### *Employment*

- The employment rate for Indigenous Australians increased from 44% to 54% between 2001 and 2008.

### Continuing concern

#### *Smoking*

- In 2008, 47% of Aboriginal and Torres Strait Islander Australians aged 15 years and over smoked. This was a small but potentially important improvement from 2002, when the rate was estimated to be 51%.
- Around half of Indigenous Australian women smoke during pregnancy, 3 times the rate of other pregnant women.
- An estimated 65% of Aboriginal and Torres Strait Islander children aged 0–14 years live in households with a current daily smoker compared with 32% of non-Indigenous children.

#### *Physical activity*

- In 2004–05, 47% of Aboriginal and Torres Strait Islander people aged 15 years and over in non-remote areas reported being sedentary. This increased from 37% in 2001. This was one and a half times the rate for other Australians.

#### *Nutrition*

- In remote areas, 20% of Indigenous people aged 12 years and over reported no usual daily fruit intake and 15% reported no usual daily intake of vegetables. The corresponding proportions for Indigenous people aged 12 years and over in non-remote areas were 12% and 2% respectively.

- Aboriginal and Torres Strait Islander people aged 12 years and over were twice as likely to report no usual daily fruit intake and 7 times as likely to report no daily vegetable intake as non-Indigenous Australians (ABS 2006a).

#### *Overweight and obesity*

- Rates of overweight and obesity increased steadily between 1995 and 2004–05. Among Indigenous people aged 15 years and over in non-remote areas, rates increased from 51% to 60%. Indigenous Australians were nearly twice as likely to be obese as non-Indigenous Australians.

#### *Risky/high risk alcohol consumption*

- In 2008, an estimated 17% of Indigenous people aged 15 years and over reported drinking at chronic risk/high risk levels in the past 12 months, representing no significant change since 2002 (15%).

#### *Overcrowding in housing*

- Approximately 25% of Indigenous Australians live in overcrowded households. The problem is worse in remote areas.

#### *Education*

- Despite some improvements in literacy and numeracy, the proportion of Indigenous students achieving the reading, writing and numeracy benchmarks in Years 3, 5, 7 and 9 remain below the corresponding proportions for all students.

#### *Unemployment*

- Despite increasing employment rates nationally, the unemployment rate for Aboriginal and Torres Strait Islander peoples increased between 2001 and 2008 from 7% to 11%. Unemployment rates continue to remain higher than corresponding rates for non-Indigenous Australians.

#### *Low income and the distribution of income*

- In 2008, 49% of Aboriginal and Torres Strait Islander people were in the bottom 20% of mean equivalised household incomes. The corresponding rate in 2006 was 40%.

#### *Community safety*

- Exposure to violence, child abuse and neglect, and contact with the criminal justice system (including imprisonment) are more likely to be experienced by Aboriginal and Torres Strait Islander peoples than other Australians.

#### *Transport*

- Fewer Indigenous households in non-remote areas (50%) had ready access to motor vehicles (i.e. garaged or parked at or near their dwelling) compared with non-Indigenous households (85%).

### Tier 3: Health System Performance

#### *Access to health care*

- Access to and utilisation of medical services is less than expected given higher levels of illness.
- In 2004–05, the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) found that 42% of Aboriginal and Torres Strait Islander Australians reported accessing health care in the last two weeks (12 months for hospital admissions). This is similar to the non-Indigenous rates, but lower than expected given the greater burden of illness experienced by Indigenous Australians.
- Indigenous Australians are twice as likely to visit casualty/outpatients and half as likely to see a dentist. Barriers to accessing care included cost, cultural appropriateness and transport availability.
- In 2008, 30% of Aboriginal and Torres Strait Islander peoples aged 15 years and over reported problems with accessing health and other services (e.g. legal, employment and Centrelink). Access issues were higher in remote areas than non-remote areas. Of the people reporting having problems accessing services, close to two-thirds reported having problems accessing dentists, followed by doctors (32%), hospitals (22%) and Aboriginal and Torres Strait Islander health workers (19%).
- In 2008, 80% of Aboriginal and Torres Strait Islander Australians aged 15 years and over agreed that their doctor could be trusted.
- There has been a significant increase in the number of hospitalisations for Indigenous Australians for conditions that could have been treated in primary health care, particularly chronic conditions.
- Less hospital episodes for Indigenous Australians have a procedure recorded compared with other Australians.
- Between July 2006 and June 2008, Indigenous Australians were discharged from hospital against medical advice at almost 6 times the rate of other Australians.

#### *Increased availability of Indigenous specific services*

- Funding of Aboriginal and Torres Strait Islander primary health care services has increased in recent years and there has been a 52% increase in episodes of care delivered through these services.

#### *Usual source of care*

- Having a usual primary care provider is associated with good communication between the patient and provider, greater trust in the health care provider, improved preventive care and better health outcomes. Statistics from 2004–05 indicate that 91% of Indigenous Australians usually went to the same GP or Aboriginal medical service.

#### *Antenatal care*

- Access to antenatal care is high for Aboriginal and Torres Strait Islander women but occurs later and less frequently than for other women.

#### *Immunisation coverage for children*

- This has improved for Aboriginal and Torres Strait Islander children. By age 5, coverage rates are close to those for other Australian children.

#### *Aboriginal and Torres Strait Islander health workforce*

- The Indigenous Australian workforce is integral to ensuring that the health system has the capacity to address the needs of Aboriginal and Torres Strait Islander peoples. In 2006, 1.2% of the Indigenous population was employed in health-related occupations. This is below the proportion of the non-Indigenous population (approximately 3%).
- Aboriginal and Torres Strait Islander people are also under-represented in training for various health professions. Improving participation in training for health professions is a key priority across a broad range of disciplines including medicine, nursing, allied health and Aboriginal health workers.
- Another major challenge is the recruitment and retention of staff in Indigenous-specific health services and in mainstream services located in areas with significant Aboriginal and Torres Strait Islander populations.

#### *Access to prescription medicines*

- Has improved for Indigenous Australians but remains significantly lower than for non-Indigenous Australians.

#### *Resources*

- On a per capita basis, average health expenditure for Aboriginal and Torres Strait Islander peoples is 31% higher than the expenditure for other Australians. This contrasts with measures of health status showing mortality rates, infant mortality and the occurrence of a broad range of diseases at much higher levels (200% to 300% higher) for Aboriginal and Torres Strait Islander peoples.
- Expenditure estimates show higher rates for Indigenous Australians for public hospital use and community health services and lower rates for medical services through the MBS (including GP services), dental services and medications compared with non-Indigenous Australians.

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- Haylene Grogan (Queensland Health)
- Carmen Parter (NSW Health);
- April Lawrie-Smith (SA Health); and
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- Aboriginal and Torres Strait Islander peoples who participated in workshops associated with the development and enhancement of the measure of community functioning, particularly Professor Shane Houston.

# Abbreviations

ABS	Australian Bureau of Statistics
ABCD	Audit and Best-Practice for Chronic Disease
ACCHS	Aboriginal Community Controlled Health Services
ACHS	Australian Council of Healthcare Standards
ACT	Australian Capital Territory
AGPAL	Australian General Practice Accreditation Limited
AGPSCC	Australian General Practice Statistics and Classification Centre
AHMAC	Australian Health Ministers Advisory Council
AIC	Australian Institute of Criminology
AIDA	Australian Indigenous Doctors Association
AIDS	Acquired Immune Deficiency Syndrome
AHF	Aboriginal Health Forum
AIHW	Australian Institute of Health and Welfare
AMSANT	Aboriginal Medical Services Alliance Northern Territory
ANZSCO	Australian and New Zealand Standard Classification of Occupations
AOD	Alcohol and Other Drugs
APDC	Admitted Patient Data Collection
ARF	Acute Rheumatic Fever
ASCO	Australian Standard Classification of Occupations
ASGC	Australian Standard Geographical Classification
ATSIC	Aboriginal and Torres Strait Islander Commission
BBV	Blood Borne Viruses
BEACH	Bettering the Evaluation and Care of Health
BMI	Body Mass Index
CAI	Computer Assisted Interview
CAP	National Drug Strategy Aboriginal and Torres Strait Islander Peoples' Complementary Action Plan 2003–2009
CATSI Act	Corporations (Aboriginal and Torres Strait Islander) Act 2006
CATSIN	Congress of Aboriginal and Torres Strait Islander Nurses
CDEP	Community Development Employment Projects
CHINS	Community Housing and Infrastructure Needs Survey
CIHI	Canadian Institute of Health Information
CMR	Cumulative Mortality Rate
CPI	Consumer Price Index
COAG	Council of Australian Governments
COPD	Chronic Obstructive Pulmonary Disease
DEEWR	Department of Education, Employment and Workplace Relations
DEST	Department of Education Science and Training
DHS	Department of Human Services
DMFT	Decayed, Missing, Filled Teeth (Adult—permanent teeth)
dmft	decayed, missing, filled teeth (Infant—deciduous teeth)
DoHA	Department of Health and Ageing
EQuIP	Evaluation and Quality Improvement Program
ESRD	End Stage Renal Disease
FASD	Fetal Alcohol Spectrum Disorders
FHBH	Fixing Houses for Better Health
FOBT	Faecal Occult Blood Test
FTE	Full Time Employment
GAS	Group A Streptococcal Bacterium
GDM	Gestational Diabetes Mellitus
GP	General Practitioner
GPA+	General Practice Accreditation Plus
GPMP	General Practitioner Management Plan
HFL	Healthy for Life
HIV	Human Immunodeficiency Virus
HPF	Aboriginal and Torres Strait Islander Health Performance Framework

HPV	Human Papilloma Virus
ICAP	Improving Care for Aboriginal and Torres Strait Islander Patients
ICDP	Indigenous Chronic Disease Package
IEP	Indigenous Employment Policy
IHD	Ischaemic Heart Disease
KRA	Key Result Area
LHNs	Local Hospital Networks
MBS	Medicare Benefits Scheme/Schedule
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MCHS	Maternal and Child Health Service
NCVER	National Centre for Vocational Education Research
NACCHO	National Aboriginal Community Controlled Health Organisation
NAPLAN	National Assessment Program—Literacy and Numeracy
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NATSINSAP	National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan
NATSIS	National Aboriginal and Torres Strait Islander Survey
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
NCI	National Cancer Institute (US)
NGO	Non-Government Organisation
NHMRC	National Health and Medical Research Council
NHPC	National Health Performance Committee
NHS	National Health Survey
NIHEC	National Indigenous Health Equality Council
NSFATSIH	National Strategic Framework for Aboriginal and Torres Strait Islander Health – The Strategic Framework
NSW	New South Wales
NT	Northern Territory
OATSIH	Office for Aboriginal and Torres Strait Islander Health
ORIC	Office of the Registrar of Indigenous Corporations
OSR	OATSIH Services Reporting
PBS	Pharmaceutical Benefits Scheme
IPHERP	Public Health Education and Research Program
PIP	Practice Incentives Program
PMSS	Perinatal Morbidity Statistics System
QIC	Quality Improvement Council
Qld	Queensland
RACGP	Royal Australian College of General Practitioners
RHD	Rheumatic Heart Disease
SA	South Australia
SAR	Service Activity Reporting data
SCATSIH	Standing Committee on Aboriginal and Torres Strait Islander Health
SCRGSP	Steering Committee for the Review of Government Service Provision
SEIFA	Socio-Economic Indexes for Areas
SIDS	Sudden Infant Death Syndrome
SLA	Statistical Local Area
STI	Sexually Transmissible Infections
TCA	Team Care Arrangement
TAFE	Technical and Further Education
Tas	Tasmania
VAED	Victorian Admitted Episodes Dataset
VEMD	Victorian Emergency Minimum Dataset
VET	Vocational Education and Training
VCCR	Victorian Cervical Cytology Register
Vic	Victoria
VII	Voluntary Indigenous Identifier
WIES	Weighted Inlier Equivalent Separation
WA	Western Australia
WAACHS	Western Australia Aboriginal Child Health Survey
WGIR	Working Group on Indigenous Reform
WHO	World Health Organization

# Introduction

This is the third report against the *Aboriginal and Torres Strait Islander Health Performance Framework* (HPF). The framework was based on the *National Health Performance Framework* (NHPC 2001), and its measures developed through an extensive consultative process managed originally by the former AHMAC Standing Committee on Aboriginal and Torres Strait Islander Health (SCATSIH 2006).

The HPF report continues to play an important role in documenting the health of Aboriginal and Torres Strait Islander peoples and how well the health system performs for this population. In particular, this report aims to:

- Provide a quantitative account of the current state of play and progress in relation to health status and outcomes, determinants of health, and health system performance.
- Present information on policy implications.
- Articulate the relationships between determinants of health, health behaviours and health outcomes.
- Summarise the overall findings and implications for Aboriginal and Torres Strait Islander peoples and governments.

An important feature of the HPF is that it recognises sustainable health gain will require not only an efficient, effective and equitable health system, but also timely contributions from other sectors. Any measure of health performance in relation to Aboriginal and Torres Strait Islander peoples must take account of the particular health and social issues that are likely to affect Indigenous Australians to a greater or different degree than other Australians. The HPF tracks changes in key measures outside of the health sector to provide a better context for interpreting changes in health outcomes and to provide a basis for constructive intersectoral dialogue.

Performance monitoring of the stewardship role of governments in their efforts to improve Aboriginal and Torres Strait Islander health is critical. In doing this, attention should be given to assessing not only the levels of access to appropriate care but the experiences of Aboriginal and Torres Strait Islander peoples in receiving care. Attention must also be given to the social and policy context of Aboriginal and Torres Strait Islander health and the complex relationships between determinants of health, the health system and health outcomes.

Reporting against the HPF is designed to:

## *Promote accountability*

- The HPF measures government achievement against commitments to improve Aboriginal and Torres Strait Islander health.

## *Inform policy*

- The HPF informs the development of policy in Aboriginal and Torres Strait Islander health and in whole of government action on the determinants of health.

## *Inform research*

- The HPF provides a valuable tool for those involved in research relating to Aboriginal and Torres Strait Islander health.

## *Foster informed debate*

- The HPF is a key resource for informed public debate around Aboriginal and Torres Strait Islander health.

The HPF covers the entire health system, including Indigenous-specific services and programs, and mainstream services. It includes performance measures across the full continuum from inputs, processes, outputs, and intermediate outcomes to final outcomes. This enables short to medium-term measures of progress to be included, and accommodates the different stages of development of services and systems. The statistics in this report are the latest available but are sometimes a few years old and therefore may not reflect the impact of recent action.

## **Structure of this report**

- The report is structured according to the framework presented in Figure 1.
- Introductory analysis includes key messages that have emerged through the analysis of new data and consultations with stakeholders, drawing out the major linkages between the three tiers of the HPF.
- An overview of existing national strategies and policies are also included in the introductory section of the report.
- The main body of the report is data and policy analysis for each tier of the framework incorporating:
  - Analysis of each of the 71 measures.
  - Discussion of why the measure is important.
  - Presentation of the results relating to the measure.
  - An outline of the implications of the findings for policy development/action.
- The material presented on each measure is succinct, and in some cases only touches on the major features of complex issues. Additional data analyses supplementing this report are available on the Australian Institute of Health and Welfare website at [www.aihw.gov.au/indigenous/publications.cfm](http://www.aihw.gov.au/indigenous/publications.cfm).

## Data Limitations

There are well-documented problems with the quality and availability of data about Aboriginal and Torres Strait Islander health issues. These limitations include the quality of data on all key health measures—including mortality and morbidity, uncertainty about the size and composition of the Indigenous population, and a paucity of available data on other health issues such as access to health services (see Technical Appendix). The following should be noted when interpreting the data analysis:

### *Under-identification*

- Under-identification of Aboriginal and Torres Strait Islander people is the main issue in most administrative data collections. Under-identification is a major problem in hospital morbidity and mortality data collections, particularly for some states and territories. In the primary care setting, only a minority of GPs have effective routine Indigenous identification processes in place. Therefore, any Indigenous data generated through GPs are currently problematic.
- Under-identification of Aboriginal and Torres Strait Islander people in administrative data collections is due to various factors, for example, whether the Indigenous status question is asked in the first instance, consistency in the way the question is asked, and differing responses by the person involved depending on the situation. Decisions on which data to include have been based on the most recent evaluations (see the Technical Appendix). Work is underway to improve data quality. In future, more comprehensive data will be available for some measures.

### *Coverage by jurisdictions*

- Due to the under-identification issues described above, for some data collections data analysis has been limited to jurisdictions with known better quality data. For current period reporting some measures presented in this report are based on analysis of data for selected jurisdictions only (e.g. mortality data are currently only published for NSW, Qld, SA, WA and the NT). Longer-term mortality trends (i.e. from 1991) are limited to South Australia, Western Australia and the Northern Territory, as these jurisdictions have been shown to have adequate coverage for these earlier years. However, most jurisdictions now have at least a decade of mortality data that is considered adequate.

### *Inconsistencies in the Indigenous status question*

- A standard wording for Aboriginal and Torres Strait Islander identification has been developed and endorsed nationally. However, the standard question and categories are not used in data collections across all jurisdictions. For example, in the national perinatal data, Indigenous status is based on the mother. This means that babies with an Aboriginal and/or Torres Strait Islander father and a non-Indigenous mother are not systematically identified as Indigenous (approximately 30% of Indigenous babies).

The absence of quality data from a variety of sources remains a significant impediment to a full understanding of the health of Aboriginal and Torres Strait Islander Australians and the performance of health services. One significant initiative is the introduction of the Voluntary Indigenous Identifier (VII) in the Medicare database in 2002. Participation has gradually increased since then. By 1 November 2010, 289,350 people (51.4% of the total estimated Indigenous population) had identified with Medicare as Aboriginal, Torres Strait Islander, or both. From 2010, the VII data has been considered to be of sufficient quality to use as the basis for calculating statistics about Indigenous Australians' use of Medicare and the PBS. This report is among the first to use VII data.

## Demographic Context

Aboriginal and Torres Strait Islander people experience diverse determinants of health which inform priorities in planning, resourcing and evaluating policies and programs designed to address health inequities. Key demographic statistics important in the context of setting priorities include jurisdictional data, remoteness and age distribution. In 2010, it was estimated there were 563,101 Aboriginal and Torres Strait Islander people in Australia. Overall, Indigenous Australians represent 2.6% of the Australian population, although this proportion ranges from 30% of the population of the Northern Territory to 0.7% of the population of Victoria. Around 29% of Aboriginal and Torres Strait Islander people live in New South Wales, 29% live in Queensland, 14% in Western Australia and 12% in the Northern Territory.

Around 75% of Indigenous Australians live in regional and metropolitan areas. While only 15% of Indigenous Australians live in very remote areas they make up a large proportion of Australians living in very remote areas (48%) (see Table 2).

The significantly younger age structure of the Aboriginal and Torres Strait Islander population (see Figure 2) presents implications for service delivery to be adequately resourced for children and young people, as well as developed and delivered in culturally sensitive ways. The younger age structure also represents a tremendous opportunity. With well designed and delivered antenatal care and early childhood programs, along with effective interventions helping young adults to adopt healthy behaviours, there is an opportunity to temper the emergence of chronic illnesses and their devastating consequences in this group of younger people. While it is vital that there is focus on ensuring improvement of health for Aboriginal and Torres Strait Islander peoples across their life course, it is important to take account of demographic composition in planning for resource requirements and service delivery for Aboriginal and Torres Strait Islander peoples.

**Table 1 – Estimated resident population by state/territory and Indigenous status, 2010**

	Number of Indigenous Australians	Indig. as % of total population	Indig. as % of total Indig. population
New South Wales	165,306	2.3	29.4
Victoria	36,761	0.7	6.5
Queensland	160,632	3.6	28.5
South Australia	30,403	1.9	5.4
Western Australia	76,271	3.4	13.5
Tasmania	20,106	4.0	3.6
Northern Territory	68,661	30.2	12.2
Australian Capital Territory	4,711	1.3	0.8
<b>Australia</b>	<b>563,101</b>	<b>2.6</b>	<b>100.0</b>

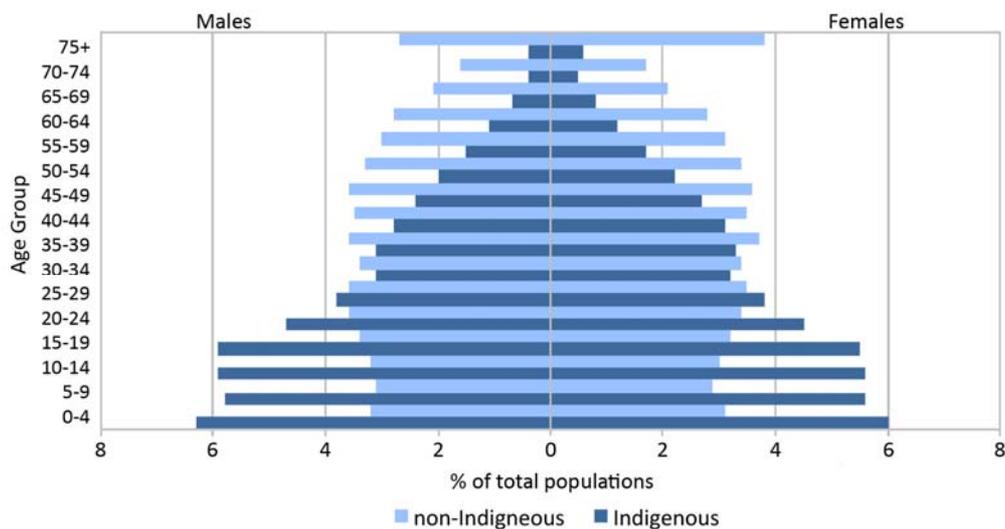
Source: AIHW analysis of ABS population estimates based on 2006 Census

**Table 2 – Estimated resident population by remoteness area and Indigenous status, 2006**

	Number of Indigenous Australians	Indig. as % of total population	Indig. as % of total Indig. population
Major cities	165,804	1.2	32.1
Outer regional	110,643	2.7	21.4
Inner regional	113,280	5.8	21.9
Remote	47,852	15.2	9.3
Very remote	79,464	48.0	15.4
<b>Australia</b>	<b>517,043</b>	<b>2.5</b>	<b>100.0</b>

Source: AIHW analysis of ABS population estimates based on 2006 Census

**Figure 2 – Age distribution of Australian population, by Indigenous status and sex, 2010**



Source: AIHW analysis of ABS population estimates based on 2006 Census

# Key Messages

## Major Findings

The health of Aboriginal and Torres Strait Islander peoples is improving for a number of measures, although there remain many issues for which there have been no improvements. This suggests some progress against the commitments made by COAG to closing the gap and the goals of the *National Strategic Framework for Aboriginal and Torres Strait Islander Health (NSFATSIH)*. This chapter summarises those areas where there have been improvements and highlights areas where further concerted effort will be needed to close the gap in Indigenous disadvantage. The areas of success can be used to guide this renewed effort. The key messages also show the role of the determinants of health in understanding health status and outcomes throughout different stages of life, from childhood into older age.

The analysis of HPF measures of the health status of Aboriginal and Torres Strait Islander peoples is viewed in the context of determinants of health and the performance of the health system to address disparities. Measures such as community functioning (1.14) show that Aboriginal and Torres Strait Islander peoples draw strength from a range of health determinants such as connectedness to family, land, culture and identity. While the HPF presents a national picture of health status, analysis of the measures show that issues of concern are experienced differently according to social and environmental contexts which vary according to remoteness and life stages. The report encourages readers to consider the complexity of issues and the diverse experiences of Aboriginal and Torres Strait Islander peoples when considering the impact and implications of health inequity and how to achieve improved health outcomes in partnership with a diverse and culturally distinct population group.

### COAG Target: Close the gap in life expectancy

According to the latest data available (for the period 2005–07), the gap in life expectancy at birth between Aboriginal and Torres Strait Islander people and other Australians is estimated at 11.5 years for males and 9.7 years for females. Assuming current improvements in total Australian life expectancy continue, an annual increase in life expectancy of 0.8 years for Indigenous males and 0.6 years for females is needed to close the gap in life expectancy within a generation.

As improving life expectancy is dependent on initiatives across the determinants of health, it is still too early for

the data to demonstrate progress for this target. The next five years will provide a clearer picture of how the mortality gap is changing and the progress to meeting the life expectancy target by 2031.

In the absence of trend data for Indigenous life expectancy, mortality rates provide an indication of progress. While there has been a decline in Indigenous mortality over the last two decades, there has also been a decline in non-Indigenous death rates and although the mortality gap has narrowed it has not closed.

### COAG Target: Halve the gap in mortality rates for children under five

In 2008, the child mortality rate for NSW, Qld, WA, SA, and NT combined was 221 per 100,000 compared with 100 per 100,000 for non-Indigenous children. This makes the baseline gap 121 per 100,000. To achieve the target, the national gap in child mortality rates needs to fall to 60 per 100,000. This would require 18 fewer Indigenous deaths of children aged under five years over the decade. Based on historical data, if current trends continue, it is likely

that Indigenous child mortality rates will fall within the range of the target by 2018.

### Reasons for optimism

The progress of recent years demonstrates that with sustained effort, more can be achieved in the future so that Aboriginal and Torres Strait Islander Australians experience equitable health and wellbeing.

Between 1991 and 2008, there has been a downward trend in all-cause mortality (measure 1.22) for Aboriginal and Torres Strait Islander peoples living in WA, SA and NT, although in the most recent years there have been no significant changes. There has been a 22% decline in Indigenous deaths due to avoidable causes and a significant closing of the gap during the period 1997 to 2008. There have been greater declines in mortality rates in these jurisdictions for Indigenous women compared with Indigenous men. When data from NSW and Qld are included, it appears Indigenous mortality rates did not change significantly across the years 2001 to 2008. These trends are impacted by identification of Indigenous Australians in deaths data, which has been improving in more recent years. Overall, the evidence suggests that while the gap has narrowed by 24% in the longer-term there has been a slowing of improvement in recent years.

Commitments made by the Council of Australian Governments
Closing the life expectancy gap within a generation.
Halving the gap in mortality rates for Indigenous children under five within decade.
Halving the gap for Indigenous students in reading, writing and numeracy within a decade.
Ensuring all Indigenous 4 year olds living in remote communities have access to early childhood education within five years.
Halving the gap for Indigenous people aged 20–24 in Year 12 or equivalent attainment rates by 2020.
Halving the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade.

There have been improvements in several measures of child health for Aboriginal and Torres Strait Islander peoples in recent years. Since the 1990s, perinatal and infant mortality rates have declined. Although these rates remain considerably higher than for other Australians, the gap has closed significantly. Indigenous infant mortality (measure 1.19) declined by 55% between 1991 and 2008 for WA, SA and NT combined, and by 32% between 2001 and 2008 for NSW, Qld, WA, SA and NT combined. Perinatal mortality (measure 1.20) decreased by 34% between 1999 and 2008 (for NSW, Qld, WA, SA and NT combined). Indigenous infant and perinatal mortality declined at a faster rate than for other infants and the gap has narrowed. It may be that the improvement in the perinatal mortality rate for Aboriginal and Torres Strait Islander babies is predominantly due to improved acute care, which has reduced deaths during late pregnancy and following birth, rather than improvements in the health of mothers during pregnancy and improvements in the growth and development of babies in-utero.

Hospitalisation is becoming more common for Aboriginal and Torres Strait Islander peoples (measure 1.02). This does not necessarily indicate deterioration in health status. Changes in the level of accuracy of Indigenous identification in hospital records will potentially result in an increase in the number of reported hospital separations for Indigenous Australians. Changes in access, primary care delivery, hospital policies and practices all impact on the level of hospitalisation over time. An increase in hospitalisation rates may also reflect better health care access rather than a worsening of health.

### Areas of concern

Although the health status of Aboriginal and Torres Strait Islander peoples is improving, very large disparities between Indigenous and other Australians remain. In 2008, an estimated 50% of Aboriginal and Torres Strait Islander people reported having a disability or long-term health condition.

The gap between the two populations for conditions such as cancer is widening because the rate of improvement in cancer deaths has been greater for other Australians than for Aboriginal and Torres Strait Islander peoples over recent years.

Indigenous mortality rates for kidney disease are increasing and at a faster rate than for non-Indigenous Australians, widening the gap. The incidence of Aboriginal and Torres Strait Islander people with end stage renal disease commencing renal replacement therapy (measure 1.09) has more than tripled over the last decade, and is 8 times higher than for other Australians.

Determinants of health—such as contact with the criminal justice system (measure 2.14) and health behaviours—such as tobacco use (measures 2.18 and 2.19) continue to represent significant challenges to achieving health equity for Aboriginal and Torres Strait Islander peoples, families and communities.

### Relationships between socioeconomic factors, health behaviours and health status

‘Inequities in health, avoidable health inequalities, arise because of the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness. The conditions in which people live and die are, in turn, shaped by political, social, and economic forces.’  
Commission on Social Determinants of Health 2008

The origins of health behaviours are located in a complex range of environmental socioeconomic and community factors. Evidence from general population studies shows that these particular modifiable health behaviours act, in various combinations, to increase the risks for adverse health outcomes such as ischaemic heart disease, stroke, diabetes and some cancers. Health behaviours also affect biological risk factors such as high body mass, high cholesterol levels and hypertension. Other health behaviours such as infant breastfeeding, adequate diet and physical exercise have a protective impact on health. The key findings of the HPF are best considered in the context of the determinants of health.

Table 3 presents a summary of how four key socio-economic factors are associated with health behaviours. The factors are household income (measure 2.08), education (measure 2.06), employment (measure 2.07) and housing tenure type (measure 2.09), in association with smoking (measure 2.18), risky alcohol use (measure 2.20), physical activity, diet and overweight/obesity (measures 2.22, 2.23 and 2.26). There are strong associations across most of these measures, which highlights how important addressing underlying socio-economic disadvantage will be in increasing the uptake of healthy behaviours by Indigenous Australians.

**Current smoker status:** Higher proportions of Aboriginal and Torres Strait Islander people than other Australians are current smokers (see measure 2.18). These proportions vary across socioeconomic status groups, based on associations observed from survey data. The proportion of Indigenous Australians in the lowest quintile of equivalised household income who are current smokers is 1.7 times the proportion of those in the two highest quintiles (see Table 3). Ratios of a similar order are observed between Indigenous adults whose highest level of schooling was Year 9 or below, relative to those who had completed Year 12 (a ratio of 2.0), between Indigenous adults who are unemployed relative to those who are employed (a ratio of 1.8) and between those who are renters relative to those who own their dwelling (1.5).

Where comparative data are available to calculate ratios for the non-Indigenous population, they are observed to be similar for the two populations (Table 3). This suggests that, as well as the higher prevalence of current smoking in the Indigenous Australian population in general, a higher propensity to be a current smoker is associated with greater socioeconomic disadvantage in a

manner that is similar to the patterns evident in the non-Indigenous population.

**Alcohol consumption:** As reported for measure 2.20, long-term risky or high risk alcohol consumption is similar to that for non-Indigenous persons, but for short-term risky or high risk alcohol consumption, the prevalence for Indigenous Australians is about twice that of non-Indigenous persons. Differences between different socioeconomic status groups in prevalence of risky and high risk alcohol consumption are only evident in the national data on education and housing tenure. Indigenous adults whose highest level of schooling was Year 9 or below, were 1.5 times as likely to report short-term risky/high risk drinking at least once per week in the last 12 months relative to those who had completed Year 12.

**Physical inactivity:** A higher proportion of Indigenous Australians whose highest level of schooling was Year 9 or below reported low levels of physical activity (1.8 times) relative to those who had completed Year 12.

**Dietary behaviours:** Indigenous Australians are twice as likely to report no usual daily fruit intake and 7 times as likely to report no daily vegetable intake as non-Indigenous Australians (see measure 2.23). Associations with socioeconomic status are also evident. Indigenous Australians reporting no usual daily vegetable intake are more likely to be in the lowest quintile of equivalised income (a ratio of 10.1 compared with the highest quintiles) and to have a housing tenure type of renter (a ratio of 15 compared with people with a tenure type of owner).

**Overweight or obesity:** Aboriginal and Torres Strait Islander males are 1.6 times as likely as other Australian males to be obese, while Aboriginal and Torres Strait Islander females are twice as likely as other Australian females to be obese (measure 2.26). The prevalence rates for Indigenous Australians do not appear to be associated with socioeconomic status (as indicated by ratios close to 1 in Table 3).

**Table 3 – Relationship between selected socioeconomic factors and selected health behaviours and overweight and obesity, by Indigenous status (c), 2004–05**

			Alcohol risk level			Dietary behaviours				Overweight or obese
	Current smoker		Long-term risk <sup>(a)</sup>	Short term risk in last 12 months <sup>(b)</sup>	Short term risk at least once a week in past 12 months <sup>(b)</sup>	Physical inactivity	Baby never breastfed	No usual daily vegetable intake	No usual daily fruit intake	
	Indig.	Non-Indig.	Indig.	Indig.	Indig.	Indig.	Indig.	Indig.	Indig.	
<b>Household income</b>										
1st quintile (lowest) (%)	55.3*	32.4*	15.0	49.0	20.0	51.6	29.3	7.8	16.8	59.1
4th and 5th quintile (highest) (%)	33.1*	20.5*	20.0	63.0	15.0	43.6	8.1	0.8	8.8	61.5
Ratio lowest/highest	1.7*	1.6*	0.8	0.8*	1.3	1.2	3.6*	10.1*	1.9*	1.0
<b>Highest year of school completed</b>										
Year 9 or below (%)	57.9*	37.5*	17.5	46.4	20.9	60.8	n.a.	7.7	16.9	56.8
Year 12 (%)	28.6*	17.0*	12.2	59.4	13.5	34.4	n.a.	3.8	9.4	63.7
Ratio Year 9 or below/Year 12	2.0*	2.2*	1.4	0.8*	1.5*	1.8*	n.a.	2.0*	1.8*	0.9
<b>Employment</b>										
Unemployed (%)	75.9*	41.5*	20.0	67.0	23.0	38.0	n.a.	4	14.4	59.3
Employed (%)	41.5*	23.0*	19.0	61.0	21.0	45.1	n.a.	5	14.3	60.6
Not in the labour force (%)	53.7*	26.0*	12.0	43.0	16.0	51.8	n.a.	6.8	15.6	59.6
Ratio unemployed/employed	1.8*	1.8*	1.1	1.1	1.1	0.8	n.a.	0.8	1.0	1.0
<b>Housing tenure type</b>										
Renter (%)	57.4	n.a.	15.0	54.0	21.0	49.0	24.3	7.4	16.4	48.5
Owner (%)	37.4	n.a.	19.0	55.0	14.0	45.0	11.5	0.5	11.1	59.0
Ratio renter/owner	1.5*	n.a.	0.8	1.0	1.5*	1.1	2.1	14.8*	1.5*	0.8*

\* Statistically significant difference between Indigenous and non-Indigenous rate (a) Includes long-term 'risky' and 'high risk' drinking, i.e., average consumption in excess of (i) for males: 4 standard drinks per day amounting to 29 or more standard drinks per week; (ii) for females 2 standard drinks per day amounting to 15 or more standard drinks per week (b) Includes short-term 'risky' and 'high risk' drinking, i.e., consumption in excess of (i) for males: 6 standard drinks or more on any one day; (ii) for females: 4 standard drinks or more on any one day. (c) Data for smoking, alcohol and overweight and obesity are for persons aged 18 years and over. Data for physical inactivity and dietary behaviours are for persons aged 15 years plus.

Source: ABS & AIHW analysis of 2004–05 National Health Survey

Table 4 presents associations between selected socio-economic factors and reported heart/circulatory conditions, diabetes and self-reported health status. Table 5 presents associations between key health behaviours and these three health status measures.

**Diabetes:** There was a statistically significant difference in prevalence of diabetes when comparing the proportion of Indigenous Australians who are renters with home owners (ratio of 1.7). The associations for employment and income were not statistically significant. Those who are overweight/obese were twice as likely to have diabetes as those who are not.

**Self-assessed health status:** Aboriginal and Torres Strait Islander Australians who reported their health status as fair or poor, were more likely to live in households with an equivalised income in the lowest quintile (2.1 times as likely as those in the two highest quintiles), have left school at Year 9 or earlier (1.4 times as likely as those who attended school to Year 12) and be a renter (1.4 times as likely as those who were home owners). Those who smoke, those who reported low levels of physical activity and those who reported poor diet are also more likely to report fair/poor health status.

In 2008, poorer perceived health status (measure 1.15) is associated with a range of determinants of health. In 2008, 34% of Indigenous Australians in the lowest household income quintile reported fair or poor health status, compared with 19% of those in the highest quintile. Twenty per cent of Indigenous Australians who had completed Year 12 at secondary school reported fair or poor health status, compared with 33% of Indigenous Australians who had completed Year 9 or below.

**Heart/Circulatory conditions:** These data show an association between higher prevalence of heart/circulatory conditions and higher levels of socio-economic disadvantage. A higher proportion of Indigenous Australians not in the labour force reported heart/circulatory problems than those who are employed. Those with reported physical activity levels categorised as low or sedentary are 2.5 times more likely to have heart/circulatory problems than those with high physical activity levels. Those who are overweight/obese are 1.4 times as likely to have heart/circulatory problems as those who are not.

	Has heart/circulatory problems		Has diabetes		Self assessed health status: fair/poor	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
<b>Household income</b>						
1st quintile (lowest) (%)	28.2	25.7	17.9*	6.0*	35.1*	28.6*
4th and 5th quintile (highest) (%)	22	17.5	11.5*	3.5*	16.5*	8.4*
Ratio lowest/highest	1.3	1.5	1.6	1.7*	2.1*	3.4*
<b>Highest year of school completed</b>						
Year 9 or below (%)	30.0*	24.6*	17.3*	6.0*	34.0*	28.0*
Year 12 (%)	23.6	18.4	14.4*	3.8*	24.0*	11.0*
Ratio Year 9 or below/Year 12	1.3	1.3*	1.2	1.6*	1.4*	2.5*
<b>Employment</b>						
Unemployed (%)	28.2	13.6	22.2*	3.7*	37	21.0*
Employed (%)	22.5*	17.0*	12.5*	3.2*	18.0*	9.0*
Not in the labour force (%)	30.3*	25.9*	17.3*	5.5*	38.0*	26.0*
Ratio unemployed/employed	1.3	1.8	1.8	1.2	2.1	2.3*
<b>Housing tenure type</b>						
Renter (%)	18.4	n.a.	10.9	n.a.	23.6	n.a.
Owner (%)	17.3	n.a.	6.6	n.a.	17.3	n.a.
Ratio renter/owner	1.1	n.a.	1.7*	n.a.	1.4*	n.a.

\* Statistically significant difference between Indigenous and non-Indigenous rate

Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Table 5 – Relationship between selected health behaviours and overweight and obesity and reported heart/circulatory disease, diabetes and fair/poor health status, by Indigenous status<sup>(a)</sup>, 2004–05**

	Has heart/circulatory		Has diabetes		Self assessed health status:	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
<b>Smoker status</b>						
Current daily smoker (%)	29.0*	19.4*	12.7*	3.5*	34.9*	21.7*
Not current daily smoker (%)	27.7*	22.9*	18.5*	4.8*	26.0*	14.3*
Ratio current daily smoker/not current daily smoker	1.0	0.8*	0.7*	0.7	1.3*	1.5*
<b>Risky/high risk alcohol consumption in last 12 months</b>						
Yes (%)	31.0*	20.5*	8.1*	2.9*	34.9*	13.6*
No (%)	28.1*	22.8*	17.4*	5.0*	29.7*	16.4*
Ratio yes/no	1.1	0.9	0.5*	0.6*	1.2	0.8
<b>Physical activity</b>						
Low-sedentary (%)	27.5*	21.9*	13.6*	4.8*	32.4*	17.9*
Moderate (%)	21.9	21.0	12.1*	4.0*	25.4*	10.3*
High (%)	11.0	15.4	11.2	2.6	19.3*	6.2*
Ratio low-sedentary/high	2.5*	1.4*	1.2	1.8*	1.7*	2.9*
<b>Eats vegetables daily</b>						
Yes (%)	27.0*	21.4*	14.9*	4.5*	28.8*	15.4*
No (%)	24.5	27.0	23.7*	3.4*	34.5*	28.1*
Ratio yes/no	1.1	0.8	0.6	1.3	0.8*	0.5*
<b>Eats fruit daily</b>						
Yes (%)	27.1*	21.5*	15.5*	4.5*	28.3*	15.0*
No (%)	24.9	19.6	12.6*	3.5*	34.6*	22.6*
Ratio yes/no	1.1	1.1	1.2	1.3	0.9*	0.7*
<b>Overweight/obese</b>						
Yes (%)	29.3*	23.8*	17.7*	5.9*	29.8*	17.3*
No (%)	20.6	18.5	8.7*	2.9*	26.7*	12.8*
Ratio yes/no	1.4*	1.3*	2.0*	2.0*	1.1	1.3*

\* Statistically significant difference between Indigenous and non-Indigenous rate (a) Data for smoking, alcohol and overweight and obesity are for persons aged 18 years and over. Data for physical inactivity and dietary behaviours are for persons aged 15 years and over.

Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

## Maternal health

Maternal health is one of the priority areas of reform identified by COAG to effectively address improvements in child health. Antenatal care provides opportunities to address the various health risks faced by Aboriginal and Torres Strait Islander women and their children, and support healthy behaviours throughout pregnancy and into the early years of childhood.

Access to antenatal care (measure 3.01) is high for Indigenous women, and similar to that for non-Indigenous women, but occurs later (particularly in remote areas) and less frequently. Indigenous mothers who attended at least one session of antenatal care were less likely to have low birthweight babies (27%) than those who did not attend (36%). The likelihood of low birthweight decreases with an increase in the number of antenatal visits. Low birthweight babies are also associated with later commencement of antenatal care. Similar relationships are evident with pre-term births and perinatal mortality.

Smoking is a risk factor for adverse events in pregnancy (such as spontaneous abortion, ectopic pregnancy, preterm labour and antepartum haemorrhage), and is associated with poor perinatal outcomes (such as low birthweight), and respiratory illnesses (such as bronchitis or pneumonia) during the child's first year of life (see

measure 2.19). Aboriginal and Torres Strait Islander mothers are 3 times more likely to smoke as non-Indigenous mothers during pregnancy, and unlike other Australian mothers, the high rates persist across geographic areas and age groups. Smoking during pregnancy for both Indigenous and non-Indigenous mothers is associated with higher prevalence of pre-term birth and a higher proportion of low birthweight babies. Smoking by Indigenous mothers is also associated with a higher rate of perinatal deaths, which occur at around twice the rate of non-Indigenous births (measure 1.20). The high prevalence of Aboriginal and Torres Strait Islander mothers smoking during pregnancy suggests the need for culturally appropriate and effective health promotion and primary health care interventions specifically related to smoking during pregnancy. Reducing Indigenous smoking continues to be a priority for Australia, now being addressed through the *Indigenous Tobacco Control Initiative* (2008) and the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (see measure 2.18).

## Childhood (0–14 years)

The report presents information on the determinants of health specifically relevant for children. Significant health and environmental challenges remain for Aboriginal and Torres Strait Islander children that affect their ability to get a good start in life. Improving the

health, social, and environmental factors of babies and young children is likely to have positive flow-on effects for the remainder of the life cycle.

The measure of community functioning (1.14) finds that in 2008 the majority of Indigenous children aged 0–14 years did not have problems sleeping (76%) and 74% of children aged 4–14 years spent at least 60 minutes every day being physically active. Informal learning activities were undertaken with most children aged 0–14 years (94%). Most children in this age group (71%) also cleaned their teeth once or twice per day.

Immunisation is highly effective in reducing morbidity and mortality caused by vaccine-preventable diseases, and is effective in reducing the disease disparities between Indigenous and non-Indigenous populations, despite socioeconomic circumstances. Coverage is high for Aboriginal and Torres Strait Islander children, and by age 5, the immunisation coverage is very similar to other Australian children (measure 3.02). This measure demonstrates that primary health care services can deliver an effective health care intervention to almost all Aboriginal and Torres Strait Islander children when adequately resourced and organised.

The only national data available on ear disease in Indigenous Australian children are self-reported from parents/guardians in national surveys, and suggests that there has been little improvement in levels of ear disease for children aged 0–14 years. In 2008, 9% of Aboriginal and Torres Strait Islander children aged 0–14 years were reported as having ear or hearing problems. This was 3 times the rate for non-Indigenous children. Around 3% of these children were reported to have complete or partial deafness or hearing loss and the same proportion were reported to have otitis media. There are known limitations to these data, as they are based on parents reporting. Data from localised, population-based screening surveys suggests ear disease is a more significant problem than indicated here. Although the prevalence of ear disease is significantly higher for Aboriginal and Torres Strait Islander children, levels of access to treatment are similar to those of other Australian children. Hospitalisations for ear disease—specifically, the rate of myringotomy procedures in hospital (incision in eardrum to relieve pressure caused by excessive build up of fluid)—for Indigenous children was lower than for non-Indigenous children (1.0 per 1,000 compared with 1.6 per 1,000). General practice encounters for ear problems are similar in both populations, however Indigenous children were 5 times more likely to be diagnosed with severe otitis media than non-Indigenous children.

Data on the dental health of Aboriginal and Torres Strait Islander children are limited (measure 1.10). Available data demonstrate much greater levels of tooth decay and lower levels of dental care than for other Australian children. Dental disease in childhood is readily treated but Aboriginal and Torres Strait Islander children do not have ready access to dental care with cost and geography being significant barriers.

Hospitalisation for pneumonia (measure 1.04) for Indigenous children aged 0–4 years are around 4 times

higher than for non-Indigenous children. Over the last 7 years there has been a significant decline in hospitalisation rates for Indigenous children for pneumonia and a narrowing of the gap.

The proportion of Indigenous students achieving the reading, writing and numeracy benchmarks in Years 3, 5, 7 and 9 remain below the corresponding proportions of non-Indigenous students. There have been significant improvements in Year 3 for reading and Year 5 for numeracy. However, numeracy rates have fallen for Years 3 and 7.

A major contributor to poor health in young children is exposure to tobacco smoke. A much higher proportion of Aboriginal and Torres Strait Islander children aged 0–14 years live in households with a regular smoker compared to other Australian children, particularly households where smoking occurs indoors. The proportions have fallen slightly over time; however, at a slower rate than for other Australian children, therefore, the disparities remain.

While antenatal care and other primary health care are effective at improving pregnancy outcomes, improvements in the living conditions and economic and social circumstances of Aboriginal and Torres Strait Islander peoples, including housing and environment, education and employment, nutrition and substance use (particularly tobacco—measure 2.18) have a role to play in reducing the excess levels of child health problems.

### **Youth (15–24 years)**

Education is a key factor in improving health and wellbeing. School retention and attainment represent issues which are supported through living in a healthy community and environment, incorporating values such as those described in the measure of community functioning (measure 1.14). Over time there have been improvements in the proportion of Indigenous students remaining in school to Year 10 and Year 12, although Indigenous retention rates remain lower than for other students (measure 2.05).

Aboriginal and Torres Strait Islander youth face many more social, emotional, physical and economic challenges than other Australian youth. They are twice as likely to suffer from disability or long-term conditions (comparisons are for non-remote locations) (measure 1.13), twice as likely to report poor health (measure 1.15), three times as likely to report high or very high levels of psychological distress (comparisons are for 18–24 year olds) (measure 1.16), less likely to be employed (measure 2.07), more likely to be sedentary (measure 2.22), and more likely to be a current smoker (measure 2.18).

Encouraging safe sexual practices remains a significant challenge for Indigenous and non-Indigenous Australians. For Aboriginal and Torres Strait Islander peoples, there are higher rates of several common sexually transmitted infections (measures 1.11 and 2.25) which occur more frequently in the young adult age groups.

Indigenous Australian youth have higher rates of contact with the criminal justice system (measure 2.14). In 2007–08, an average of 182 Indigenous youth aged 10–18 years were on remand each day compared with 134 non-Indigenous youth. Disproportionate representation of Indigenous youth in contact with the criminal justice system impacts on the social and emotional well-being of families and communities (measure 1.16).

### **Adults (25–54 years)**

*Connectedness to country, land, and history; culture and identity* is a theme in the measure of community functioning (1.14) about being engaged and communicative with family, country and spirit, which gives Aboriginal and Torres Strait Islander peoples a strong sense of identity. This identity is connected to being part of a collective in which sharing, giving and receiving, trust, love and looking out for others, supports strong and positive social networks with other Aboriginal and Torres Strait Islander Australians. Data items drawn from the 2008 NATSISS to describe this theme show that 72% of Aboriginal and Torres Strait Islander Australians aged 15 years and over recognised homelands and 62% identified with a clan or language group. This is an increase from the 2002 NATSISS. Importantly, 89% of Aboriginal and Torres Strait Islander Australians 'feel able to have a say with family and friends' some, most or all of the time. Data from the 2008 NATSISS also show that 80% of Aboriginal and Torres Strait Islander Australians aged 15 years and over agree that their doctor can be trusted.

There are some signs of improvement in the proportion of Indigenous Australians able to gain work (measure 2.07). The proportion of Indigenous Australians aged 15–64 who were employed increased from 44% in 2001 to 54% in 2008. However unemployment rates remain higher than the corresponding rates for non-Indigenous Australians (about 4 times as high). Many adults are seeking to improve their knowledge, skills and qualifications, with 33% intending to study in the future.

Functional housing with utilities (measure 2.01) is one of the key requirements for good health outcomes. The most current data in relation to this comes from self-reports in the 2008 NATSISS. While working facilities for washing people, washing clothes/bedding, storing/preparing food and working sewerage systems were reported by a high proportion of respondents, access to these utilities was still an issue for people living in very remote communities. Also, overcrowding (measure 2.02) continues to be a problem, with proportions well above those experienced by other Australians. The levels of overcrowding experienced by Indigenous Australians have not changed since 2002, and are particularly problematic in very remote areas.

Chronic diseases, such as circulatory disease, diabetes and other endocrine/metabolic/nutritional disorders, cancer, and respiratory diseases, continue to be the major contributors to mortality rates for Indigenous Australians. These conditions are also major reasons for the higher hospitalisation rates for Aboriginal and Torres Strait Islander peoples.

External causes were the third highest category of deaths amongst Aboriginal and Torres Strait Islander peoples, accounting for more than twice as many deaths as non-Indigenous Australians. The most common causes were intentional self-harm (suicide), transport accidents, accidental poisoning, and assault. The rates for intentional self-harm highlight the need to consider the implications of social and emotional wellbeing (see measure 1.16). Hospitalisation for injury and poisoning was also almost twice as common for Indigenous Australians compared with non-Indigenous Australians (measure 1.03). Assault is the most important injury prevention issue in relation to hospitalisations for Indigenous adults, followed by accidental falls.

Hospitalisation rates for Aboriginal and Torres Strait Islander peoples are 40% higher than for other Australians excluding dialysis. When including dialysis, the rates are 230% higher (measure 1.02). The main factors for hospitalisation rates are admissions for renal dialysis, endocrine system disorders (including diabetes) and respiratory system disorders. The higher rate of hospitalisation for Aboriginal and Torres Strait Islander peoples is less than expected given the much greater occurrence of disease and injury and much higher mortality rates (measure 1.22). Hospitalisation rates for Indigenous Australians are impacted by changes in access to primary health care and hospital policies and practices such as identification in hospital records. Reductions in hospitalisation will eventually occur through concerted action to reduce incidence and prevalence of the underlying conditions, and prevent or delay complications, through more comprehensive primary health care and addressing underlying determinants of health.

### **54 years and older**

Leadership is a theme within the measure of community functioning (measure 1.14) used to describe strong vision and direction from Elders in family and community (both male and female) and strong role-models who have time to listen and advise. Data items from the 2008 NATSISS to describe this theme were limited to values for children: 42% of children aged 3–14 years had spent time with an Indigenous leader or Elder in the week prior to being surveyed. Encouragement from Elders and Council was considered to be a type of assistance that would help a child in secondary school complete Year 12 by 22% of Aboriginal and Torres Strait Islander people. The role of Elders in providing leadership to support healthy families and communities is vital and better measurement of this is needed.

Aboriginal and Torres Strait Islander people are less likely than non-Indigenous Australians to report very good or excellent health (measure 1.15), and the difference between the two populations was greatest in the older age groups. Self-assessed health status correlates with a range of other measures, such as reported long-term health conditions, recent health-related actions, and the presence of a disability.

## National Health Policies and Strategies

In July 2003, all Australian governments endorsed the *National Strategic Framework for Aboriginal and Torres Strait Islander Health* (NSFATSIH). The key goal of the NSFATSIH is: 'To ensure that Aboriginal and Torres Strait Islander peoples enjoy a healthy life equal to that of the general population that is enriched by a strong living culture, dignity and justice' (NATSIHC 2003, p7).

In December 2007, the Council of Australian Governments (COAG) agreed to a partnership between all levels of government to work with Indigenous communities to close the gap in Indigenous disadvantage. In recognition that outcomes for Indigenous Australians remain well below those of non-Indigenous Australians, COAG agreed to six targets:

- closing the life expectancy gap within a generation (see measure 1.17)
- halving the gap in mortality rates for Indigenous children under five within a decade (see measure 1.19)
- ensuring all Indigenous four year olds in remote communities have access to early childhood education within five years
- halving the gap for Indigenous students in reading, writing and numeracy within a decade (see measure 2.04)
- halving the gap for Indigenous people aged 20–24 in Year 12 attainment or equivalent attainment rates by 2020 (see measure 2.05)
- halving the gap in employment outcomes between Indigenous and non-Indigenous Australians within a decade (see measure 2.07).

COAG has also identified seven building blocks that need to be addressed in a coordinated fashion if the targets are to be achieved. These building blocks reflect the need for a whole of government approach, and emphasise the influence that social, economic and environmental factors have on overall health outcomes. The building blocks are:

- early childhood
- education and supporting school attendance
- access to primary health care
- economic participation and active welfare
- healthy home environments
- safety and freedom from violence
- leadership and governance.

In November 2008, COAG agreed to sustained engagement and effort by all governments over the next decade and beyond to achieve the Close the Gap targets for Indigenous peoples. The *National Indigenous Reform Agreement* (NIRA) sets out the policy framework for Closing the Gap in Indigenous disadvantage. The COAG commitment

also included targeted initiatives for Indigenous Australians of \$4.6 billion across early childhood development, health, housing, economic participation and remote service delivery through a number of associated National Partnership Agreements. Health-related Agreements include:

- *The National Partnership Agreement on Indigenous Early Childhood Development*—with joint funding of around \$564 million over six years to address the needs of Indigenous children in their early years.
- *The National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*—with funding of \$1.6 billion over four years, centred on five priority areas: tackling smoking, providing a healthy transition to adulthood, making Indigenous health everyone's business, delivering effective primary health care services, and better coordinating the patient journey through the health system. This Agreement acknowledges that to overcome Indigenous health disadvantage, a holistic life stage approach is required that builds sustainable social change and embeds system reform. The Commonwealth's contribution is an \$805.5 million Indigenous Chronic Disease Package that aims to reduce chronic disease risk factors; encourage earlier detection and better management of chronic disease in primary health care services; improve follow-up care; and increase the capacity of the primary care workforce to deliver effective health care to Aboriginal and Torres Strait Islander peoples across Australia. The objectives of this Agreement will be supported by the successful implementation of other Indigenous initiatives including early childhood reforms, broader health system changes and measures to address the under-lying social determinants of poor health.
- *The National Partnership Agreement on Remote Service Delivery*—which commits governments to work together with Indigenous communities to improve Indigenous Australians' access to government services, including early childhood, health, housing and welfare services in selected remote communities.
- *The National Partnership Agreement on Closing the Gap in the Northern Territory*—provides for the continuation until 30 June 2012 of a number of measures commenced in 2007 under the *Northern Territory Emergency Response*. Its objectives include the improvement of the health and wellbeing of Aboriginal and Torres Strait Islander people, particularly that of children.

In November 2008, COAG also signed the *National Healthcare Agreement* committing \$60.5 billion over five years affirming the agreement of all governments that Australia's health system should:

- be shaped around the health needs of individual patients, their families and communities;
- focus on the prevention of disease and injury and the maintenance of health, not simply the treatment of illness;
- support an integrated approach to the promotion of healthy lifestyles, prevention of illness and injury, and diagnosis and treatment of illness across the continuum of care; and
- provide all Australians with timely access to quality health services based on their needs, not ability to pay, regardless of where they live in the country.

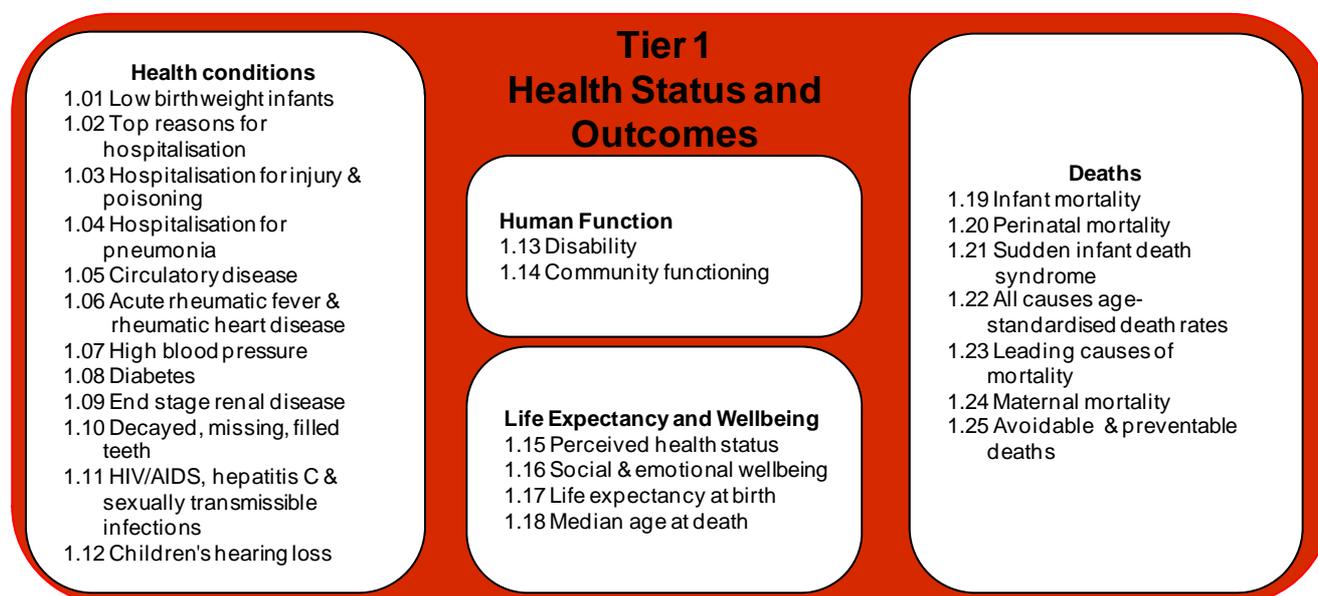
At the COAG meeting on 13 February 2011, the Commonwealth and all states and territories signed a *Heads of Agreement on National Health Reform*. Under the *Heads of Agreement*, the Commonwealth will increase its contribution to efficient growth funding for hospitals to 45% from 1 July 2014, increasing to 50% from 1 July 2017. A guaranteed additional \$16.4 billion will be provided by the Commonwealth for public hospital services under this new agreement up until 2019–20. This funding is additional to the level of funding that the Commonwealth would have otherwise provided.

Governance of the health and hospitals system will devolve to new local institutions—Local Hospital Networks (LHNs) and Medicare Locals. Aged care one-stop shops will be established and will work with LHNs and Medicare Locals. This will ensure care is integrated at the local-level across the acute, primary health and aged care sectors.

The Australian Government has negotiated these national reforms with the states and territories to ensure that the health system is put on a more financially sustainable footing, with an increasing share of public hospital costs being met by the Commonwealth into the future, more locally responsive planning and management of health services, an increased focus on safety and quality, and better publicly available information on the performance of health services. In combination, these reforms will improve timely access for people to high quality care in and out of hospital.

The *Aboriginal and Torres Strait Islander Health Performance Framework* (HPF) is being used to inform the development of these policies and also in monitoring how we are tracking in closing the gap in Indigenous disadvantage. The HPF recognises that an effective, efficient and equitable health system is an essential component for any whole of government effort that seeks to address Indigenous health. In addition, action is required in areas such as education, employment, transport and housing to achieve sustainable health gains.

## Tier 1: Health Status and Outcomes



Tier 1, Health Status and Outcomes, provides measures of current estimates and recent trends in the health status of Aboriginal and Torres Strait Islander peoples on a range of health issues. These measures show the gap in the prevalence or incidence of health conditions between Indigenous and non-Indigenous Australians and discuss whether the gap is widening or narrowing over time. Tier 1 shows which health conditions cause the highest morbidity and mortality in the Aboriginal and Torres Strait Islander population. These measures also track whether the nature of health conditions that cause significant morbidity in Aboriginal and Torres Strait Islander people change over time.

Health Status and Outcomes covers four domains: health conditions; human function; life expectancy and wellbeing; and deaths. Within these domains, measures cover the issues of child and maternal health, chronic

diseases, injury, communicable disease, human function, social and emotional wellbeing and overall health status.

Measures of Health Status and Outcomes are closely related to Health Determinants and Health System Performance. Improvements in measures shown by Tier 1 are dependent on changes in the immediate and underlying determinants of health reported in Tier 2, and in the access to, and effectiveness of, health system performance reported in Tier 3. Improvements in Tier 1 measures will occur only as Aboriginal and Torres Strait Islander peoples are able to live healthier lives and are able to use high quality health services according to need. Readers are encouraged to consider the implications for policies and programs in light of the measures of Health Status and Outcomes as these provide a better understanding of Health Determinants and Health System Performance.

## 1.01 Low birthweight infants

**WHY IS IT IMPORTANT?:** Low birthweight (new-born babies weighing less than 2,500 grams) is associated with premature birth or sub-optimal intrauterine environments (fetal growth retardation). Low birthweight infants are at a greater risk of dying during the first year of life and are prone to ill health in childhood. Low birthweight babies may also be more vulnerable to illness throughout childhood and into adulthood. There is some evidence that lower birthweights in Aboriginal and Torres Strait Islander peoples are associated with higher mortality from cardiovascular and renal diseases in adulthood (White et al. 2010), and potentially from pulmonary causes in both childhood and adulthood (Hoy & Nicol 2010).

Risk factors include socioeconomic disadvantage, the weight and age of the mother, the number of babies previously born to the mother, the mother's nutritional status, smoking and other risk behaviours, illness during pregnancy, multiple births and the duration of pregnancy (SIMC 2004; Australian Medical Association 2005; ABS & AIHW 2008; Eades et al. 2008).

**FINDINGS:** In the period 2005–07, low birthweight was more than twice as common among babies born to Aboriginal and Torres Strait Islander mothers than non-Indigenous Australian babies (13% compared with 6%). For babies born to Aboriginal and Torres Strait Islander mothers, the low birthweight rate increased by 13% between 1991 and 2008, and the gap has also increased.

Analysis of the 2005–07 national data confirms that Indigenous low birthweight is associated with smoking during pregnancy, pre-term delivery, multiple births, socioeconomic status and other geographical variables. These relationships appear complex and inter-related.

For the non-Indigenous population, it was the younger mothers who had the highest proportion of low birthweight babies (8%). However, for Indigenous mothers, the percentage of low birthweight babies was highest in the 35+ age group (15%). The age cohort of Indigenous mothers with the largest number of births and low birthweight babies was the 20–29 year age group.

There is a strong relationship between smoking, pre-term birth and low birthweight. In 2007, 16% of babies born to Indigenous mothers who smoked during pregnancy had low birthweight compared with 8% for those who did not smoke. For babies of non-Indigenous women the low birthweight rates were 10% where the mother smoked during pregnancy and 5% for non-smokers. Two-thirds (67%) of low birthweight babies born to Indigenous mothers were pre-term and 12% were multiple births.

The proportion of low birthweight babies born to Aboriginal and Torres Strait Islander mothers was highest among mothers living in the most socio-economically disadvantaged areas (13% compared with 9% in the most advantaged). The remoteness of where

the mother lives is also a factor, with rates of 14% for those living in very remote areas compared with 11% in inner regional and 13% in major cities. In very remote areas, babies born to Indigenous mothers were almost 3 times as likely to be of low birthweight as babies born to non-Indigenous mothers in these areas.

There is a small degree of variation in the low birthweight rate between states. The low birthweight rate was highest in the Australian Capital Territory and South Australia (around 18% and 16% of births respectively). (The Australian Capital Territory figure should be treated with caution due to small numbers and the provision of maternity services for women with high risk pregnancies from New South Wales.) Rates are lowest in Tasmania and Queensland (around 8% and 11% of live births respectively). In 2007, the mean birthweight for infants born to Aboriginal and Torres Strait Islander mothers was 3,178 grams compared with 3,382 grams for other babies.

International rate comparisons of low birthweight between Indigenous populations in Australia, Canada, New Zealand and the United States should be treated with caution due to the differences in methods used to classify and collect data, and the quality and reliability of data in each country. Low birthweight among babies born to American Indian and Alaskan native mothers is approximately 43% higher than those of White Americans; and in New Zealand, rates are 50% higher for babies born to Maori mothers compared with European New Zealand babies. In Canada, the main birthweight problem amongst Aboriginal peoples is high birthweight (4,000 grams and over), linked with maternal diabetes (Smylie et al. 2010). In 2005–07 the proportion of high birthweight live-born babies born to Indigenous mothers in Australia was 8%. This compared with 12% of babies born of high birthweight to non-Indigenous mothers.

**IMPLICATIONS:** Efforts to improve the birthweight of Aboriginal and Torres Strait Islander children have had limited impact nationally since the early 1990s. The issue impacts on Aboriginal and Torres Strait Islander babies in all states and territories.

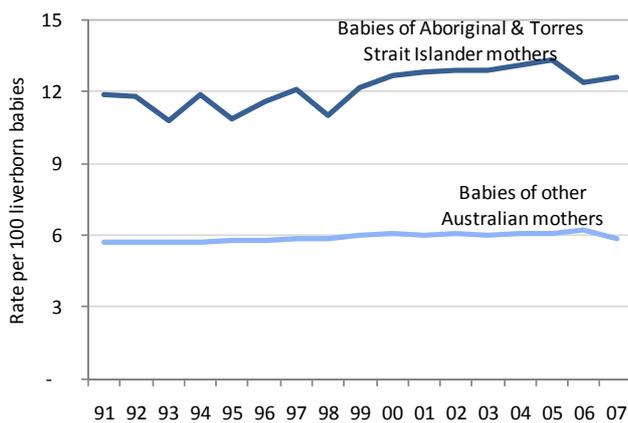
Appropriate antenatal care and a healthy environment for the mother can improve the chances that the baby will have a healthy birthweight. Some comprehensive mother and child programs for Aboriginal and Torres Strait Islander women in Australia have significantly improved pregnancy outcome measures including lower rates of low birthweight (Herceg 2005). While improvements in health services such as antenatal and acute care for pregnant women are important to reduce the occurrence of pre-term delivery and improve fetal growth during pregnancy, the reasons for premature delivery are not well understood. In addition to health service improvements other factors are important such as reducing the prevalence of smoking, improving the nutrition and growth of girls during their childhood and adolescence, nutrition during pregnancy, educational attainment, and the overall social and economic conditions for Indigenous Australian women and their families.

Maternal and child health is recognised as a key priority by governments across Australia who are implementing a range of programs. In October 2008, COAG signed the *National Partnership Agreement on Indigenous Early Childhood Development* with joint funding of around \$564 million over six years to address the needs of Indigenous children in their early years. The Australian Government’s *New Directions: Mothers and Babies* provides Aboriginal and Torres Strait Islander children and their mothers with access to antenatal care; standard information about baby care; practical advice and assistance with parenting; monitoring of developmental milestones by a primary health care service; and health checks for children. In addition, one of the aims of *Healthy for Life* is to improve access to antenatal, postnatal and child health care. This program aims to improve pregnancy, birth and child health outcomes (including birthweight) and reduce the incidence of illness for Aboriginal and Torres Strait Islander babies

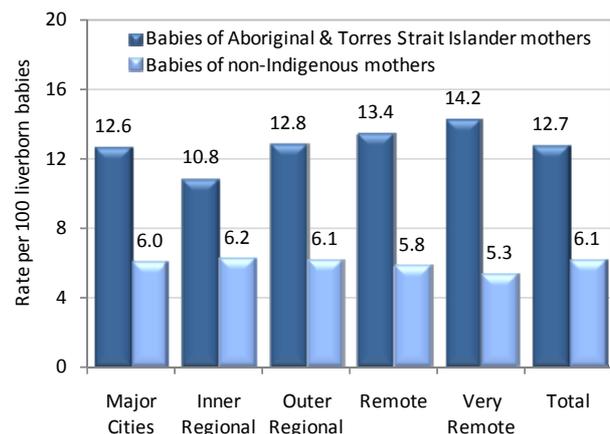
and children. Data drawn from this program show a decline in the proportion of low birthweight Indigenous babies in the program and an increase in the number and proportion of Indigenous women who attended an antenatal visit before 13 weeks of pregnancy. The *Australian Nurse Family Partnership Program* is focused on providing sustained home visiting to selected Indigenous communities across Australia and aims to improve pregnancy outcomes and childhood development including improving birthweights, and effect positive life course decisions. States and territories invest heavily in the area of Indigenous early childhood, for example, through their provision of maternal and child health services.

Australian governments are working collaboratively to develop National Evidence-Based Antenatal Care Guidelines, which will provide nationally consistent guidance on optimal care, including culturally appropriate recommendations, for the antenatal period.

**Figure 3 – Low birthweight babies per 100 live births, by Indigenous status of mother, Australia 1991–2007**



**Figure 4 – Live-born low birthweight babies per 100 live births, by Indigenous status of mother and remoteness, 2005–2007**



Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection

Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection

**Table 6 – Low birthweight babies per 100 live births, by Indigenous status of mother and state/territory, 1998–2000, 2001–2003, 2003–2005 and 2005–2007**

	Babies of Indigenous mothers				Babies of non-Indigenous mothers			
	1998–2000	2001–2003	2003–2005	2005–2007	1998–2000	2001–2003	2003–2005	2005–2007
New South Wales	11.0	12.2	12.0	11.7	5.7	5.8	5.7	5.7
Victoria	13.4	12.7	14.3	12.8	6.2	6.3	6.3	6.3
Queensland	10.8	11.5	11.7	11.2	6.1	6.2	6.3	6.3
Western Australia	13.3	14.5	14.7	15.3	5.8	5.8	6.0	5.9
South Australia	15.7	17.6	17.5	15.7	6.3	6.2	6.4	6.3
Tasmania	n.a.	n.a.	n.a.	8.2	n.a.	n.a.	n.a.	6.3
Australian Capital Territory	16.7	19.1	17.7	18.1	6.8	6.5	7.1	7.1
Northern Territory	12.7	13.3	14.3	13.7	7.2	6.0	6.6	6.1
<b>Australia</b>	<b>12.0</b>	<b>12.9</b>	<b>13.1</b>	<b>12.7</b>	<b>6.0</b>	<b>6.1</b>	<b>6.1</b>	<b>6.1</b>

Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection

## 1.02 Top reasons for hospitalisation

**WHY IS IT IMPORTANT?:** Hospitalisation rates indicate two main issues: the occurrence of serious acute illnesses and conditions requiring inpatient hospital treatment in a population; and the access to and use of hospital inpatient treatment by people with such conditions (see also measure 3.05). Hospitalisation rates for a particular disease do not directly indicate the level of occurrence of that disease in the population. For diseases that usually do not cause serious enough illness to require admission to hospital, a high level of occurrence will not be reflected in a high level of hospitalisation. Hospitalisation rates are calculated based on the number of hospital episodes rather than on the number of individual people who are hospitalised. A person who has frequent admissions for the same disease is counted multiple times in the hospitalisation rate for that disease. For example, each kidney dialysis treatment is counted as a separate hospital episode, so that each person receiving 3 dialysis treatments per week contributes approximately 150 hospital episodes per year. Therefore, it is especially important to separate hospitalisation rates for dialysis from rates for other conditions. Each hospitalisation involves a principal diagnosis (i.e. the problem that was chiefly responsible for the patient's episode of care) and additional diagnoses where applicable (i.e. condition or complaint either coexisting or arising during care). This report focuses on the principal diagnosis for each hospitalisation. Analysis of additional diagnoses is available from <http://www.aihw.gov.au>. Rates of hospitalisation are also impacted by the availability of primary care services (see measure 3.06) and other alternative services.

**FINDINGS:** After adjusting for age differences, the hospitalisation rate (excluding dialysis) for Aboriginal and Torres Strait Islander peoples in the 2 years to June 2008 was 432 per 1,000 population compared with 310 per 1,000 population for other Australians (i.e. 1.4 times as high).

Hospital episodes of care involving dialysis accounted for 42% of all hospitalisations for Aboriginal and Torres Strait Islander peoples (compared with 12% for other Australians). The Indigenous hospitalisation rate for dialysis was 11 times as high as the rate for other Australians (see measure 1.09). Injury and poisoning was the second leading cause of hospitalisation (8%), followed by pregnancy and childbirth (7%), diseases of the respiratory system (6%) and diseases of the digestive system (5%). Hospitalisation rates for Aboriginal and Torres Strait Islander peoples were around 3 times as high for respiratory diseases and endocrine nutritional and metabolic diseases (including diabetes—see measure 1.08) than for non-Indigenous Australians. The key conditions for which there were more hospitalisations for Aboriginal and Torres Strait Islander peoples compared with other Australians include renal dialysis (an additional 200,000 admissions), respiratory conditions (an additional 19,000 admissions) and injury

and poisoning (an additional 18,000 admissions). In jurisdictions with adequate data quality the highest rates are in Western Australia and South Australia (485 and 484 per 1,000 population) and the lowest in Victoria (298 per 1,000 population).

The Indigenous hospitalisation rate has increased significantly over the last few years and the gap has widened. Admission for dialysis was the main reason for this difference. However, once dialysis is excluded the gap is still widening.

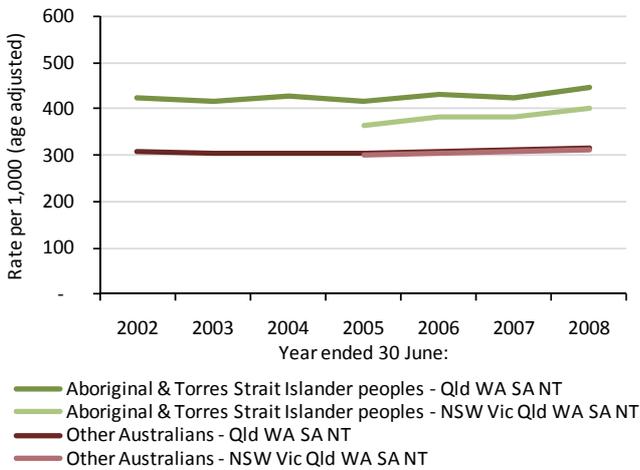
Admissions to hospital are higher for Aboriginal and Torres Strait Islander peoples across all age groups below 65 years, although the differences are less pronounced for children aged 5–14 years.

**IMPLICATIONS:** In the two-year period from July 2006 to June 2008, there were approximately 220,800 hospital episodes for Aboriginal and Torres Strait Islander peoples for dialysis treatment in the six jurisdictions analysed. Dialysis episodes for Aboriginal and Torres Strait Islander people are increasingly reflecting the very high and rising number of Aboriginal and Torres Strait Islander people with kidney failure, and the low number of Aboriginal and Torres Strait Islander patients receiving kidney transplants (see measure 1.09). Excluding dialysis, respiratory conditions, injury, chronic metabolic conditions (in particular diabetes), circulatory diseases and skin diseases are the conditions causing the greatest differential in hospitalisations for Aboriginal and Torres Strait Islander peoples. Hospitalisation for mental illness and childbirth are also more common for Aboriginal and Torres Strait Islander peoples than for other Australians.

The 40% higher hospitalisation rate for Aboriginal and Torres Strait Islander peoples is less than expected given the much greater occurrence of disease and injury and much higher mortality rates in this population (measure 1.22). Until the incidence of many health problems is reduced, hospitalisation rates for Indigenous Australians are likely to increase. Reductions in hospitalisation will eventually occur through concerted action to reduce incidence and prevalence of the underlying conditions, and prevent or delay complications, through more comprehensive primary health care.

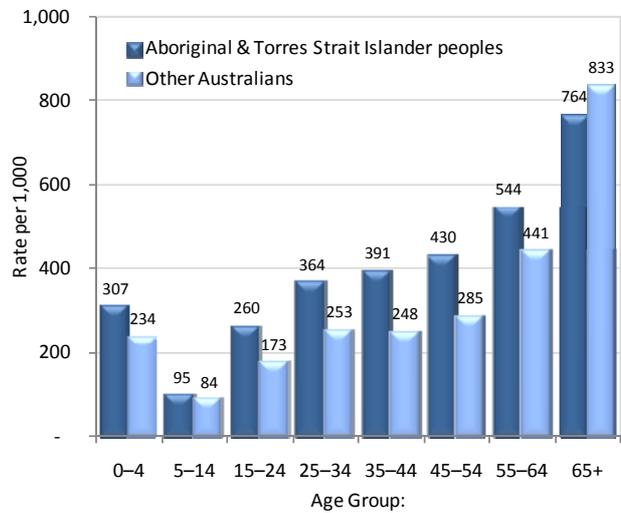
The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* with funding of \$1.6 billion over 4 years will assist in reducing avoidable hospitalisation rates for Indigenous Australians through the prevention, early detection and management of chronic disease. This Agreement is centred on five priority areas: tackling smoking, providing a healthy transition to adulthood, making Indigenous health everyone's business, delivering effective primary health care services and better coordinating the patient journey through the health system. Achievement of the objectives of this Agreement will be influenced and supported by the successful implementation of other Indigenous initiatives including early childhood reforms, broader health system changes and measures to address the underlying social determinants of poor health.

**Figure 5 – Age-standardised hospitalisation rates (excluding dialysis) by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08 ; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08**



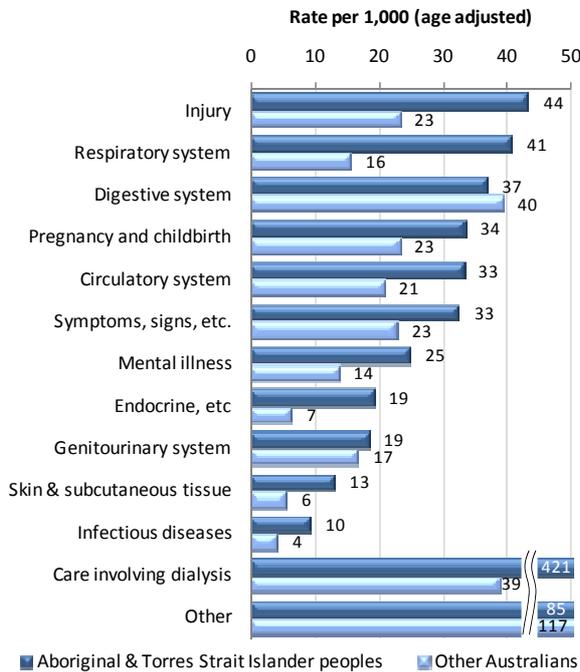
Source: AIHW analysis of National Hospital Morbidity Database

**Figure 6 – Age-specific hospitalisation rates (excluding dialysis) by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**



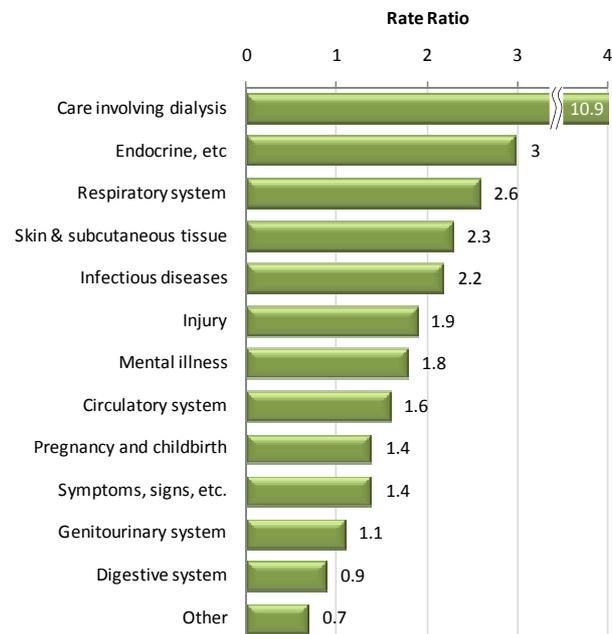
Source: AIHW analysis of National Hospital Morbidity Database

**Figure 7 – Age-standardised hospitalisation rates by principal diagnosis and Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 8 – Hospitalisation rate ratios (Aboriginal and Torres Strait Islander to other Australians) by principal diagnosis in NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

### 1.03 Hospitalisation for injury and poisoning

**WHY IS IT IMPORTANT?:** Accidental and intentional injury and self-harm is the third leading cause of death for Indigenous Australians. Injury and poisoning is responsible for 15% of the health gap between Indigenous and non-Indigenous Australians (Vos et al. 2007). Injuries can cause long-term disadvantage for Aboriginal and Torres Strait Islander peoples including: loss of cultural knowledge and wisdom, and the chance of a full life; the burden on caregivers for people with disabilities; decreased workplace productivity; and continuation of the cycle of grief among families, friends and communities. Hurt, loss and suffering can increase the risk of physical injury, especially if the feelings are severe, prolonged, or widespread in a community. There is a need to base injury prevention efforts on evidence, ensure that they are culturally appropriate, that they build on resilience, and they address systemic issues that reduce people's capacity to make health-enhancing choices and the likelihood they will do so (Anderson 2008; Ivers et al. 2008; Berger et al. 2009; Berry et al. 2009).

**FINDINGS:** Hospitalisations for injury reflect hospital attendances for the condition rather than the extent of the problem in the community. Hospitalisations for injury and poisoning are the second most common reason for hospital admission for Indigenous Australians (behind hospitalisation for dialysis). Hospitalisation for injury for Aboriginal and Torres Strait Islander peoples occur at twice the rate of other Australians, accounting for around 20,000 hospitalisations each year.

For other Australians, injury hospitalisation rates are much higher in the elderly (aged 65 and over) than in younger age groups. This mainly reflects much higher rates of falls for elderly people. For people aged under 65 years, injury hospitalisation rates for males are much higher than for females.

Injury hospitalisation has a very different pattern for Indigenous Australians: severe injury has a much greater impact on the young and middle-aged; female hospitalisation rates are similar to male rates in most age groups; and rates peak in early adult age groups for both males and females.

Between 2001–02 and 2007–08 for Queensland, Western Australia, South Australia and the Northern Territory combined, the hospitalisation rate for injury and poisoning for Aboriginal and Torres Strait Islander peoples showed no significant change. Between 2004–05 and 2007–08, based on data from the above jurisdictions and New South Wales and Victoria combined, the rate increased by 5%, which was significant. There were similar increases for other Australians in both series, and consequently there has been no substantial change in the gap between Indigenous and non-Indigenous rates.

Assault is the leading cause of injury requiring hospitalisation for Indigenous Australians, responsible

for 23% of injury hospitalisations for males and 31% for females in the two years to June 2008. Hospitalisation rates for injuries caused by assault are much higher for Aboriginal and Torres Strait Islander men (7 times as high) and women (36 times) than other Australian men and women. Indigenous Australians are also more likely to be re-admitted to hospital for interpersonal violence than other Australians (Meuleners et al. 2008; Berry et al. 2009). Hospitalisation rates for Aboriginal and Torres Strait Islander people for other causes of injury are between 1.1 and 2.5 times as high as those for other Australians, and there is much less difference between males and females in these ratios. Other leading causes of injury include accidental falls (18%), exposure to inanimate mechanical forces (12%), complications of medical care (11%) and transport accidents (9%). Rates vary across jurisdictions, with the highest rates in the Northern Territory and Western Australia.

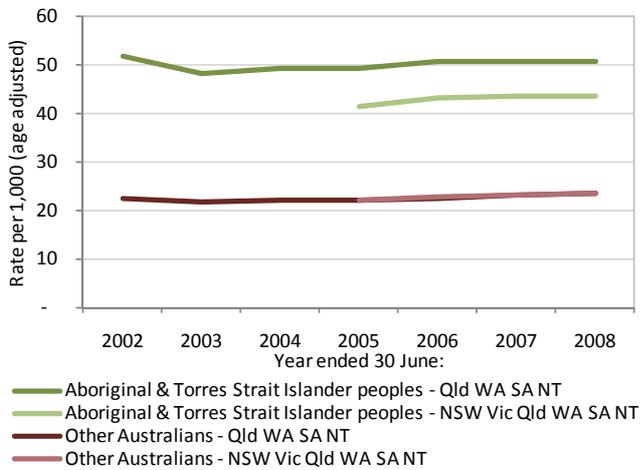
Over the period 2004–08, the third most common cause of death among Indigenous Australians was external causes (injury and poisoning); Indigenous Australians died from injury and poisoning at 2.4 times the rate of other Australians. The most common type of external cause of mortality among Indigenous Australians was intentional self-harm (439 deaths), followed by transport accidents (432 deaths) accidental poisoning (141 deaths) and assault (139 deaths). Indigenous Australians died from intentional self-harm and transport accidents at 2 and 3 times the rate of non-Indigenous Australians respectively. Indigenous Australians died from assault at 9 times the rate of other Australians.

**IMPLICATIONS:** All causes of injury have a greater impact on hospitalisation rates for Aboriginal and Torres Strait Islander peoples than for other Australians. Intentional self-harm is the leading cause of death from external causes which highlights the need for interventions focused on social and emotional wellbeing (see measure 1.16), followed by transport related accidents. Assault is the most important injury prevention issue in relation to hospitalisations, followed by accidental falls.

The *Indigenous Family Safety Agenda* (July 2010) and the *National Aboriginal and Torres Strait Islander Safety Promotion Strategy* includes injury prevention and safety promotion issues specific to Indigenous communities, including intentional and unintentional injury, violence, alcohol-related injuries, self-harm and harm to others. The *National Injury Prevention and Safety Promotion Plan 2004–2014* provides a whole of society, systems, and population health approach which focuses on encouraging the development of partnerships, and investing in prevention and safety promotion initiatives specific to Aboriginal and Torres Strait Islander peoples, rural and remote populations, and throughout different stages of life.

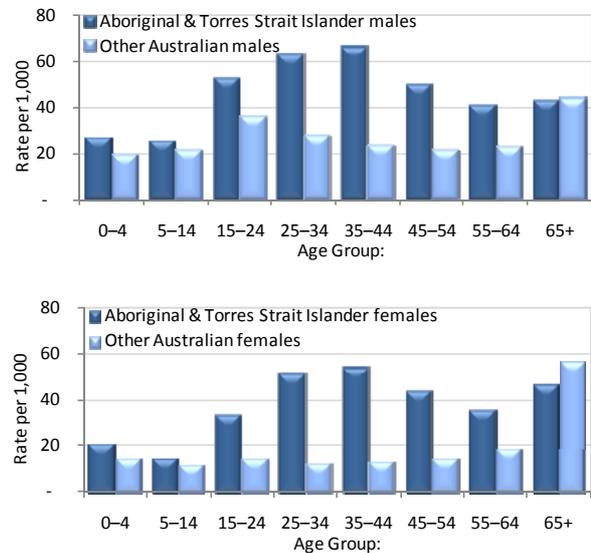
An objective of the *National Road Safety Strategy 2001–2010* is to improve equity in safety among road users. Initiatives designed to close this gap include the convening of biennial Indigenous Road Safety Forums to support the national commitment and to recommend practical and locally relevant initiatives.

**Figure 9 – Age-standardised hospitalisation rates for injury and poisoning, Aboriginal and Torres Strait Islander peoples and other Australians, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 10 – Age-specific hospitalisation rates for a principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

**Table 7 – Age-standardised hospitalisations for external causes of injury and poisoning for Aboriginal and Torres Strait Islander peoples by sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**

External Cause:	Males			Females			Persons		
	%	Rate(a)	Ratio	%	Rate(a)	Ratio	%	Rate(a)	Ratio
Assault	22.5	10.8	7.0*	30.7	10.9	35.5*	26.1	10.9	11.6*
Falls	17.7	9.2	1.4*	18.1	8.7	1.2*	17.9	9.1	1.3*
Exposure to inanimate mechanical forces	14.8	6.0	1.4*	8.1	2.5	1.9*	11.9	4.2	1.5*
Complications of medical and surgical care	8.7	6.1	1.4*	12.8	6.6	1.8*	10.5	6.4	1.6*
Transport accidents	11.5	4.8	1.2*	6.7	2.2	1.4*	9.4	3.5	1.3*
Other accidental exposures	7.3	3.4	1.0	5.6	2.2	1.3*	6.6	2.8	1.1*
Intentional self-harm	4.8	2.4	2.7*	8.1	2.8	2.0*	6.3	2.6	2.3*
Exposure to animate mechanical forces	5.0	2.0	2.0*	3.1	1.0	2.6*	4.1	1.5	2.2*
Exposure to electric current/smoke/ fire/animals/nature	4.2	1.8	2.5*	2.8	0.9	2.5*	3.6	1.3	2.5*
Accidental poisoning by and exposure to noxious substances	1.8	0.7	1.6*	2.2	0.8	1.6*	2.0	0.8	1.6*
Other external causes	1.5	0.7	2.5*	1.8	0.6	2.5*	1.6	0.7	2.5*
<b>Total</b>	<b>100.0</b>	<b>47.9</b>	<b>1.7*</b>	<b>100.0</b>	<b>39.3</b>	<b>2.1*</b>	<b>100.0</b>	<b>43.6</b>	<b>1.9*</b>
Total number of hospitalisations for injury or poisoning:	22,263			17,311			39,574		

(a) Per 1,000 persons, directly age-standardised using the Australian 2001 standard population.

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of National Hospital Morbidity Database

**Table 8 – Age-standardised hospitalisations for external causes of Injury and Poisoning for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**

	Male			Female			Persons		
	Number	Rate (a)	Ratio	Number	Rate (a)	Ratio	Number	Rate (a)	Ratio
New South Wales	5,649	38.7	1.4*	3,677	27.1	1.5*	9,326	33.0	1.5*
Victoria	1,036	31.8	1.2*	650	22.6	1.1*	1,686	27.3	1.1*
Queensland	6,076	43.9	1.5*	4,168	32.8	1.7*	10,244	38.4	1.6*
Western Australia	4,245	64.1	2.6*	3,687	58.9	3.4*	7,932	61.6	2.9*
South Australia	1,468	59.1	2.2*	1,376	53.7	2.8*	2,844	56.2	2.4*
Northern Territory	3,789	63.5	2.2*	3,753	61.9	3.7*	7,542	62.8	2.7*
<b>Australia</b>	<b>22,263</b>	<b>47.9</b>	<b>1.7*</b>	<b>17,311</b>	<b>39.3</b>	<b>2.1*</b>	<b>39,574</b>	<b>43.6</b>	<b>1.9*</b>

(a) Per 1,000 persons, directly age-standardised using the Australian 2001 standard population.

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of National Hospital Morbidity Database

## 1.04 Hospitalisation for pneumonia

**WHY IS IT IMPORTANT?:** Aboriginal and Torres Strait Islander Australians experience considerably greater mortality and morbidity from pneumonia and invasive pneumococcal disease than other Australians. These high rates of pneumonia are associated with higher rates of common risk factors for pneumonia including infectious and chronic conditions, such as respiratory diseases; poor living conditions; malnutrition; and smoking and alcohol misuse. Young children and older age groups are most at risk. Indigenous children in the Northern Territory have rates of radiologically confirmed pneumonia that are among the highest in the world (O'Grady et al. 2010). Although hospitalisation statistics reflect admissions to hospital rather than the prevalence or incidence of pneumonia in the community, hospitalisation statistics are a measure of the occurrence of severe pneumonia requiring acute care.

**FINDINGS:** Hospitalisation for pneumonia is much more common for Aboriginal and Torres Strait Islander peoples than other Australians. In the two years between July 2006 and June 2008, there were an estimated 7,741 hospital episodes for pneumonia for Aboriginal and Torres Strait Islander people in the six jurisdictions with adequate data quality. These accounted for 2.5% of all hospitalisations for Aboriginal and Torres Strait Islander people. After adjusting for age, the hospitalisation rate for pneumonia was 4 times as high for Aboriginal and Torres Strait Islander peoples than other Australians. For other Australians, the pneumonia hospitalisation rate is high in early childhood, but very low through the adolescent to middle-adult age groups, before rising again from age 55 years. A pattern of high rates in early childhood is also seen in Aboriginal and Torres Strait Islander peoples, but rates increase again at a much younger age—from age 25 years. The greatest difference in rates occurred in the younger and older age groups.

There is wide variation in rates between the jurisdictions with adequate data quality, ranging from 5 per 1,000 in Victoria to 23 per 1,000 in the Northern Territory. The rate for other Australians is 3 per 1,000 nationally. Rates tend to be higher in jurisdictions with a higher proportion of Indigenous Australians living in remote areas.

Over the last seven years the pneumonia hospitalisation rate for Aboriginal and Torres Strait Islander peoples fell significantly. Rates for Aboriginal and Torres Strait Islander children aged 0–4 years over the same period declined significantly and the gap has narrowed.

In the period 2006–08, there were 534 notifications for invasive pneumococcal disease for Aboriginal and Torres Strait Islander peoples living in New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania and the Northern Territory, equivalent to an age-standardised rate of 46 notifications per 100,000 persons. This compares with a rate of 6 per 100,000 persons for other Australians. Notification rates are greater across all age groups, particularly for those aged 65 years and above.

Rates of invasive pneumococcal disease in the general community have fallen since 2002, which appears to reflect the introduction and extension of pneumococcal vaccination in 2001 (see measure 3.02) (Roche et al. 2008).

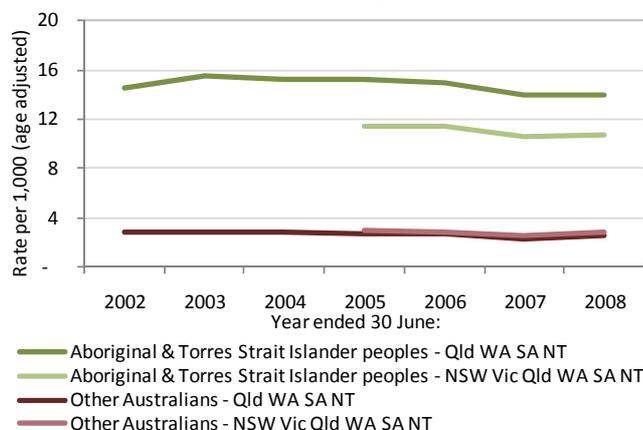
**IMPLICATIONS:** Hospitalisation rates for pneumonia have fallen, suggesting that the impact of pneumonia on Aboriginal and Torres Strait Islander peoples has reduced in recent years. This finding provides encouragement that progress is being achieved, and that further improvements are possible. It is possible that reduced pneumonia hospitalisation rates are associated with a reduction in the occurrence of this disease, possibly related to improvements in a range of factors such as overcrowded housing (see measure 2.02) and the introduction and extension of pneumococcal and influenza vaccination programs for children and adults (see measure 3.02). Improved influenza and pneumococcal vaccination coverage for the target groups within Aboriginal and Torres Strait Islander communities will be important in further reducing the burden of acute respiratory illness and death.

However, hospitalisation for pneumonia is 4 times more common for Aboriginal and Torres Strait Islander peoples than other Australians, and remains an important public health issue.

Comorbidities, poor living conditions, overcrowding, high rates of smoking, high rates of chronic disease and issues with access to health care are all likely to contribute to higher rates of pneumonia for Aboriginal and Torres Strait Islander peoples.

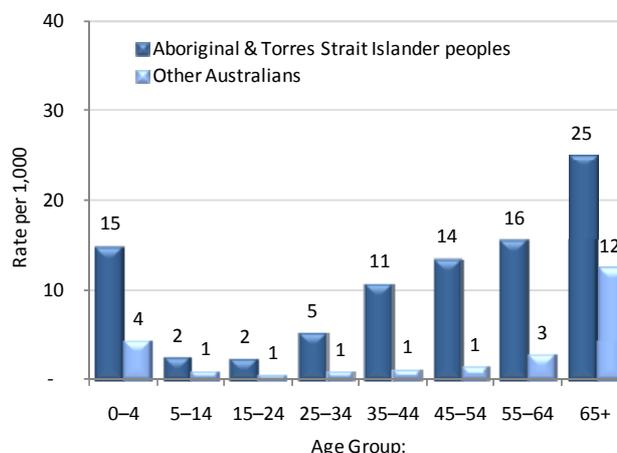
The large variation in hospitalisation rates between jurisdictions suggests that lower rates can be achieved. Higher rates for people living in more remote communities may partly reflect higher rates of respiratory diseases in those areas, gaps in primary care services to appropriately manage these conditions and the lack of alternatives to hospitalisation when pneumonia occurs.

**Figure 11 – Age-standardised hospitalisation rates for pneumonia by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08**



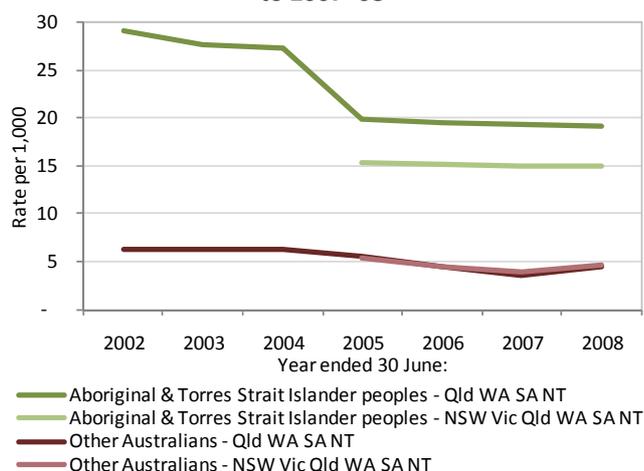
Source: AIHW analysis of National Hospital Morbidity Database

**Figure 12 – Age-specific hospitalisation rates for a principal diagnosis of pneumonia, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008**



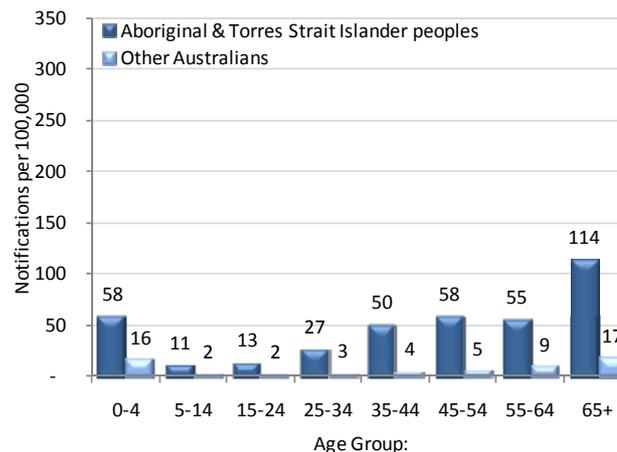
Source: AIHW analysis of National Hospital Morbidity Database

**Figure 13 – Hospitalisation rates for pneumonia, Children aged 0–4 years by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 14 – Invasive pneumococcal disease notification rate, by age group and Indigenous status, NSW, Vic., Qld, WA, SA, Tas. and NT, 2006–2008**



Source: AIHW analysis of analysis of National Notifiable Disease Surveillance System

**Table 9 – Age-standardised hospitalisations for principal diagnosis of pneumonia for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**

	Male			Female			Persons		
	Number	Rate per 1,000	Ratio	Number	Rate per 1,000	Ratio	Number	Rate per 1,000	Ratio
New South Wales	672	5.7	1.8*	651	5.9	2.4*	1,323	5.9	2.1*
Victoria	113	5.3	1.5*	94	3.9	1.5*	207	4.6	1.5*
Queensland	918	10.5	3.7*	847	8.3	3.8*	1,765	9.2	3.7*
Western Australia	915	17.5	6.6*	850	16.2	8.8*	1,765	16.9	7.7*
South Australia	220	11.2	3.6*	213	9.9	4.0*	433	10.4	3.8*
Northern Territory	1,149	25.7	7.2*	1,099	21.1	8.9*	2,248	22.9	7.6*
<b>Australia</b>	<b>3,987</b>	<b>12</b>	<b>3.6*</b>	<b>3,754</b>	<b>10.1</b>	<b>4.2*</b>	<b>7,741</b>	<b>10.7</b>	<b>3.9*</b>

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of National Hospital Morbidity Database

## 1.05 Circulatory disease

**WHY IS IT IMPORTANT?:** Circulatory disease is a major cause of morbidity and mortality in older Australians. In recent decades, Australian mortality rates from circulatory disease have fallen considerably, due to factors such as reduced smoking rates and improved treatment of high blood pressure and ischaemic heart disease (IHD). However, recent trends in Australian society, such as increased levels of obesity and diabetes, threaten to slow or reverse these improvements. Circulatory disease occurs much more frequently in Indigenous Australians and at much younger ages. Circulatory disease accounts for 17% of the burden of disease in Indigenous Australians (Vos et al. 2007) and 27% of mortality (see measure 1.23). Smoking levels are high among Indigenous adults (see measure 2.18) with evidence of a small reduction in the most recent period, while levels of physical inactivity and obesity, diabetes and high blood pressure are much higher than for non-Indigenous Australians. Additionally, low socioeconomic status is associated both with greater risk of developing circulatory disease and with lower chance of receiving appropriate treatment (Beard et al. 2008; Cunningham 2010).

**FINDINGS:** In 2004–05, approximately 12% of Indigenous Australians reported having a circulatory condition. After adjusting for differences in the age structure of the two populations, Indigenous Australians were 1.2 times as likely to have circulatory disease as non-Indigenous Australians—twice as likely for coronary heart disease (Penm 2008). There was no significant change in self-reported levels of circulatory disease between 2001 and 2004–05. Indigenous Australians living in remote areas reported higher rates of circulatory disease than those living in non-remote areas (14% compared with 11%). Self-reported rates of circulatory disease were also higher for Indigenous females (15%) compared with males (11%). Main conditions reported were hypertension (7%), coronary heart disease (1%), heart failure (1%) and rheumatic heart disease (0.7%) (Penm 2008).

In 2004–05, Indigenous Australians were more likely to report having circulatory disease if they were not in the labour force (30%) than if they were employed (23%). Circulatory diseases were also associated with low or sedentary exercise levels and overweight/obesity.

From July 2006 to June 2008, the circulatory disease hospitalisation rate for Indigenous Australians was just over 1.5 times that of other Australians. Hospitalisation rates were higher for Indigenous men (37 per 1,000) than Indigenous women (31 per 1,000). The difference in rates between Indigenous and other Australians is greater for women (rate ratio of 1.8) than for men (rate ratio of 1.4).

Between 2001–02 and 2007–08, the hospitalisation rate for Indigenous Australians was stable, while it decreased slightly for other Australians. IHD is the most common type of circulatory disease causing hospitalisation for Aboriginal and Torres Strait Islander peoples,

accounting for 44% of all circulatory disease hospitalisations. This is twice the rate for other Australians. Hospitalisation rates vary across jurisdictions from 23 per 1,000 in Victoria to 39 per 1,000 in Western Australia.

Circulatory conditions were managed in approximately 13% of general practice attendances by Aboriginal and Torres Strait Islander peoples. Indigenous Australians have a similar attendance rate for circulatory disease to other Australians (rate ratio of 1.2). However the pattern varies for specific types of consultations, for example, hypertension and cardiac check-up rates were similar to other Australians, yet visits for IHD and heart failure were higher (2 and 3 times respectively).

Circulatory disease mortality rates for Indigenous Australians during the period 2004–08 were twice the rate for non-Indigenous Australians (see measure 1.23). Inequalities in risk factors, hospitalisations, mortality, and access to procedures for treating IHD also exist between Maori and other New Zealanders (Curtis et al. 2010). This points to the increasing burden of cardiovascular disease in Indigenous populations worldwide (Kritharides et al. 2010).

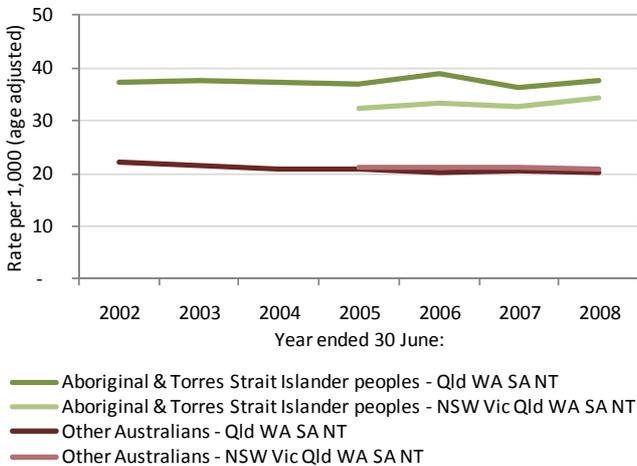
**IMPLICATIONS:** Although the self-reported prevalence of circulatory disease for Aboriginal and Torres Strait Islander peoples is only slightly higher than for other Australians, mortality rates and hospitalisation rates are much higher. Circulatory problems were managed at general practice encounters at similar rates for Indigenous patients and other patients. High rates of hospitalisation and mortality indicate a failure in the areas of prevention, early detection, early treatment and chronic disease management.

Smoking, physical inactivity, poor diet, high alcohol consumption, obesity and diabetes all damage the circulatory system. Australian cohort studies suggest obesity rates are similar between Indigenous and non-Indigenous children. This suggests that cardiovascular health disparities manifest beyond childhood, providing opportunity for prevention (Haysom et al. 2009).

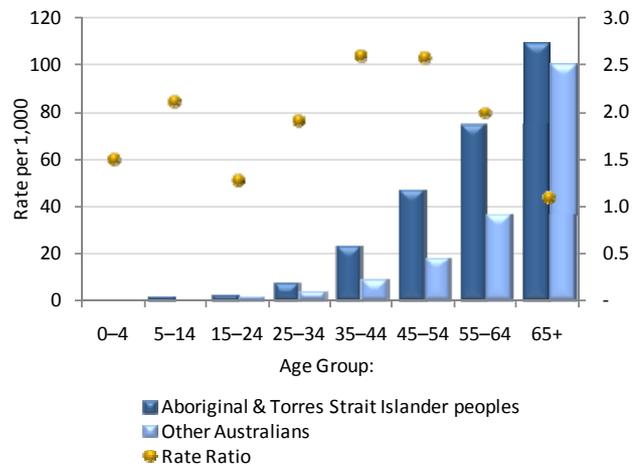
While there have been improvements in Indigenous circulatory disease mortality rates over the last decade, it is still the most common cause of death (27%). A better understanding is required of why GP attendances for hypertension and cardiac check-ups are relatively low considering the mortality rates. Improved access to and utilisation of both primary and acute care services for Aboriginal and Torres Strait Islander peoples are necessary to achieve earlier diagnosis and better management of circulatory disease.

The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* includes a focus on preventive health and primary health care. Initiatives are being introduced to improve specialist care for Indigenous Australians with chronic diseases, including new programs to support primary care providers to better coordinate chronic disease management, and increase access to specialist and multidisciplinary team care.

**Figure 15 – Age-standardised hospitalisation rates for a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander and other peoples in Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, SA and NT, 2004–05 to 2007–08**



**Figure 16 – Age-specific hospitalisation rates for a principal diagnosis of circulatory disease, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006 – June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

Source: AIHW analysis of National Hospital Morbidity Database

**Table 10 – Age-standardised hospitalisations for circulatory disease by principal diagnosis for Aboriginal and Torres Strait Islander peoples by sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**

Principal Diagnosis	Males			Females			Persons		
	%	Rate (a)	Ratio	%	Rate (a)	Ratio	%	Rate (a)	Ratio
Ischaemic heart disease	47.1	17.2	1.7*	39.8	12.4	2.8*	43.6	14.6	2.1*
Acute myocardial infarction	20.2	7.2	2.2*	14.3	4.6	3.1*	17.4	5.8	2.5*
Subsequent myocardial infarction	0.2	0.1	4.3*	0.3	0.1	9.9*	0.2	0.1	6.2*
Pulmonary and other heart disease	29.2	11.5	1.5*	31.3	10.2	1.9*	30.2	10.8	1.7*
Cerebrovascular disease	7.5	3.5	1.6*	8.6	3.0	1.9*	8.0	3.2	1.8*
Stroke	6.5	3.0	1.7*	7.6	2.8	2.1*	7.0	2.9	1.9*
Rheumatic fever and heart disease	3.2	0.5	5.3*	5.4	0.9	8.2*	4.2	0.7	6.9*
Hypertension disease	2.3	0.7	2.6*	3.4	1.0	2.5*	2.8	0.8	2.6*
Other diseases of the circulatory system	10.7	3.4	0.6*	11.5	3.1	0.6*	11.1	3.2	0.6*
<b>Total</b>	<b>100.0</b>	<b>36.8</b>	<b>1.4*</b>	<b>100.0</b>	<b>30.5</b>	<b>1.8*</b>	<b>100.0</b>	<b>33.4</b>	<b>1.6*</b>
Total number of hospitalisations for circulatory disease:	8,630			7,900			16,530		

(a) Per 1,000 persons, directly age-standardised using the Australian 2001 standard population.

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of National Hospital Morbidity Database

**Table 11 – Age-standardised hospitalisations with a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, July 2006–June 2008**

	Male			Female			Persons		
	Number	Rate (a)	Ratio	Number	Rate (a)	Ratio	Number	Rate (a)	Ratio
New South Wales	2,443	32.8	1.3*	2,036	26.0	1.6*	4,479	29.2	1.4*
Victoria	385	22.9	0.8*	422	23.5	1.3*	807	23.2	1.0
Queensland	2,450	40.7	1.5*	2,405	35.8	2.1*	4,855	38.1	1.8
Western Australia	1,519	43.8	1.9*	1,319	34.6	2.4*	2,838	38.8	2.1*
South Australia	538	40.1	1.6*	518	32.7	2.0*	1,056	36.0	1.8*
Northern Territory	1,295	38.1	2.0*	1,200	29.8	2.5*	2,495	33.3	2.1*
<b>Australia</b>	<b>8,630</b>	<b>36.8</b>	<b>1.4*</b>	<b>7,900</b>	<b>30.6</b>	<b>1.8*</b>	<b>16,530</b>	<b>33.5</b>	<b>1.6*</b>

(a) Per 1,000 persons, directly age-standardised using the Australian 2001 standard population.

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of National Hospital Morbidity Database

## 1.06 Acute rheumatic fever and rheumatic heart disease

**WHY IS IT IMPORTANT?:** Acute rheumatic fever (ARF) is a disease caused by an auto-immune reaction to a bacterial infection with Group A streptococcus. ARF is a short illness, but can result in permanent damage to the heart—rheumatic heart disease (RHD). A person who has had ARF once is susceptible to repeated episodes, which can increase the risk of RHD. Following an initial diagnosis of RHD, patients require long-term treatment, including long-term antibiotic treatment to avoid infections that may damage the heart (Steer & Carapetis 2009).

ARF and RHD are associated with environmental factors such as poverty and poor living conditions. The incidence of ARF and the prevalence of RHD among Aboriginal and Torres Strait Islander peoples living in some remote areas have been reported as among the highest in the world (AIHW 2004b).

ARF and RHD are now rare in populations with good living conditions and easy access to quality medical care (Parnaby & Carapetis 2010). Aboriginal and Torres Strait Islander peoples will remain at risk of ARF/RHD while socioeconomic disadvantage and barriers to accessing health care persist.

Data on ARF and RHD are currently only available for the Northern Territory (from the *Northern Territory Rheumatic Heart Disease Program*) and a study conducted in North Queensland.

**FINDINGS:** In the period 2006–09, there were 216 new or recurrent cases (prevalence) of ARF in the Northern Territory. The majority (99%) were for Aboriginal and Torres Strait Islander peoples. ARF is largely restricted to older children and young adults: 62% of cases occurred in children aged 5–14 years, with a further 21% in the 15–24 years age group. Females comprised 61% of all cases of ARF in 2006–09 (130 females, 83 males).

Incidence (new reported cases) of ARF in the Northern Territory rose from the mid 1990s to the early 2000s. Between 2006 and 2009 no significant differences were detected. Between 1995–97 and 2004–06, ARF incidence rates have been higher in Central Australia compared with the Top End of the Northern Territory. However, in the latest period, rates were similar in the two regions.

Outside the Northern Territory, a study of ARF incidence in north Queensland over the period 2004–09 showed an increase in notifications but fewer recurrences, suggesting enhanced awareness of the disease (Hanna & Clark 2010).

In December 2009, there were 1,479 people recorded as having RHD in the Northern Territory. Of these 1,374 (93%) were Indigenous Australians. The prevalence of RHD in Indigenous people was higher in the Top End compared with Central Australia (28 versus 18 per 1,000 persons). Females comprised 65% of Indigenous Australians in the NT with RHD. After adjusting for the

age differences, the prevalence of RHD was 29 times as high in the Aboriginal and Torres Strait Islander peoples than in other residents of the Top End of the Northern Territory, and 18 times as high in Central Australia.

A recent study of patients with RHD living in five communities around Katherine in the Northern Territory found that around two-thirds of patients were receiving ongoing secondary preventive treatment in accordance with guidelines: 56% of patients received prophylactic penicillin injections; 63% received echocardiograms and 59% had a specialist review (Stewart et al. 2007).

**IMPLICATIONS:** The Northern Territory is the only jurisdiction in which there is time-trend information for ARF. The incidence of ARF among Indigenous Australians is apparently lower in north Queensland than in the Northern Territory, but is still far higher than for other Australians. Since there are no trend data on ARF or RHD in Queensland, it is unknown whether rates have been lower there for many years or whether progress has been made in recent years.

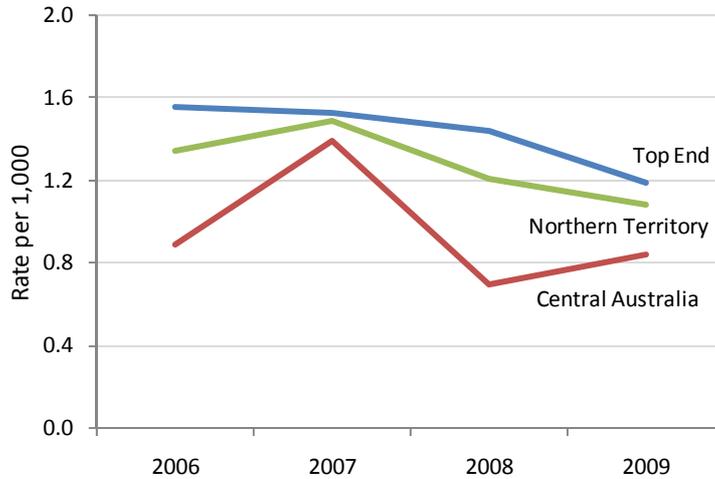
Interventions that focus on improving housing, socioeconomic circumstances and health care will be important for preventing and managing these conditions.

Improved access to appropriate treatment for pharyngitis/tonsillitis is likely to reduce the rate of ARF. Although the role of Group A Streptococcal Bacterium (GAS) skin infection in precipitating ARF is contentious, it appears likely this plays a role in the spread of ARF in Australia. Interventions to reduce GAS skin infection through community-based skin health programs may be effective.

There is considerable scope for the secondary prevention of ARF/RHD through the implementation of disease register and control programs, education of patients and their families, treatment with penicillin prophylaxis, and regular clinical review and access to specialists and hospital care. There is evidence that current practice could be improved (Stewart et al. 2007).

In the Northern Territory, RHD registers are a central element of secondary disease prevention programs to prevent recurrence of ARF and reduce the occurrence or severity of RHD. Work is underway to extend this approach to other jurisdictions. Under the *Rheumatic Fever Strategy*, register and control programs are being established in Queensland and Western Australia. A National Coordination Unit, RHD Australia, has been established at the Menzies School of Health Research. The unit is developing culturally appropriate education and training materials and establishing a national data collection system. RHD registers are primarily intended to improve secondary prophylaxis by allowing health professionals to follow-up with patients who have not returned for their monthly treatment. Control programs improve case-detection, and are the most effective way of improving compliance to treatment regimes and supporting clinical follow-up of people with RHD.

**Figure 17 – Acute Rheumatic Fever incidence, NT Indigenous Australians by time period, Top End of Northern Territory and Central Australia, 2006–2009**



Source: AIHW analysis of Top End and Central Australian Rheumatic Heart Disease Registers

**Table 12 –Rheumatic Heart Disease prevalence (31 December 2009) by age groups for Aboriginal and Torres Strait Islander people in the Northern Territory**

Age group	Number	Per cent	Rate (a)	Ratio
0–14	137	10.0	6.1	177.7*
15–24	318	23.1	25.1	83.5*
25–34	309	22.5	29.6	108.4*
35–44	286	20.8	34.2	87.5*
45–54	190	13.8	34.5	33.4*
55–64	90	6.6	32.6	21.1*
65+	44	3.2	23.7	5.7*
<b>Total</b>	<b>1,374</b>	<b>100.0</b>	<b>24.8</b>	<b>25.4*</b>

(a) Rate per 1,000 persons. Age-specific rates calculated using the 2006 estimated resident Indigenous population for the Northern Territory. Total is age-standardised.

\* Represents results with statistically significant differences in the Indigenous/ Non-Indigenous comparisons at the p<.05 level.

Source: AIHW analysis of Northern Territory Rheumatic Heart Disease Program

## 1.07 High blood pressure

**WHY IS IT IMPORTANT?:** High blood pressure (hypertension) is a risk factor for serious diseases of the circulatory system, including angina and heart attack, stroke, and restricted blood flow to many organs which can lead to deteriorating vision, kidney failure, chronic leg ulcers and gangrene. High blood pressure is more common among Aboriginal and Torres Strait Islander peoples than non-Indigenous people, and is one of the reasons heart attacks, strokes and other circulatory diseases are more common, and cause many more early deaths, among Indigenous Australians (AIHW 2002a).

It is estimated that high blood pressure is responsible for 6% of the health gap between Aboriginal and Torres Strait Islander and non-Indigenous Australians (Vos et al. 2007; Vos et al. 2009). Although for some people, the propensity to develop high blood pressure appears to be inherited, it can be prevented or controlled by leading an active and healthy life, remaining fit, avoiding obesity and diabetes and, if necessary, taking regular medication (Passey et al. 2010). For those who have developed high blood pressure, treatment with long-term medication can reduce the risk of developing serious complications. Reducing the prevalence of high blood pressure in Aboriginal and Torres Strait Islander peoples is one of the most important means for reducing serious circulatory diseases.

**FINDINGS:** There are currently no national data available for the prevalence of high blood pressure in Australia. The 2011–13 Australian Health Survey will include measured blood pressure. For this report, three national data sources provide an indirect indication of the relative prevalence of high blood pressure in Aboriginal and Torres Strait Islander peoples compared with other Australians.

In 2004–05, 7% of Aboriginal and Torres Strait Islander Australians reported having high blood pressure. After adjusting for differences in age structure, Indigenous males and females reported having high blood pressure at 1.4 and 1.6 times the rate of non-Indigenous males and females. There was no significant change in self-reported high blood pressure for Aboriginal and Torres Strait Islander peoples between 2001 and 2004–05. Self-reported data under-estimates prevalence as not everyone who has the condition will have been diagnosed.

Some population studies have shown significantly higher rates of high blood pressure for Aboriginal and Torres Strait Islander peoples. One study in selected remote communities found rates that were 3–8 times as high as the general community (Hoy et al. 2007; Kondalsamy-Chennakesavan et al. 2008).

Few people with high blood pressure require hospitalisation for this condition alone. Most people with high blood pressure are treated by GPs or medical specialists. Therefore, hospitalisation rates for high blood pressure significantly underestimate its prevalence in the community. Hospitalisation rates for high blood pressure were 2.6 times as high for Aboriginal and

Torres Strait Islander peoples as for other Australians. This may indicate that the prevalence of severe high blood pressure is more common in Indigenous Australians from a younger age. It may also indicate that high blood pressure is not controlled as well for Indigenous people, so that very severe disease requiring acute care in hospital is more common among this group than among other Australians. Current hospitalisation rates for Indigenous Australians with a principal diagnosis of hypertensive disease have declined in comparison to rates during 2004–06.

Compared with other Australians, Aboriginal and Torres Strait Islander peoples have similar GP attendance rates for high blood pressure. High blood pressure was a reason for consultation in 4% of GP consultations for Indigenous patients.

**IMPLICATIONS:** Self-reported prevalence and hospitalisation rates for high blood pressure are both higher for Indigenous Australians than other Australians, but high blood pressure accounts for a similar proportion of GP consultations for each population. This suggests that Indigenous Australians with high blood pressure attend their GPs less regularly than other Australians with the same disease and/or their blood pressure is less well controlled.

Hospitalisation rates indicate that severe high blood pressure problems are more common for Indigenous Australians. This suggests that high blood pressure has a higher prevalence in this population or that high blood pressure is poorly controlled and more likely to require acute care. The importance of primary care services to detect and treat high blood pressure in Indigenous Australians is clear, so that severe high blood pressure can be avoided and complications prevented.

Research into the effectiveness of quality improvement programs in Aboriginal and Torres Strait Islander primary health care services has demonstrated that blood pressure control can be improved by a well-coordinated and systematic approach to chronic disease management (e.g. McDermott et al. 2004). Identification and management of hypertension requires access to primary health care with appropriate systems for early detection and chronic illness management. High blood pressure is one of the conditions targeted through various initiatives, including *Healthy for Life*, designed to improve management of chronic illnesses (see measures 3.03, 3.04 and 3.16).

The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c) comprises various reforms including a focus on preventive health and primary health care. The Commonwealth's contribution to the Agreement, the *Indigenous Chronic Disease Package*, includes measures that will help to increase the uptake of MBS-funded primary health care services by Aboriginal and Torres Strait Islander peoples, with approximately 130,000 additional adult health checks being provided over the four years to 2012–13. Assessing blood pressure is one of the key elements of an adult health check.

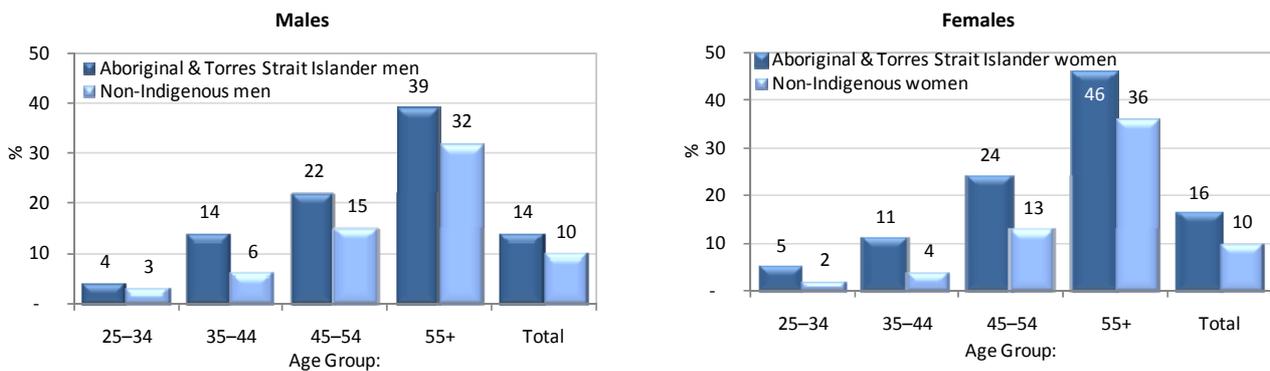
**Table 13 – Aboriginal and Torres Strait Islander people reporting high blood pressure or hypertension, by sex and remoteness, 1995, 2001 and 2004–05**

	1995(a)	2001	2004-05
	%	%	%
<b>Males</b>			
Remote	na	7	10
Non-remote	15	5	6
Total	na	6	7
<b>Females</b>			
Remote	na	10	10
Non-remote	16	7	7
Total	na	8	8

(a) Remote data are not available for NATSIHS 1995 data

Source: ABS & AIHW analysis of 1995 and 2001 National Health Surveys (Indigenous supplements) and 2004–05 National Aboriginal and Torres Strait Islander Health Survey

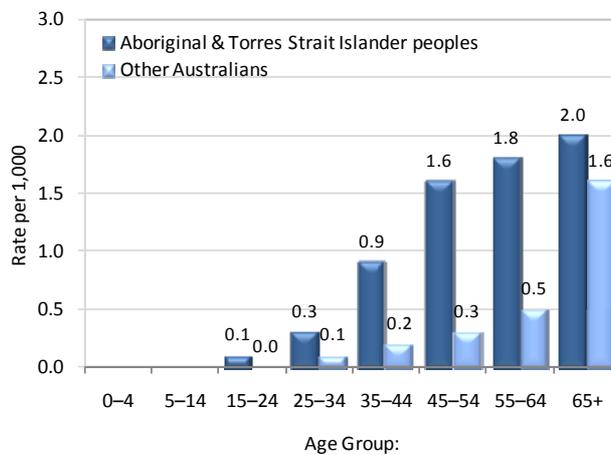
**Figure 18 – Persons reporting high blood pressure, by Indigenous status, sex and age, 2004–05**



(a) Total is age-standardised.

Source: ABS & AIHW analysis 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 19 – Age-specific hospitalisation rates for a principal diagnosis of hypertensive disease, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

## 1.08 Diabetes

**WHY IS IT IMPORTANT?:** Diabetes is a long-term (chronic) condition in which blood glucose levels become too high because the body produces little or no insulin, or cannot use insulin properly. Over many years, high blood glucose levels can damage various parts of the body, especially the heart and blood vessels, eyes, kidneys and nerves, resulting in permanent disability, reduced quality of life and shortened life expectancy. High blood glucose levels can cause complications for both the mother and baby during pregnancy. Diabetes is responsible for 12% of the health gap between Indigenous and non-Indigenous Australians (Vos et al. 2007). Diabetes prevalence is higher for Indigenous Australians than non-Indigenous Australians in every socioeconomic status group, often by a considerable margin (Cunningham 2010:s21). Prevention, early detection and better management of diabetes will be important in closing the gap in life expectancy.

There are several forms of diabetes. The most common form is Type 2, which accounts for 85–90% of all people with diabetes and is more common in people who are physically inactive, have a poor diet, and are overweight or obese. Other factors such as smoking and excessive alcohol consumption, low birthweight and intra-uterine factors are also associated with increased risk of developing Type 2 diabetes. Type 2 diabetes is a significant contributor to morbidity and mortality for Aboriginal and Torres Strait Islander peoples. Type 1 diabetes, the most common form of diabetes in children, is generally thought to be rare among Aboriginal and Torres Strait Islander peoples although misclassification problems with Type 2 diabetes make this difficult to ascertain (AIHW 2002b).

**FINDINGS:** Measuring population levels of diabetes is difficult given the high rate of undiagnosed diabetes. The 2011–13 Australian Health Survey will include blood tests for measuring estimated diabetes prevalence. For this report, indirect measures of diabetes prevalence are explored.

In 2004–05, 6% of Indigenous Australians reported diabetes or high sugar levels. Diabetes was almost twice as likely to be reported by Indigenous Australians in remote areas (9%) as non-remote areas (5%). After accounting for age differences between the two populations, Indigenous Australians were more than 3 times as likely as non-Indigenous Australians to report some form of diabetes. For Indigenous Australians, diabetes problems start in younger age groups with higher rates of self-reported diabetes emerging from 25 years onwards. Diabetes or high sugar levels were reported for 32% of Indigenous Australians aged 55 years and over compared with 12% of non-Indigenous Australians. Rates have increased since 1995. There was a statistically significant relationship between prevalence of diabetes and selected social determinants of health and risk factors such as weight and diet (see Tables 4 and 5).

Indigenous mothers were more likely to experience pre-existing diabetes affecting pregnancy (3 to 4 times the non-Indigenous rate) and Gestational Diabetes Mellitus (GDM) (twice the non-Indigenous rate). Indigenous mothers with pre-existing diabetes were more likely to deliver pre-term (32%), compared with Indigenous mothers with GDM (14%) and Indigenous mothers without diabetes (13%) (AIHW 2010c).

The prevalence of diabetes among Indigenous Australians in selected remote communities was 5 to 10 times as high as the general community (Hoy et al. 2007; Kondalsamy-Chennakesavan et al. 2008; Zhao et al. 2008). A New South Wales study of young people aged 10–18 years found incident rates for Indigenous children to be 6 times the rates for non-Indigenous children (Craig et al. 2007). An analysis of the Fremantle Diabetes Study found diabetes prevalence for Aboriginal people to be more than double the rate for non-Indigenous Australians, with average age at diagnosis 14 years younger (Davis et al. 2007).

Hospitalisation rates for principal diagnosis of diabetes are 4 times as high for Indigenous Australians as for other Australians, and are higher in all jurisdictions with adequate data quality. Around 84% of diabetes related hospitalisations for Indigenous Australians relate to Type 2 diabetes and 15% to Type 1 diabetes. An additional 1,554 hospitalisations for women were for gestational diabetes. Hospitalisation rates for diabetes have increased significantly in recent years for both Indigenous and non-Indigenous Australians and the gap has widened. Deaths due to diabetes were around 7 times higher for Indigenous Australians than other Australians. Diabetes is identified as a problem in around 6% of general practice encounters with Aboriginal and Torres Strait Islander people, which is over 3 times the rate of other patients.

**IMPLICATIONS:** Diabetes is more common among Indigenous Australians than other Australians, as measured by self-reported prevalence and GP consultations. Hospitalisations and death rates for diabetes are both high pointing to possible issues in secondary prevention. Challenges for decision makers include maintaining a policy emphasis on primary prevention (nutrition, physical activity, smoking, alcohol) whilst implementing strategies to achieve effective secondary prevention (primary care, blood sugar control) and appropriate acute care to treat serious complications as they arise. More research is required on the most effective mechanism for achieving early detection and ongoing management of the condition (see measures 3.03 and 3.04). Indigenous Australians do not constitute a homogenous group with respect to socioeconomic status or diabetes prevalence, and this diversity must be recognised in developing measures to redress Indigenous health disadvantage (Cunningham 2010). The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c), sets priorities for preventive health measures designed to reduce the factors that contribute to chronic disease, and expanded access to and coordination of comprehensive primary health care to improve detection and

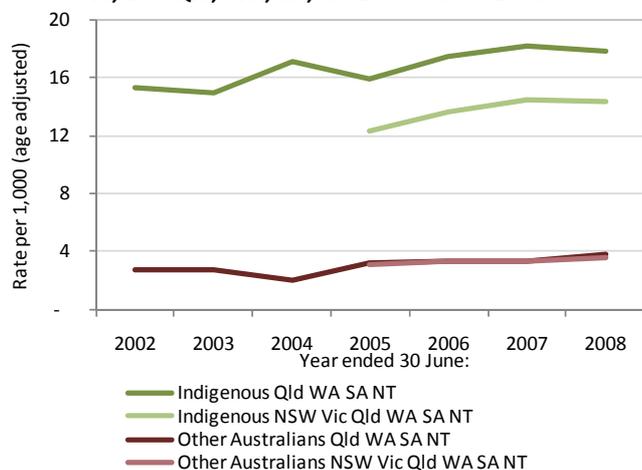
management of chronic diseases. The Coordinated Care for Diabetes pilot will commence from 1 July 2011, as part of the *National Health Reform*. The pilot will fully road-test the initiative to confirm the reform’s practical design and make sure it achieves the best outcomes for people with diabetes. The *National Partnership Agreement on Preventive Health* (COAG 2008d) will

**Table 14 – Percentage Aboriginal and Torres Strait Islander peoples reporting diabetes/high sugar levels, by remoteness, 1995, 2001 and 2004–05**

	1995 (a)	2001	2004-05
Remote	n.a	7	9
Non-remote	4	4	5
<b>Total</b>	<b>n.a</b>	<b>5</b>	<b>6</b>

(a) Remote data are not available for NATSIHS 1995 data  
 Source: ABS & AIHW analysis of 1995 and 2001 National Health Surveys (Indigenous supplements) and 2004–05 National Aboriginal and Torres Strait Islander Health Survey

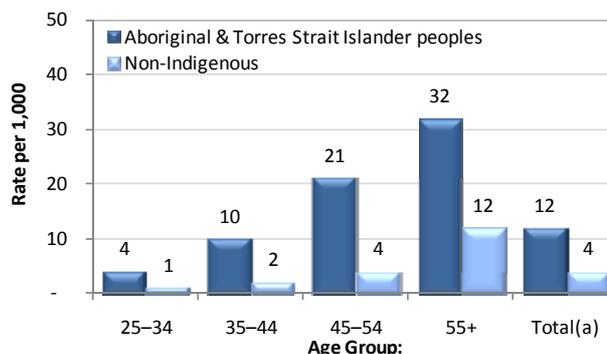
**Figure 21 – Age-standardised hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status Qld, WA, SA and NT, age-standardised, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

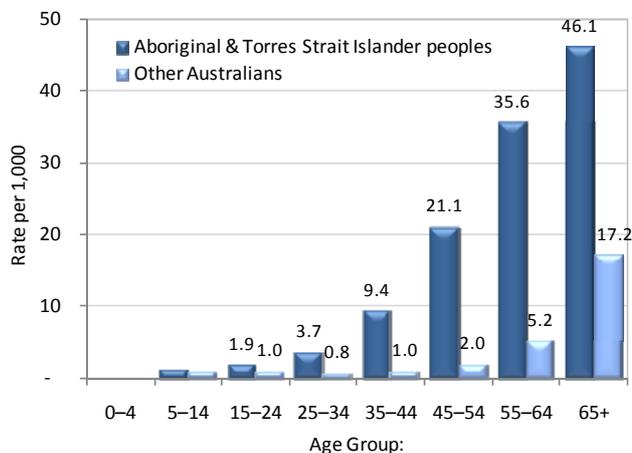
introduce initiatives addressing lifestyle risks associated with chronic disease through healthy lifestyle programs in workplaces, communities, schools and early childhood settings. Programs will focus on increasing physical activity, improving nutrition, decreasing harmful alcohol intake and smoking cessation.

**Figure 20 – Percentage of persons reporting diabetes/high sugar levels, by Indigenous status and age, 2004–05**



(a) Total is age-standardised  
 Source: 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 22 – Age-specific hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

**Table 15 – Diabetes problems managed by GPs, by Indigenous status of patient, 2004–05 to 2008–09**

Problem managed:	Rate per 100 encounters (age adjusted)		Ratio
	Indig.	Other	
Diabetes: non-insulin-dependent	10.8	3.2	3.4
Diabetes: insulin-dependent	0.8	0.3	2.9
<i>Total diabetes (excluding gestational)</i>	<i>11.6</i>	<i>3.4</i>	<i>3.4</i>
Gestational diabetes	0.1	–	4.1
<b>All diabetes</b>	<b>11.6</b>	<b>3.5</b>	<b>3.4</b>

Source: AIHW analysis of BEACH survey of general practice, AGPSCC

## 1.09 End stage renal disease

**WHY IS IT IMPORTANT?:** The kidneys can be permanently damaged by various acute illnesses (e.g. severe infections) or by progressive damage from chronic conditions such as elevated blood pressure (untreated hypertension) and long-standing high blood sugar levels (untreated diabetes). If the kidneys cease functioning entirely (known as end stage renal disease, or kidney failure), waste products and excess water build up rapidly in the body. This will cause death within a few days or weeks unless a machine is used to filter the blood several times per week (renal dialysis) or a new kidney is provided by transplant.

Aboriginal and Torres Strait Islander peoples have very high levels of end stage renal disease (ESRD) due to a range of risk factors and antecedents including low birthweight (see 1.01) (White et al. 2010). ESRD contributes substantially to the high burden of ill health experienced by Aboriginal and Torres Strait Islander people. In non-Indigenous Australians, ESRD usually occurs in older age, but for Aboriginal and Torres Strait Islander peoples, it occurs more frequently in the middle adult years. Incidence rates of particular forms of kidney disease occur almost exclusively in Indigenous children in Australia and New Zealand (White et al. 2010). Fewer Indigenous patients receive kidney transplants, so most must have dialysis 3 times a week for the rest of their lives, impacting greatly on quality of life and social and emotional wellbeing (AIHW 2005a; McDonald et al. 2006; Devitt et al. 2008).

**FINDINGS:** The incidence of patients commencing ongoing renal replacement treatment (dialysis or kidney transplantation) for ESRD is higher for Aboriginal and Torres Strait Islander peoples than non-Indigenous Australians. There is considerable variation in incidence rates between jurisdictions and between urban, rural and remote areas. Between 2006 and 2008, there were 696 new Aboriginal and Torres Strait Islander patients registered as commencing ESRD treatment, accounting for 10% of all new registrations. The age-adjusted incidence rate of treated ESRD was 8 times as high for Aboriginal and Torres Strait Islander peoples as non-Indigenous people. In contrast to non-Indigenous Australians, ESRD incidence is higher for Indigenous women than Indigenous men.

ESRD incidence was higher for Aboriginal and Torres Strait Islander peoples in all adult age groups, with the greatest relative excess across the 45–64 year age groups. Indigenous people commencing ESRD treatment are much younger than non-Indigenous Australians commencing ESRD treatment, with almost two-thirds aged under 55 years compared with one third of other Australians commencing ESRD treatment.

In the period 2006–08, ESRD incidence for Aboriginal and Torres Strait Islander peoples was much higher in outer regional and remote areas than urban areas. The relative excess in ESRD incidence was greatest in very remote and remote areas (18 to 20 times as high as for non-Indigenous Australians in the same areas),

compared with outer regional (11 times as high) and major cities and inner regional areas (4 times as high). For other Australians, there is little difference in ESRD incidence between jurisdictions or between urban, rural and remote areas.

Incidence rates for Indigenous Australians were highest in the Northern Territory (188 per 100,000) and lowest in New South Wales (33 per 100,000).

The number of Aboriginal and Torres Strait Islander patients starting ESRD treatment has more than quadrupled between 1991 and 2008. ESRD incidence for other Australians has also increased, but not as rapidly. The rapid increase in the incidence of ESRD in the Aboriginal and Torres Strait Islander population may reflect both real growth in the underlying disease, an increase in availability of kidney treatment and/or improved levels of identification of Aboriginal and Torres Strait Islander people in the registry.

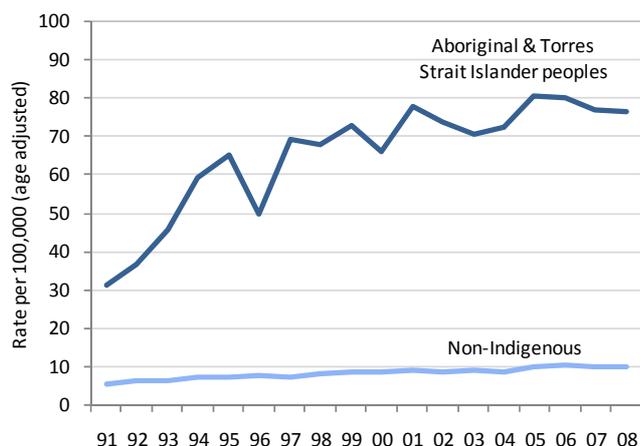
ESRD patients require either a kidney transplant or dialysis to maintain the functions normally performed by the kidneys. In December 2008, there were 1,306 Indigenous Australians registered for ESRD. Of these, 88% were reliant on dialysis and only 12% had received a kidney transplant. In comparison, 55% of non-Indigenous Australians living with ESRD were reliant on dialysis and 45% had a functioning kidney transplant. Indigenous Australians with ESRD were 10 times as likely as non-Indigenous Australians with ESRD to be reliant on dialysis.

**IMPLICATIONS:** The very high level of ESRD in Aboriginal and Torres Strait Islander peoples is associated with the high rates of diabetes, high blood pressure and related diseases, and possibly the high rates of bacterial infections and glomerulonephritis in childhood (AIHW 2005a). These in turn are associated with barriers to accessing primary care and environmental determinants. Healthier nutrition and greater physical activity play a role, as well as early diagnosis and treatment of conditions associated with renal failure.

In response to increasing demand some jurisdictions and communities have enhanced home or community-based dialysis services. In the Northern Territory a Mobile Dialysis Bus service offers respite dialysis to communities on a frequent basis. This is particularly important for remote communities, where people with ESRD often need to travel long distances, or else permanently relocate, in order to receive dialysis. Indigenous Australians have relatively poorer access to kidney transplants and addressing barriers is important (Cass et al. 2003; Yeates et al. 2009).

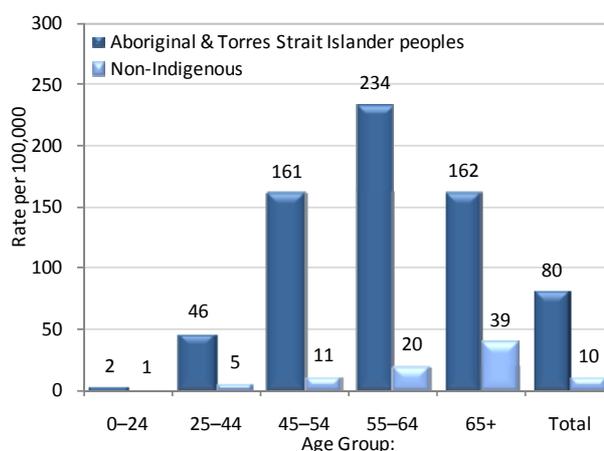
A focus on improving primary prevention, detection and management is necessary to lessen the impact of ESRD on people with the condition and in terms of the cost to the health care system and to Aboriginal and Torres Strait Islander peoples. The *National Partnership on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c) sets a number of priorities aimed at chronic disease prevention, detection and management.

**Figure 23 – Age-standardised registration rates for end stage renal disease, by Indigenous status, 1991 to 2008**



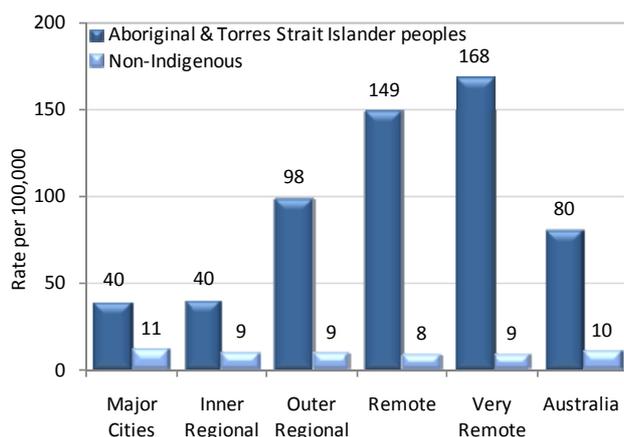
Source: AIHW analysis Australian and New Zealand Dialysis and Transplant Registry (ANZDATA)

**Figure 24 – Incidence of end stage renal disease by Indigenous status and age group, 2006–2008**



Source: AIHW analysis of Australian and New Zealand Dialysis and Transplant Registry (ANZDATA)

**Figure 25 – Age-standardised incidence of end stage renal disease by Indigenous status and remoteness, 2006–2008**



Source: AIHW analysis of Australian and New Zealand Dialysis and Transplant Registry (ANZDATA)

**Table 16 – Total patients with end stage renal disease, by Indigenous status and treatment, 31 December 2008**

Treatment:	Number		Rate per 100,000 (age adjusted)		Ratio
	Indig.	Non-Indig.	Indig.	Non-Indig.	
Dialysis	1,147	8,915	390	40	9.8*
Transplant	159	7,382	46	34	1.3*
<b>Total</b>	<b>1,306</b>	<b>16,297</b>	<b>436</b>	<b>74</b>	<b>5.9*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p<.05 level.

Source: AIHW analysis of Australian and New Zealand Dialysis and Transplant Registry (ANZDATA)

**Table 17 – Incidence of end stage renal disease in Aboriginal and Torres Strait Islander people, by jurisdiction, 2006–2008**

	Male			Female			Persons		
	No.	Rate (a)	Ratio	No.	Rate (a)	Ratio	No.	Rate (a)	Ratio
New South Wales	39	35	2.7*	41	31	4.1*	80	33	3.2*
Victoria	12	62	4.6*	11	43	6.7*	23	51	5.2*
Queensland	90	81	6.3*	94	83	10.3*	184	82	8.0*
Western Australia	66	108	8.1*	80	128	20.0*	146	119	12.2*
South Australia	18	81	6.5*	25	93	14.5*	43	87	9.5*
Tasmania	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.
Australian Capital Territory	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	6	131	7.1*
Northern Territory	88	169	18.1*	125	205	42.7*	213	188	25.7*
<b>Australia</b>	<b>318</b>	<b>78</b>	<b>5.9*</b>	<b>378</b>	<b>83</b>	<b>11.5*</b>	<b>696</b>	<b>80</b>	<b>8.0*</b>

n.p. refers to 'not published' as the rate is based on very small numbers.

\* Represents results with statistically significant differences in the Indigenous/other comparisons at the p<.05 level.

Source: AIHW analysis of Australian and New Zealand Dialysis and Transplant Registry (ANZDATA)

## 1.10 Decayed, missing, filled teeth

**WHY IS IT IMPORTANT?:** Oral health refers to the health of tissues of the mouth, including muscle, bone, teeth and gums. This performance measure focuses on one component of oral health that is available in the national data (i.e. the teeth), and particularly on the average number of decayed, missing and filled infant/deciduous (dmft) and adult/permanent (DMFT) teeth. The number of teeth with dental decay (termed 'caries'), reflects untreated dental disease, while the number of missing and filled teeth reflects the history of dental health problems and treatment. The number of teeth with untreated decay is often higher in the younger age groups, while older people are more likely to have missing or filled teeth (Davies 2000).

Decayed teeth can cause illness and pain. The loss of permanent teeth can lead to difficulties in chewing, discomfort while eating and subsequent nutritional problems and embarrassment. Although the evidence is not conclusive, poor dental health may impair speech and language development. It may also exacerbate other chronic diseases (Jamieson et al. 2010).

Aboriginal and Torres Strait Islander peoples are more likely than other Australians to have lost all their teeth, have gum disease, and receive less caries treatment. They are less likely to have received preventive dental care and more likely to have untreated dental disease (Jamieson et al. 2010).

Periodontal disease (i.e. of the gums) is associated with increased age, poor oral hygiene, infrequent dental visits, smoking, low education and income levels, and certain medical conditions, especially diabetes. Research has also found an association between periodontal disease and pre-term, low birthweight babies, cardiovascular disease, and rheumatoid arthritis (NATSIHC 2003; Thompson et al. 2004) and with substance use, particularly inhalant use (Jamieson et al. 2010). Consumption of sugary drinks and a lack of fluoridation of water supplies in some communities have also contributed to high levels of decayed teeth (Jamieson et al. 2010; Slack-Smith et al. 2009).

**FINDINGS:** In 2008, 32% of Indigenous children aged 0–14 years were reported to have teeth or gum problems. Approximately 15% had untreated cavities or dental decay and 16% had teeth filled because of dental decay. A further 7% had teeth pulled out due to dental decay. Of those children that needed to go to a dentist and did not go (8%), one-third (32%) of parents reported the waiting time being too long or the service not available at the time required as the main reason for this. For one-fifth, cost was the main issue.

Comparisons between Indigenous children and other Australian children are now dated. For the three states for which reliable data were available (NSW 2000, SA 2003 and the NT 2002), the mean number of decayed or missing deciduous teeth and of decayed permanent teeth was much higher for Indigenous children than other Australian children. The differentials varied with age, but dmft and DMFT scores of Aboriginal and Torres

Strait Islander children were more than twice as high in any age groups. By 15 years of age, Aboriginal and Torres Strait Islander children had 50% more decayed, missing or filled teeth compared with non-Indigenous children. More recent data on hospitalisations for dental conditions (between July 2006 and June 2008) support these disparities for children aged 0–4 years, showing rates of 9 Indigenous children per 1,000 population were hospitalised for dental conditions compared with 5 per 1,000 population for other children. This indicates poor access to, and a large unmet need for, dental care in this age group. Hospitalisation rates for dental problems decline sharply after 14 years of age with Indigenous rates slightly under non-Indigenous rates.

Indigenous children living in rural areas tend to have the poorest level of oral health followed by Aboriginal and Torres Strait Islander children living in metropolitan areas with non-Indigenous children in rural and metropolitan areas having the best oral health. In the general population, higher levels of socioeconomic disadvantage are associated with poorer oral health in children. There is a similar pattern for Indigenous children, but within each socioeconomic grouping, Indigenous children have poorer oral health than other Australian children (Jamieson et al. 2006).

The only data on trends in dental health are for school-age children in the Northern Territory. There was little change in dental health for Indigenous children from 1991 to 2001. A study in the Northern Territory found that the prevalence of dental caries amongst non-Indigenous children improved from 1989 to 2000 while the prevalence amongst Indigenous children worsened during the same period (Jamieson et al. 2007). Between 1 July 2007 and 3 June 2009, *Northern Territory Emergency Response* health checks included an assessment of dental health. Oral health problems were identified in over 40% of children who had a Child Health Check. At December 2009, of the 2,349 children who had had a dental check, over half (54%) the children were treated for previously untreated caries.

In 2004–06, the average number of decayed teeth was higher for Indigenous Australians aged 15 years and over (15 compared with 13 for non Indigenous). A higher percentage of Indigenous persons aged 15 years and over had no natural teeth (8%) than non-Indigenous persons aged 15 years and over (6%).

**IMPLICATIONS:** More recent data are required. Available data indicate that dental health is worse for Indigenous Australians than other Australians, for both children and adults. These findings raise significant policy questions about access to dental services and population health measures to prevent dental disease and support oral health. In NSW an Aboriginal Oral Health Unit has been established at the Sydney Dental Hospital to promote and enhance communication, relationships and oral health services across Aboriginal communities and advise on the effectiveness of oral health services and promotion activities.

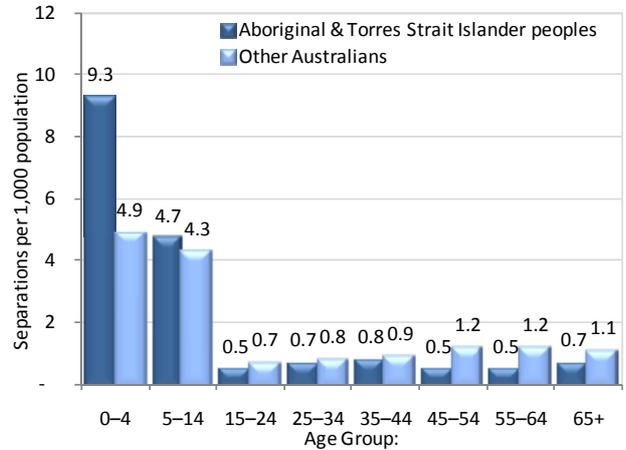
**Table 18 – Number and proportion of Indigenous children aged 0–14 years<sup>(a)</sup> with reported teeth or gum problems, by type of dental or gum problem, 2008**

Type of teeth/gum problem	No.	%
Cavities or dental decay	27,089	15
Tooth or teeth filled because of dental decay	27,647	16
Teeth pulled out because of dental decay	12,203	7
An accident caused breakage or loss of teeth	7,474	4
Bleeding or sore gums	4,927	3
Other problems with teeth or gums	6,713	4
Total has teeth or gum problems(b)	57,056	32
Does not have teeth or gum problems	121,177	68
<b>Total(c)</b>	<b>178,233</b>	<b>100</b>
Not known	3,581	..

(a) Indigenous children who have teeth. Excludes children who do not have teeth  
 (b) Total will be less than the sum of the components as a child can have more than one tooth or gum problem  
 (c) Excludes not known responses

Source: AIHW analysis of 2008 NATSISS

**Figure 26 – Age-specific hospitalisation rates for dental problems, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

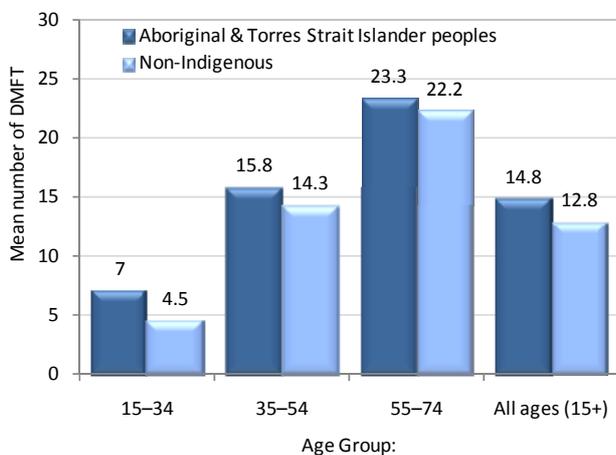
**Table 19 – Mean number of decayed, missing and filled deciduous and permanent teeth, by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)**

	NSW			SA			NT		
	Indig.	Non-Indig.	Ratio	Indig.	Non-Indig.	Ratio	Indig.	Non-Indig.	Ratio
<b>4-6 year olds, deciduous teeth</b>									
decayed	1.6	0.7	2.3*	2.2	0.9	2.4*	3.3	0.9	3.8*
missing	0.2	0.0	5*	0.3	0.1	4*	0.1	0.1	2.7
filled	0.4	0.2	1.9*	1.1	0.6	1.9*	0.4	0.5	0.9
dmft	2.3	1.0	2.3*	3.7	1.6	2.3*	3.8	1.4	2.8*
<b>8-10 year olds, permanent teeth</b>									
Decayed	0.3	0.1	2.2*	0.5	0.2	2.5*	0.5	0.1	3.6*
Filled	0.1	0.1	1.3	0.3	0.3	1.2	0.1	0.2	0.9
DMFT	0.5	0.3	1.8*	0.8	0.5	1.8*	0.7	0.3	2.2*
<b>12-14 year olds, permanent teeth</b>									
Decayed	0.7	0.3	2.1*	0.9	0.4	2.3*	1.2	0.4	2.8
Filled	0.4	0.3	1.1	0.9	0.7	1.3	0.4	0.5	0.7
DMFT	1.1	0.7	1.6*	1.8	1.1	1.7*	1.6	1.0	1.6

\* Represents significant differences in the Indigenous/non-Indigenous comparisons.

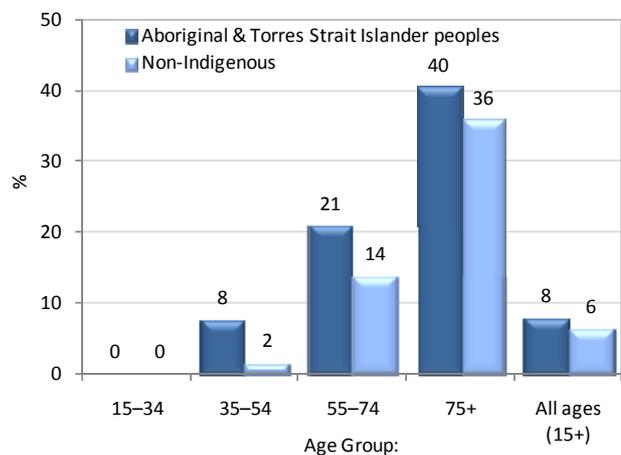
Source: AIHW analysis of Dental Statistics and Research Unit data

**Figure 27 – Mean number of decayed, missing or filled teeth by Indigenous Status, 2004–06**



Source: Roberts-Thomson & Do 2007

**Figure 28 – Persons aged 15 years and over with no natural teeth (complete tooth loss), by Indigenous status, 2004–06**



Source: Roberts-Thomson & Do 2007

## 1.11 HIV/AIDS, hepatitis C and sexually transmissible infections

**WHY IS IT IMPORTANT?:** Several sexually transmissible infections (STIs) (chlamydia, gonorrhoea, syphilis and donovanosis) are much more common for Aboriginal and Torres Strait Islander peoples than for other Australians. Although each of these infections can be treated and cured once diagnosed, each can have serious long-term consequences, such as chronic abdominal pain or infertility in women after gonorrhoea and chlamydia, genital damage from the eroding ulcers caused by donovanosis, and heart and brain damage caused by syphilis (Bowden et al. 2002; Couzos & Murray 2003). Several of these infections can cause miscarriage and permanent damage to new-born babies.

Notification rates for hepatitis C are significantly higher for the Aboriginal and Torres Strait Islander population compared with other Australians. The prevalence of HIV among Aboriginal and Torres Strait Islander people is similar to that of the general population, but higher rates of STIs and poorer access to primary health care services make the population more vulnerable to HIV transmission. Unlike the STIs listed above, hepatitis C and HIV/AIDS are viral infections which can both be fatal. HIV/AIDS remains incurable and management of both HIV and hepatitis C requires specialist services for which access may be poorer for Aboriginal and Torres Strait Islander peoples.

The bacterial STIs and HIV are transmitted through sexual contact while hepatitis C is most commonly transmitted through contact with infected blood (usually injecting drug use). HIV is also transmitted through contact with infected blood.

Notification data on sexually transmissible infections reflect diagnosed cases for the condition rather than the extent of the problem in the population. These data exclude information from those people who have the condition but have not been diagnosed. Therefore notification rates reflect a range of issues including access to responsive and effective health care, the accuracy of the tests, whether there is systematic screening for conditions that are common but frequently asymptomatic, people's decisions about seeking health care for sexually transmissible conditions and for Indigenous Australians, the accuracy of Indigenous identification in the data. Improved primary health care can lead to increased testing and a corresponding increase in notification rates.

**FINDINGS:** Chlamydia has now overtaken gonorrhoea as the most common STI notification for Indigenous Australians. Each of these infectious diseases has significantly higher notification rates for Aboriginal and Torres Strait Islander peoples than for other Australians. In the period 2006–08, notification rates for gonorrhoea among Aboriginal and Torres Strait Islander peoples were 38 times as high as for other Australians. For syphilis they were 18 times as high, for chlamydia 4 times as high and for hepatitis C 4 times as high. All

these diseases occur more frequently in the young adult age groups, particularly the 15–24 years age group.

Notification rates for chlamydia and gonorrhoea have increased across the whole Australian population over the last decade. The notification rates of gonorrhoea and chlamydia increased significantly between 1994–96 and 2006–08 for Indigenous Australians in WA, SA and NT.

There have been no significant changes in the incidence of HIV infection for Aboriginal and Torres Strait Islander peoples between 1998–2000 and 2006–08. For the period 2006–08, the incidence of HIV was 4 per 100,000 for Aboriginal and Torres Strait Islander peoples and 5 per 100,000 for other Australians, and rate of AIDS diagnosis was 0.4 per 100,000 in Aboriginal and Torres Strait Islander peoples and 0.8 per 100,000 for other Australians. The distribution of HIV infection is different in the two populations.

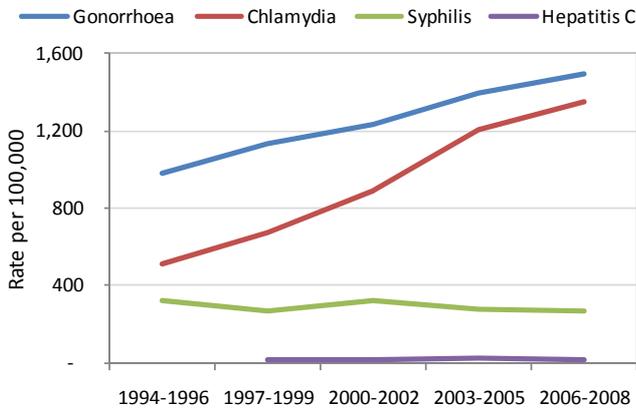
Male homosexual/bisexual contact was the largest risk exposure category for both populations; however injecting drug use represented 26% of Indigenous risk exposure, 10 times the non-Indigenous rate.

**IMPLICATIONS:** Bacterial STIs are a major health problem for Aboriginal and Torres Strait Islander peoples. Notification rates for gonorrhoea and chlamydia have continued to increase between 1994 and 2006. High rates of STIs among Aboriginal and Torres Strait Islander peoples are exacerbated by: poorer access to services (see measure 3.12), including limited access to clinical staff who are experienced in sensitively managing these conditions in Aboriginal and Torres Strait Islander people; a younger and more mobile population; and lower socioeconomic status that may impact on health literacy.

The third *National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy*, released in April 2010, is one of a set of five national strategies aimed at reducing the transmission of STIs and blood borne viruses (BBVs) and the associated morbidity, mortality, personal and social impacts in Aboriginal and Torres Strait Islander communities. Priority action areas include: a greater focus on testing, treatment and follow-up for bacterial STIs in sexually active (15–30 years) Aboriginal and Torres Strait Islander young people; increased primary prevention activities that seek to reduce the number of new cases of HIV and viral hepatitis among Aboriginal and Torres Strait Islander people, with a focus on those who inject drugs; and competent and accredited workforces consistent across all jurisdictions.

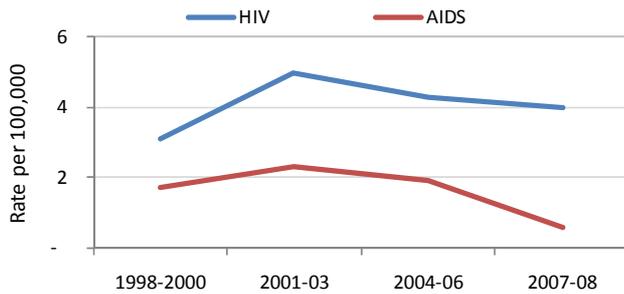
Previous strategies have increased testing and may account for improvements in detection and increased rates. However, under-identification of Indigenous Australians in notification systems means that caution should be used in interpreting trends in these data.

**Figure 29 – Notification rate for 4 infectious diseases, Aboriginal and Torres Strait Islander peoples, WA, SA and NT, 1994–1996 to 2006–2008**



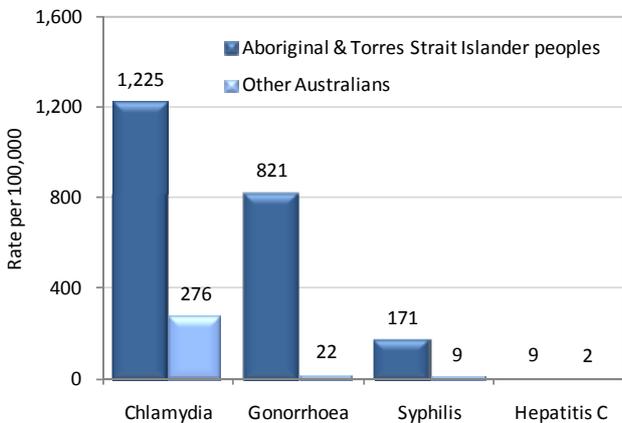
Source: AIHW analysis of National Notifiable Diseases Surveillance System

**Figure 31 – Notification rate for HIV and AIDS, Aboriginal and Torres Strait Islander peoples, NSW, Vic., Qld, WA, SA and NT, 1998–2000 to 2007–08**



Source: AIHW analysis of National Notifiable Diseases Surveillance System

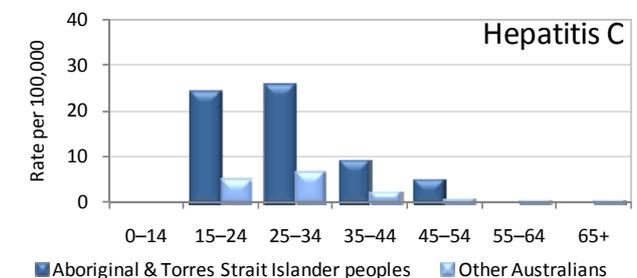
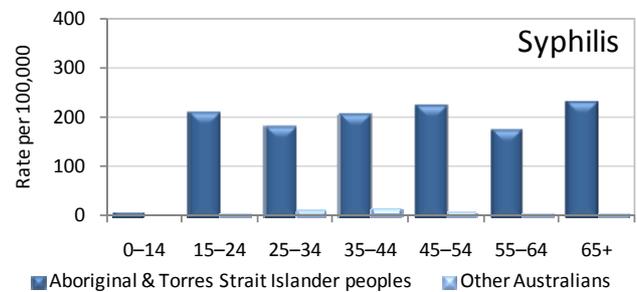
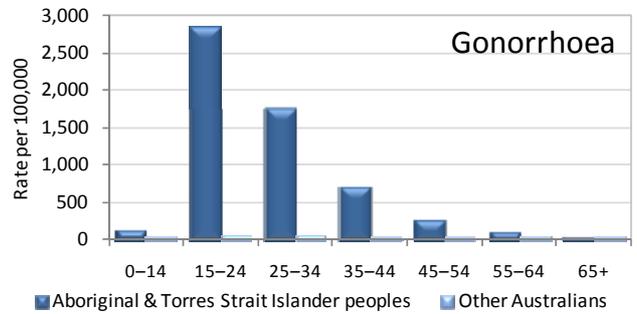
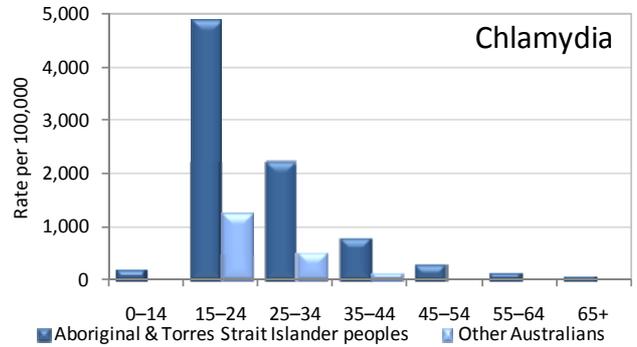
**Figure 32 – Notification rate for four infectious diseases, by Indigenous status, all states, excluding ACT<sup>(a)</sup>, 2006–2008**



(a) Chlamydia – WA, SA, Tas. & NT; gonorrhoea and syphilis – Vic., Qld, WA, SA, Tas. & NT; hepatitis C – NSW, Vic., WA, SA, Tas. & NT.

Source: AIHW analysis of National Notifiable Diseases Surveillance System

**Figure 30 – Notification rate for four infectious diseases by Indigenous status<sup>(a)</sup>, selected states, 2006–2008**



(a) Chlamydia – WA, SA & NT; gonorrhoea and syphilis – Vic., Qld, WA, SA & NT; hepatitis C – NSW, Vic., WA, SA & NT.

Source: AIHW analysis of National Notifiable Diseases Surveillance System

## 1.12 Children's hearing loss

**WHY IS IT IMPORTANT?:** Hearing loss among Aboriginal and Torres Strait Islander children is widespread and much more common than in the broader Australian population. The most common causes of hearing loss among Aboriginal and Torres Strait Islander peoples are disorders of the middle ear, specifically bacterial and viral infections leading to otitis media.

Otitis media is an inflammation of the middle ear. Otitis media with effusion involves a collection of fluid that occurs within the middle ear space, and chronic suppurative otitis media involves a perforation (hole) in the eardrum and active bacterial infection within the middle ear space for several weeks or more. The World Health Organization regards a prevalence of chronic suppurative otitis media of greater than 4% as a massive public health problem requiring urgent action (WHO 2004). Several studies have found Aboriginal and Torres Strait Islander children living in remote communities experience severe and persistent ear infections which occur earlier in life compared with non-Indigenous children (Morris et al. 2007; Gunasekera et al. 2009), with prevalence of otitis media as high as 70% in some remote communities (Coates 2009).

Otitis media is thought to be more common and severe among Aboriginal and Torres Strait Islander children because of poverty, crowded housing conditions, inadequate access to water and to functioning sewerage and waste-removal systems (increasing the risk of bacterial and viral infections), passive smoking, nutritional problems and lack of access to primary health care and treatment.

Hearing loss can lead to linguistic, social and learning difficulties and behavioural problems in school, which reduce educational achievements that have life-long consequences for employment, income, and social success (Williams & Jacobs 2009).

Tympanoplasty is a reconstructive surgical treatment for a perforated eardrum. There is some international evidence that early access to tympanoplasty for otitis media with effusion does not have a beneficial effect on developmental outcomes (Berman 2007; Paradise et al. 2007), although the implications of this evidence for Indigenous children, who experience early and more severe conditions, is not clear.

**FINDINGS:** Findings from the 2008 NATSISS suggest 9% of Aboriginal and Torres Strait Islander children aged under 15 years had ear or hearing problems reported by their parent or carer. Around 3% of these children were reported to have complete or partial deafness or hearing loss and the same proportion were reported to have otitis media. Comparative data from 2004–05 shows that Indigenous children were 3 times as likely to have reported ear or hearing problems compared with other Australian children.

Hearing health varies by remoteness. In 2008 10% of Aboriginal and Torres Strait Islander children living in remote areas were reported to have ear or hearing

problems compared with 8% of Indigenous children in non-remote areas. The Northern Territory had the highest rate of child hearing problems (12%) and Victoria the lowest (6%).

Programs specifically targeting otitis media in rural and remote areas such as the Deadly Ears Program in Queensland show significantly higher prevalence than national survey data.

The NATSIHS confirms the associations between the presence of ear or hearing problems and social conditions. For example, in 2004–05, ear/hearing problems were more common for children living in overcrowded households (15% versus 8%), those living in the most socioeconomically disadvantaged areas (15% versus 11% for the most advantaged areas) and those living in households with regular smokers (10% versus 8%).

The hospitalisation rate for all ear disease combined for Aboriginal and Torres Strait Islander children is estimated to be around 10% higher than for other Australian children, particularly in the 5–14 year age group. There has been a statistically significant decline in hospitalisations rates for Indigenous females and other Australian children between 2001–02 and 2007–08.

In the two-year period from July 2006 to June 2008, Aboriginal and Torres Strait Islander children aged 0–14 years were hospitalised for tympanoplasty procedures due to middle ear infection at 4 times the rate of other children. The rate of myringotomy procedures in hospital (incision in eardrum to relieve pressure caused by excessive build up of fluid) for Indigenous children (1.0 per 1,000) was lower than for non-Indigenous children (1.6 per 1,000) (COAG Reform Council 2010).

General practice attendances for acute otitis media or myringitis were similar for Aboriginal and Torres Strait Islander children (8 per 100 encounters) and other Australian children (7 per 100 encounters) from 2004–05 to 2008–09.

The 2008 NATSISS found 12% of Indigenous children in the Northern Territory had ear/hearing problems reported by their parent or carer. However, around 30% of 10,605 children were found to have ear disease between July 2007 and 30 June 2009, when *Northern Territory Emergency Response* Child Health Checks were undertaken in the prescribed areas (remote communities and town camps). Data on audiology services show that three-quarters of the 3,500 children who received an audiology test had at least one middle ear condition, 54% were found to have hearing loss, and almost 12% had chronic suppurative otitis media.

**IMPLICATIONS:** Chronic ear disease causing serious hearing damage is common in Aboriginal and Torres Strait Islander children. Chronic suppurative otitis media occurs in some Aboriginal and Torres Strait Islander communities at levels described by the World Health Organization as a massive public health problem requiring urgent action (WHO 2004).

The prevalence of ear disease is significantly higher for Aboriginal and Torres Strait Islander children than other

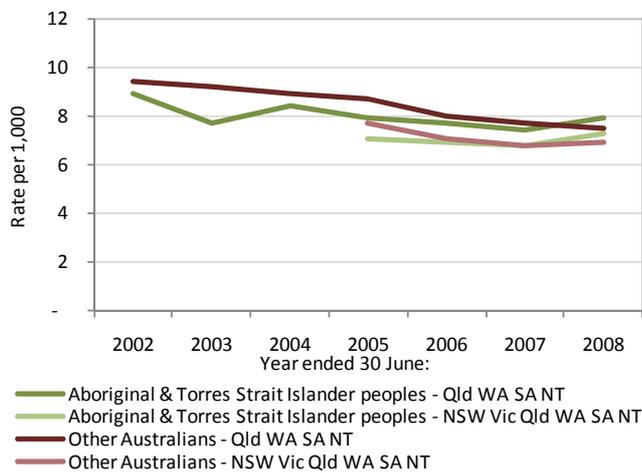
children in self-reported survey data, yet levels of treatment by GPs and levels of hospitalisation are similar to those of other Australian children. Only tympanoplasty procedures in hospitals are higher, although more research is needed on the effectiveness of this procedure. Evidence suggests that a comprehensive approach that combines early treatment, management and referral, linkages with school screening programs, preventative, social, environmental and economic strategies will be most successful in addressing these high levels of chronic otitis media.

Funding totaling \$58.3 million for eye and ear health initiatives has been allocated over four years from 2009 under the *Improving Eye and Ear Health Services for*

*Indigenous Australians for Better Education and Employment Outcomes* measure. The measure aims to reduce the number of Indigenous people suffering avoidable hearing loss, improve the coordination of hearing health care, and give Indigenous children a better start to education.

In 2010, the Australian Government funded the purchase and supply of ear and hearing equipment for Aboriginal Medical Services and commenced developmental work for training programs for ear and hearing health workers. The Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations (OATSIH 2001) have also been funded.

**Figure 33 – Hospitalisation rates for Aboriginal and Torres Strait Islander and other children aged 0–14 years from diseases of the ear and mastoid, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Qld, WA, SA, NT 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

**Table 20 – Proportion of Indigenous children aged 0–14 years reporting ear/hearing problems, by type of problem, 2008**

Type of ear/hearing problem	%
Does not have ear/hearing problems	91.4
Total has ear/hearing problems	8.6
Total or partial hearing loss	2.8
Runny ears or glue ear (Otitis media)	3.1
Other	2.7
<b>Total(a)</b>	<b>100</b>
Total number	191,543
Not known	1

(a) Excludes not known responses.

Source: AIHW analyses of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Table 21 – Diseases of the ear and mastoid reported for Aboriginal and Torres Strait Islander children aged 0–14 years, by remoteness and sex, 1995<sup>a</sup>, 2001, 2004–05 and 2008**

Remoteness status	1995			2001			2004-05			2008		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
	%	%	%	%	%	%	%	%	%	%	%	%
Remote	n.a.	n.a.	n.a.	18	18	18	12	13	13	11	10	10
Non-remote	7	5	6	6	11	9	9	8	9	8	8	8
<b>Total</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>10</b>	<b>13</b>	<b>11</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>9</b>

(a) Data for the National Aboriginal and Torres Strait Islander Health Survey 1995 areas available for non-remote areas only

Source: ABS & AIHW analysis of 1995 and 2001 National Health Survey (Indigenous supplements), 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2008 National Aboriginal and Torres Strait Islander Social Survey

## 1.13 Disability

**WHY IS IT IMPORTANT?:** Disability may be an impairment of body structure or function, a limitation in activities and/or a restriction in participation of a person in specific activities. A person's functioning or disability is conceived as an interaction between health conditions and environmental and personal factors. Aboriginal and Torres Strait Islander peoples are at greater risk of disability because they are more frequently exposed to many factors that predispose them to disability, including low birthweight, chronic disease, infectious diseases (e.g. otitis media, especially among young children), accidents and violence, mental health problems and substance use. This, along with limited access to early treatment and rehabilitation services, increases the risk of acquiring a disability. These factors tend to be more prevalent in populations where there are higher rates of unemployment, lower levels of income, poorer diet and living conditions, and poorer access to adequate health care.

**FINDINGS:** In 2008, an estimated 162,900 (50%) of Aboriginal and Torres Strait Islander people aged 15 years or over had a disability or a long-term health condition. Of these, 26,000 or 8% of the population aged 15 years or over had a profound or severe core activity limitation, meaning that they always or sometimes needed assistance with at least one activity of everyday living (self-care, mobility or communication). The rates for males and females were similar. The proportions of Aboriginal and Torres Strait Islander people with a disability or long-term health condition were higher in older age groups, ranging from 35% of those aged 15–24 years to 78% of the 55 year and over age group.

Physical disabilities accounted for 33% of the disabilities reported by those aged 15 years and over, followed by sensory/speech disabilities (17%), and intellectual disabilities (8%).

Comparisons of disability amongst Aboriginal and Torres Strait Islander peoples and other Australians are only available for non-remote areas. In these areas, Aboriginal and Torres Strait Islander peoples 15 years and over were 1.4 times as likely to have a disability or long-term health condition. The differences were more marked for profound/severe core activity limitation, where Aboriginal and Torres Strait Islander peoples were 2.2 times as likely to have such a limitation as other Australians.

The 2006 Census collected data on one element of disability (i.e. those reporting the need for assistance with core activities). In the 2006 Census, around 20,000 Aboriginal and Torres Strait Islander people, 4% of the total Indigenous population (i.e. all age groups), were identified as needing assistance with a core activity (self-care, mobility or communication) some or all of the time. Rates were similar for males (4.5%) and females (4.1%). Slightly more Aboriginal and Torres Strait Islander people living in non-remote areas needed assistance with a core activity compared with remote areas (4.1% versus 2.83%). Rates ranged from 3% of

Indigenous Australians in the Northern Territory to 5% in New South Wales and Victoria. In 2006, Aboriginal and Torres Strait Islander peoples were twice as likely to have a core activity need for assistance as non-Indigenous Australians. The number of people with a core activity need for assistance was higher in all age groups. (See Technical Appendix for Census data quality issues.)

Ten per cent of Indigenous Australians who needed assistance with a core activity were living in a hospital, a residential care facility, hostel for the disabled or another non-private dwelling, compared with 19% of non-Indigenous Australians (ABS & AIHW 2008).

Eighty per cent of Indigenous Australians aged 15–64 years reporting core activity restrictions were not in the labour force, compared with 38% of those not reporting core activity restrictions (ABS & AIHW 2008). Among Aboriginal and Torres Strait Islander peoples in the 25–54 years age groups, the median income for those who needed assistance with a core activity was around 60% of that for Indigenous Australians who did not need assistance (ABS & AIHW 2008).

In 2006, the Census collected, for the first time, information on the number of carers aged 15 years or over in Australia. The median age of Indigenous carers was 37 years; 12 years less than the median age of non-Indigenous carers (49 years). After adjusting for differences in the age structures of the Indigenous and non-Indigenous populations, Indigenous Australians were 1.2 times as likely as non-Indigenous Australians to be caring for another person with a disability, long-term illness or problems related to old age.

In 2006, 2% of Indigenous children aged 0–18 years had a core activity need for assistance, approximately 1.3 times higher than for non-Indigenous children.

In 2008, serious disability was reported as a stressor for self, family or friends in the last 12 months by 7% of people aged 18 years and over surveyed in the 2008 NATSISS. Those living in non-remote areas tended to be affected slightly more (7%) than those living in remote areas (6%).

**IMPLICATIONS:** The high levels of disability among Aboriginal and Torres Strait Islander peoples are consistent with the levels of disease and injury, socio-economic and environmental factors, risk factors and the lower access to health services relative to need. Factors during pregnancy have also been shown to raise the likelihood of intellectual disability in children (Leonard et al. 2008). Core activity restrictions occur earlier in life for Aboriginal and Torres Strait Islander peoples. Core activity restrictions are associated with a range of other social disadvantages including lower levels of educational attainment, lower levels of participation in the workforce and lower income.

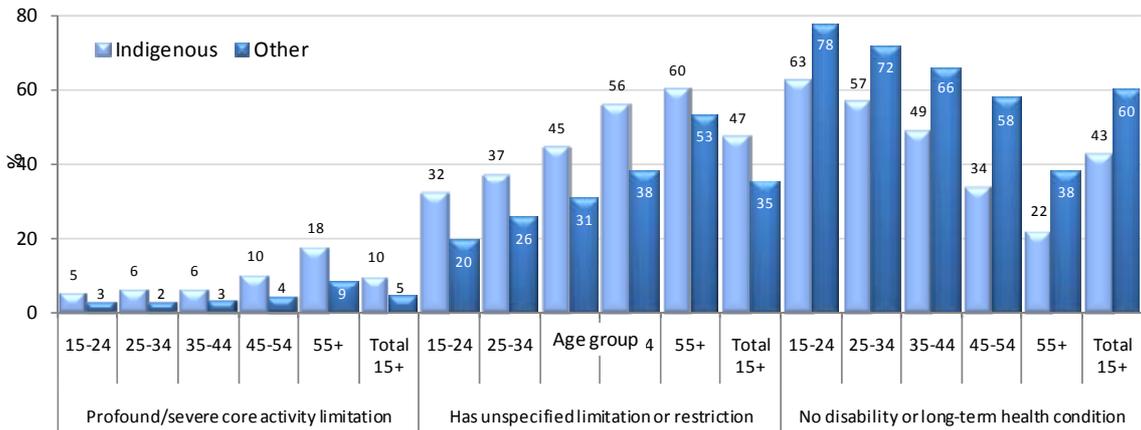
In November 2008, COAG agreed to sustained engagement by all governments over the next decade and beyond to achieve the Close the Gap targets for Indigenous peoples. This included targeted initiatives for Indigenous Australians of \$4.6 billion across early

childhood development, health, housing, economic participation and remote service delivery. The *National Indigenous Reform Agreement* sets out the policy framework for Closing the Gap in Indigenous disadvantage. These initiatives are targeted at many of the underlying issues impacting on high disability rates. Through the *National Disability Agreement* all Australian Governments have agreed to develop a

National Indigenous Access Framework to ensure the needs of Indigenous Australians with disability are addressed through appropriate service delivery arrangements.

The *National Disability Strategy* pays particular attention to the complex needs of those with significant impairments, and those who may experience double or multiple disadvantages.

**Figure 34 – Disability status by Indigenous status and age group, Indigenous persons aged 15 years and over living in non-remote areas of Australia, 2008<sup>(a)</sup>**



<sup>(a)</sup> Totals are age-standardised

Source: AIHW analysis of 2008 NATSISS and 2007–08 NHS

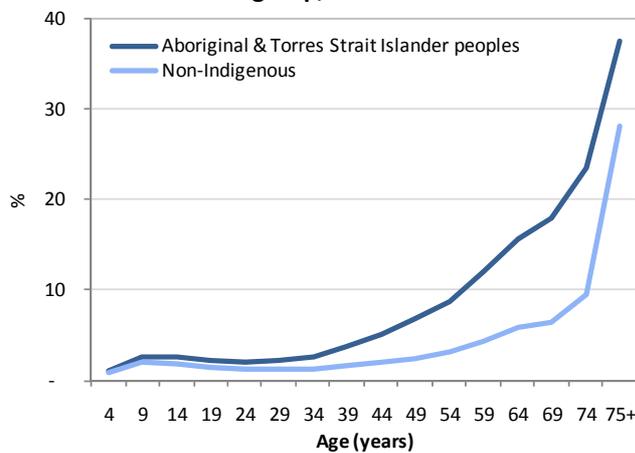
**Table 22 – Disability type<sup>(a)</sup>, by age group, Indigenous persons aged 15 years and over living in non-remote areas of Australia, 2008**

Disability type	15–24	18–24	25–34	35–44	45–54	55 years	Total	Total
	years	years	years	years	years	and over	(15+)	(18+)
	%	%	%	%	%	%	%	%
Sight, hearing, speech	10	10	13	17	27	31	17	18
Physical	19	22	26	35	47	59	33	35
Intellectual	9	9	6	6	10	6	8	8
Total with a disability or long-term health condition <sup>(b)</sup>	35	38	43	51	66	78	50	52
Total with no disability or long-term health condition	65	62	58	49	34	23	50	48
<b>Total</b>	<b>100</b>							

<sup>(a)</sup> Excluding psychological disability; <sup>(b)</sup> Includes disability type not specified. Note that more than one disability type may be reported and thus the sum of the components may add to more than the total.

Source: AIHW analysis of 2008 NATSISS

**Figure 35 – Proportion of persons with core activity need for assistance, by Indigenous status and age group, 2006**



Source: ABS & AIHW analysis of 2006 Census data

**Figure 36 – Proportion of Aboriginal and Torres Strait Islander people with core activity need for assistance, by jurisdiction and remoteness, 2006**



Source: ABS & AIHW analysis of 2006 Census data

## 1.14 Community Functioning

**WHY IS IT IMPORTANT?:** A functioning is a state of being or doing that people have reason to value. Measuring functionings is an important supplement to the more traditional approach to the measurement of health and wellbeing. This measure seeks to describe, both in aggregate and as single measures, the level of key functionings Aboriginal and Torres Strait Islander people have described as important to the quality of, and equality in, life. Life is multidimensional and it cannot easily or accurately be measured by reference to just one facet. Measures of functionings add value to health analyses by helping to frame more traditional, single issue measures in a quality of life construct defined by Aboriginal and Torres Strait Islander peoples. Health providers, planners and health and social policy interests need to know more than the level of sickness in a community if they are to work with communities and families to achieve a healthy life.

This measure can play a vital role in evaluating programs, initiatives and progress more generally. Single-issue measures are effective and appropriate in evaluating single issues. But for more complete analyses of life, single-issue measures may not be sufficient. For example, measures of morbidity alone can tell us about the level and perhaps type of disease in a population but they do not describe the very real and substantial difficulties that Aboriginal and Torres Strait Islander families and communities experience in trying to deal with ill health; they do not describe the context or ability of Aboriginal and Torres Strait Islander peoples to change the circumstances that have contributed to it. An Indigenous person might seek and obtain health care from a GP but if their power to control choices and options in respect of household income is low or if there is no appropriate storage for medications then treatment may be only a temporary fix. More complete measures are required based on the factors that impact on the lives of Aboriginal and Torres Strait Islander peoples.

As an example, while it is possible to estimate life expectancy at birth (measure 1.17), this provides a prospective measure of longevity rather than *quality* of life—it does not describe how relatively hard or easy that life will be. Will the individual be free or able to choose a career, be educated or adequately housed, or participate freely in cultural events? Will the individual be free or able to achieve the things in life that they believed were demonstrative of a fulfilling life? Measurement of functionings assists in understanding the quality of life.

Indigenous Australians have long sought health outcomes encompassing the physical, social, cultural and emotional elements of life. The cultural elements relate to Aboriginal and Torres Strait Islander peoples' ability to live proudly and freely as Aboriginal and Torres Strait Islander peoples, to achieve a state of being that is commensurate with their view of a culturally fulfilling life. Similarly, Aboriginal and Torres Strait Islander peoples have sought a quality of life where racism ceases to be a barrier. Racism can reduce access

to adequate shelter; it can deter people from being able to go out in public without shame or fear and from accessing or deriving an equal benefit from a health service.

To develop a picture of quality of life from Aboriginal and Torres Strait Islander peoples' perspectives, workshops drawing together participants from across Australia were held in 2008 and 2010. Aboriginal and Torres Strait Islander participants at the workshops described the various achievements and objectives that they believed were necessary if Aboriginal and Torres Strait Islander peoples' lives were to be fulfilling. The workshops identified a number of key themes and weighed these functionings according to their relative value. In 2010 there were six functionings identified by Aboriginal and Torres Strait Islander participants and these have been used to present available data. Each of these functionings is relevant to the ability of Aboriginal and Torres Strait Islander families and communities to achieve greater levels of family and individual development. If these functionings were improved then the potential for Aboriginal and Torres Strait Islander people and families to achieve better health and wellbeing would be improved. They would have greater capacity and freedom to be well.

Aboriginal and Torres Strait Islander participants at the workshops indicated that the functionings used in this measure are important to the quality of Aboriginal and Torres Strait Islander family and community life. Participants were drawn from a number of jurisdictions and settings so the themes they identified appear to reflect widely held views among Aboriginal and Torres Strait Islander peoples. Independently of these workshops a review of relevant research has supported the association between the functionings identified by the workshops and the achievement of health and wellbeing.

**FINDINGS:** *Connectedness to country, land, and history; culture and identity* is a theme involving being engaged and communicative with family, country and spirit, which gives Aboriginal and Torres Strait Islander peoples a strong sense of identity. This identity is connected to being part of a collective in which sharing, giving and receiving, trust, love and looking out for others, supports strong and positive social networks with other Aboriginal Australians and Torres Strait Islander Australians. Data items drawn from the 2002 and 2008 NATSISS show that the proportion of Aboriginal and Torres Strait Islander people who recognise their homelands has remained constant (70% and 72% respectively). Over the same period, the proportion of people who identified with a clan or language group has increased significantly, from 54% to 62%. Importantly, 89% of Aboriginal and Torres Strait Islander Australians 'feel able to have a say with family and friends' some, most or all or the time.

*Resilience* is a theme involving the ability to cope well with difference and optimising what one has through engaging in decision-making, coping strategies and the ability to control choices and options. Examples of such options are challenging injustice and racism and

proceeding in the external world without shame. Data from NATSISS 2008 show that the majority (98%) of children aged 5–14 years were regularly attending school; 80% of those aged 15 years and over agreed that their doctor could be trusted; and 69% agreed that the local school could be trusted. In addition, 89% of adults felt they were able to find general support from outside the household and 89% of adults had participated in sport, social or community activities in the three months prior to the survey.

*Leadership* was a theme valued highly by participants at the workshops. Leadership is used to describe strong vision and direction from Elders in family and community (both male and female) and strong role models who have time to listen and advise. Data items from NATSISS 2008 to describe this theme were limited to values for children: 42% of children aged 3–14 years had spent time with an Indigenous leader or Elder in the last week. For one in five children in secondary school (22%), encouragement from Elders and Council was considered to be a type of assistance that would help them complete Year 12. Additional data items which describe values of leadership would be useful in future social surveys.

*Having a role, structure and routine* is a theme encompassing being valued and acknowledged within family, community and society. This value is about knowing boundaries and culturally acceptable behaviours which support having a role for oneself and participating in paid and unpaid roles using capabilities and skills from non-formal education. In the 12 months prior to the 2008 survey, 78% of Aboriginal and Torres Strait Islander Australians had lived in one dwelling—suggesting stability in housing and routine. Informal learning activities were undertaken with most children aged 0–14 years (94%). Most children in this age group (71%) also cleaned their teeth at least once per day.

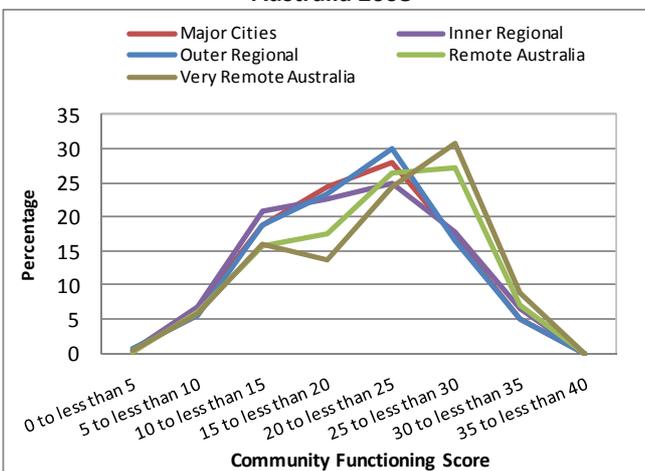
*Feeling safe* is a theme encompassing relationships that can sustain disagreement, cultural competency,

emotional security, and safe places where there is no physical or lateral violence. Data from 2008 NATSISS show that 81% of Aboriginal and Torres Strait Islander children aged 2–14 years were not bullied or treated unfairly at school because of their Indigeneity. In addition, 75% of those aged 15 years and over had not experienced violence in the last 12 months. In the five years prior to the survey, 97% of Indigenous Australians had not been incarcerated (91% have never been incarcerated in their lifetime).

The final theme, *Vitality* covers community infrastructure, access to services, education, health, income and employment. NATSISS 2008 data show that half of Aboriginal and Torres Strait Islander adults had no disability or long-term health condition and 68% experienced low/moderate levels of psychological distress. There was no smoking inside the house in the majority of households (70%). The majority of children aged 0–14 years did not have problems sleeping (76%) and 74% of children aged 4–14 years spent at least 60 minutes every day being physically active. Many Aboriginal and Torres Strait Islander people are seeking to improve their knowledge, skills and qualifications, with 33% of those aged 15 years and over intending to study in the future. Education was the main purpose of Internet use for children (54%), while overall 30% reported using the Internet for education or study.

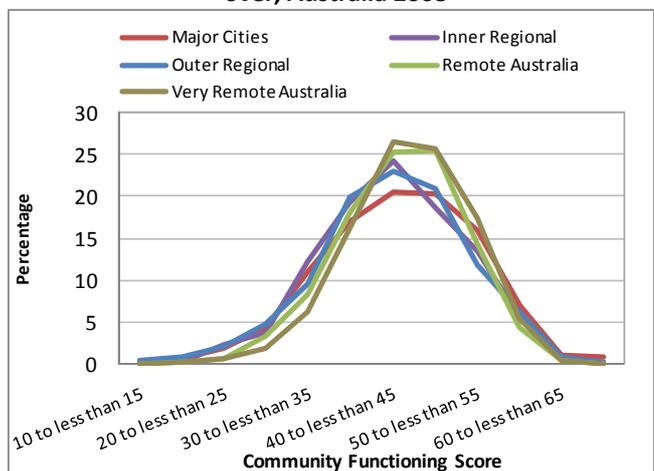
**IMPLICATIONS:** Community functioning for Aboriginal and Torres Strait Islander peoples should be assessed within a framework that reflects the values of Indigenous Australians themselves. Community functioning scores present a national quantitative measure of functioning and suggest differences between remoteness, sex, age groups, and states and territories. Policy makers need to listen carefully to the voices of Aboriginal and Torres Strait Islander peoples themselves when assessing community functioning and the approaches that will enhance functioning.

**Figure 37 – Community functioning score by remoteness, proportions, Indigenous Australians aged 0–14 years, Australia 2008**



Source: ABS and AIHW analysis of NATSISS 2008

**Figure 38 – Community functioning score by remoteness, proportions, Indigenous Australians aged 15 years and over, Australia 2008**



Source: ABS and AIHW analysis of NATSISS 2008

**Table 23 – Selected variables contributing to community functioning for Aboriginal and Torres Strait Islander peoples, Australia 2008 and 2002**

Community functioning theme and associated variables	2008 Number	2008(a) %	2002(a) %
<b>Connectedness to family land and history, culture, identity</b>			
Recognises homelands	234,383	72	70
Speaks an Aboriginal/Torres Strait Islander language	62,629	19	21
Attended Aboriginal and Torres Strait Islander cultural event in last 12 months	205,674	63	68
Identifies with clan group or language group	203,106	62	54
Feels able to have a say with family and friends some, most or all of the time	292,375	89	
Feels able to have a say within community on important issues some, most and all of the time	157,312	48	
Contact with family or friends outside household at least once per week	307,515	94	
Has friends can confide in	246,649	75	
Able to get support in time of crisis from outside household - from family member	261,506	80	
Provides support to relatives outside household	166,892	51	
<b>Resilience</b>			
Did not feel discriminated against in last 12 months	237,812	73	
Did not avoid situations due to past discrimination	225,507	69	
Can visit homelands	146,017	45	46
Involvement with Aboriginal/Torres Strait Islander organisation	59,516	18	26
Work allows for cultural responsibilities—can meet responsibilities	75,028	23	22
Used strategies to meet living expenses	119,147	36	49
No community problems reported	84,327	26	25
Community problems reported, but less than three types	73,788	23	29
No problems reported for theft	192,535	59	57
No problems reported for alcohol	192,138	59	67
No problems reported for illicit drugs	208,039	64	68
No problems reported for family violence	245,938	75	79
No problems reported for assault	253,009	77	80
No problems reported for sexual assault	288,926	88	92
Total persons who reported a community problem	232,592	71	74
Agrees that most people can be trusted	118,975	36	
Agrees that their doctor can be trusted	260,777	80	
Agrees that the hospital can be trusted	204,189	62	
Agrees that police in the local area can be trusted	170,317	52	
Agrees that police outside the local area can be trusted	133,362	41	
Agrees that the local school can be trusted	224,734	69	
Knows someone in organisation/comfortable contacting	132,011	54	
Adult participated in sport/social/community activities in last 3 months eg:	289,381	89	
Recreational or cultural group	46,263	14	
Community or special interest group activities	42,274	13	
Church or religious activities	49,393	15	24
Watched Indigenous TV	177,695	54	
Listened to Indigenous radio	85,682	26	
<b>Leadership</b>			
Child spent time with an Indigenous leader or elder in last week (children aged 3-14 years)	65,035	42	
Encouragement from elders and council would help child in secondary school complete year 12	7,504	22	

Table 23 Continued

Community functioning theme and associated variables	2008 Number	2008(a) %	2002(a) %
<b>Structure and routine/having a role</b>			
Can communicate with English speakers without difficulty (Indigenous language is main language spoken at home)	27,179	8	
In the last 12 months, has lived in only one dwelling	255,157	78	69
Activities were undertaken with child doing informal learning activities in the last week (0-14 years) (e)	180,736	94	
<b>Feeling Safe</b>			
Felt safe at home alone during the day	305,892	94	
Felt safe at home alone after dark	261,414	80	
Felt safe walking alone in local area after dark	172,047	53	
Not a victim of physical or threatened violence in the last 12 months:	246,372	75	76
Indigenous culture taught at school	87,833	53	
Was taught Indigenous culture at school or as part of further studies	148,592	45	
Learnt about own Indigenous clan / language	55,947	17	
Child neither bullied nor treated unfairly at school because Indigenous	112,159	81	
<b>Vitality</b>			
Self-assessed health status excellent or very good	143,004	44	44
Has no disability or long term-health condition	164,157	50	64
Does not have an education restriction due to disability	142,632	46	
Does not have an employment restriction due to disability	125,599	40	
Low/ moderate level of psychological distress (5-11 K5 score)	221,717	68	
Employed (persons aged 15-64 years in the labour force)	167,416	54	
Year 12 highest year of school completed	66,220	20	18
Has a non-school qualification	83,257	40	32
Living in a dwelling that has no major structural problems	370,606	71	60
Household members used telephone(s) in last month	317,203	97	
Used computer in last 12 months	218,006	67	56
Used Internet in last 12 months	192,852	59	41
Has access to motor vehicles whenever needed	215,689	66	55
Can easily get to places needed	241,481	74	70
Equivalised gross household income is within the 3rd quintile or above	92,063	35	25
<b>Total persons aged 15 years and over</b>	<b>327,001</b>	<b>100</b>	

(a) Unless otherwise indicated, percentages are of the estimated total Aboriginal and Torres Strait Islander population aged 15 years and over.

Source: ABS and AIHW analysis of NATSISS 2002 and 2008

## 1.15 Perceived health status

**WHY IS IT IMPORTANT?:** Self-assessed health status provides a measure of the overall level of a population's health based on individuals' personal perceptions of their own health. Health is recognised as having physical, mental, social and spiritual components. Therefore, the measurement of health must go beyond quantifying levels of morbidity and mortality. Part of this broader approach to measuring health is to ask people to assess the state of their own health.

Self-assessed health status is dependent on an individual's awareness and expectations regarding their health. Self-assessed health status is influenced by various factors, including access to health services and health information, the extent to which health conditions have been diagnosed, and level of education (Delpierre et al. 2009). Social constructs of health also influence this assessment, such as the culturally distinct view of health and wellbeing held by Aboriginal and Torres Strait Islander peoples, the existing level of health within a community and judgments concerning the person's own health compared with others in their community.

Self-assessed health status correlates with objective health measures, such as reported long-term health conditions, recent health-related actions, and the presence of a disability. However, there are some inconsistencies in how Aboriginal and Torres Strait Islander peoples report their health status, particularly those for whom English is not their main language. Many Aboriginal and Torres Strait Islander peoples have rated their health as good or excellent despite significant health problems. Self-assessed health status is a useful measure of overall health status, but needs to be interpreted with some caution.

**FINDINGS:** In the 2008 NATSISS, 44% of Aboriginal and Torres Strait Islander people aged 15 years and over reported their health as being very good or excellent, 34% reported their health as being good, and 22% reported their health as being poor or fair. These proportions have remained fairly stable since 2002. Older people were less likely than younger people to report very good or excellent health: 58% in the 15–24 years age group compared with 22% in the 55 and over age group. Indigenous females were less likely than Indigenous males to report their health as being very good or excellent (41% compared with 47%).

Aboriginal and Torres Strait Islander people were less likely than non-Indigenous Australians to report very good or excellent health, and the difference between the two populations was greatest in the older age groups. After adjusting for differences in age structure, Aboriginal and Torres Strait Islander people were twice as likely as non-Indigenous Australians to report their health as fair or poor.

The proportion of Aboriginal and Torres Strait Islander people reporting fair or poor health was highest in South Australia and New South Wales (27% and 26% respectively), and lowest in the Northern Territory,

Australian Capital Territory and Queensland (18%, 20% and 20% respectively).

Aboriginal and Torres Strait Islander people reporting the presence of long-term health conditions are more likely to report their health as fair or poor. The proportion of Indigenous Australians reporting fair or poor health increases with the number of health conditions reported. A similar pattern can be observed for non-Indigenous Australians.

Poorer perceived health status is associated with a range of determinants of health (see discussion in Key Messages). For example, of Indigenous Australians reporting fair or poor health status, 62% were in the lowest income quintile compared with 3% in the highest quintile, 10% were unemployed compared with 35% who were employed and 47% had completed year 9 or below compared with 14% who had completed Year 12.

**IMPLICATIONS:** Aboriginal and Torres Strait Islander people rate their own general health as poorer than that of other Australians across all adult age groups, although the disparities are narrower in the younger age groups. The differences between the two populations are large, which is consistent with other measures of overall health status.

Self-assessed health is one of very few measures of overall health status that are currently available for Aboriginal and Torres Strait Islander peoples throughout the country. The relative consistency of self-assessed health across all jurisdictions and across urban, rural and remote areas suggests that there may not be large variations in overall health status for Indigenous Australians across the country. This would be consistent with some other measures for which national data are available, such as low birthweight (see measure 1.01), for which there is also minimal variation between jurisdictions. However, other measures such as the prevalence of end stage renal disease indicate that there are very large differences in disease incidence between jurisdictions and across remoteness categories (see measure 1.09).

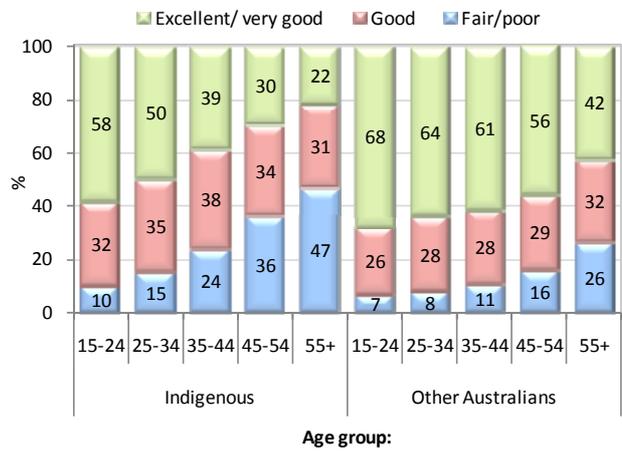
How an individual Aboriginal or Torres Strait Islander person assesses their own health status may also be influenced by how they perceive their health relative to other people, including other Aboriginal and Torres Strait Islander people, around them. There is a similar challenge to develop valid measures for comparing international variations in perceptions of health and health-related experiences (Murray et al. 2003; Salomon et al. 2003). Further research would be valuable to identify the specific issues impacting on perceived health for Indigenous Australians.

**Figure 39 – Self-assessed health status (age-standardised percentage) by Indigenous status, persons aged 15 years and over, Australia 2008**



Source: ABS and AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Figure 40 – Self-assessed health status by Indigenous status and age group, persons aged 15 years and over, Australia 2008**



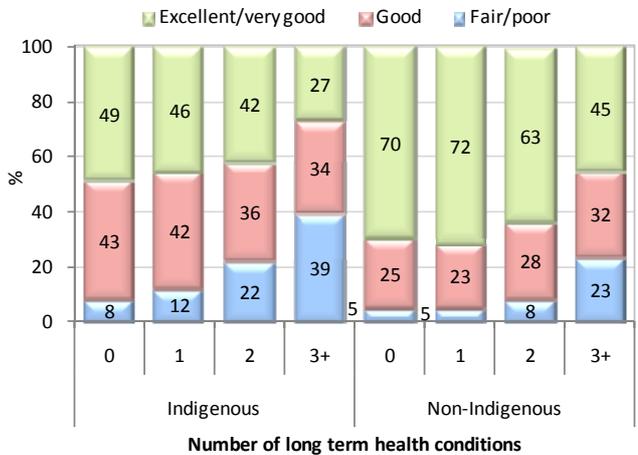
Source: ABS and AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Figure 41 – Self-assessed health status, Indigenous Australians aged 15 years and over, by remoteness, Australia 2008**



Source: ABS and AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Figure 42 – Self-assessed health status by Indigenous status and number of long-term health conditions, age-standardised, Australia 2004–05**



Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey Survey and 2004–05 National Health Survey

## 1.16 Social and emotional wellbeing

**WHY IS IT IMPORTANT?:** Social and emotional wellbeing is a holistic concept related to individual, family and community experience. For Aboriginal and Torres Strait Islander peoples, health is not just the physical wellbeing of the individual but the ‘social, emotional and cultural wellbeing of the whole community’ (Social Health Reference Group 2004, p. 3). The *Guidelines for Effective Approaches to Aboriginal and Torres Strait Islander Public Health* point out the impact of colonisation on Aboriginal and Torres Strait Islander peoples, including past policies and practices: ‘This includes: loss of land, which was the economic and spiritual base for Aboriginal and Torres Strait Islander communities; loss of large numbers of people through wars, massacres, and epidemics; immense damage to traditional social and political structures, traditional languages, and belief systems; the ongoing impact of the relocation of peoples to missions and reserves; removal of children from their families; continued racism and exclusion; and immense socio-economic deprivation’ (NPHP 2006, p. 21). Social, historical and economic disadvantage is interconnected with grief, loss and trauma, high rates of physical and mental health problems, adult mortality, suicide, child removals, incarceration rates and intergenerational trauma. Experience of discrimination also leads to psychological distress and has a negative impact on health (Paradies & Cunningham 2008).

Aboriginal and Torres Strait Islander peoples have higher levels of acute morbidity and mortality from mental illness, assault, self-harm and suicide than other Australians, higher levels of alcohol and other drug use, and more frequent contact with the criminal justice system. Levels of child abuse and neglect are higher for Indigenous than for non-Indigenous Australian children. Education, employment and income are lower for Indigenous Australians. These and many other measures indicate there is a significant gap between the overall level of social and emotional wellbeing for Aboriginal and Torres Strait Islander peoples and other Australians.

**FINDINGS:** The NATSISS collects information on a range of social issues relevant to the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples.

Aboriginal and Torres Strait Islander peoples retain strong links to their traditional culture. In 2008, 62% of Aboriginal and Torres Strait Islander people aged 15 years and over reported they identified with a clan group, 25% currently lived in traditional lands, and 63% had attended cultural events in the last 12 months. Family and community attachments are important factors in the lives of Aboriginal and Torres Strait Islander peoples (see measure 1.14). Eighty nine per cent reported that, in a time of crisis, they could get support from outside the household. Approximately 89% also reported that they had been involved in social activities in the last 3 months.

In 2008, approximately 38% of Indigenous people aged 15 years and over reported that they and/or a relative had been removed from their natural family.

### *Psychological Distress*

In 2008, 32% of Indigenous Australians aged 18 years and over reported high levels of psychological distress. After adjusting for age, this was 2.5 times the rate for non-Indigenous adults. Rates are higher for Aboriginal and Torres Strait Islander adults across all age groups. Indigenous women (35%) were significantly more likely than Indigenous men (28%) to report high/very high levels of psychological distress and to have seen a health professional about their feelings. Psychological distress did not differ significantly by age group or remoteness.

Those who reported excellent/very good health in 2008 were less likely than those who reported fair/poor health to also report high levels of psychological distress (20% and 52% respectively).

High/very high psychological distress levels were associated with lower income (37% in the lowest income quintile reported distress compared with 21% in the highest), housing tenure (35% for renters compared with 24% for home owners), educational attainment (37% of those for whom Year 9 or below was the highest year of schooling completed compared with 26% for Year 12 education) and employment status (25% for employed people compared with 46% for unemployed, and 38% for those not in the labour force).

### *Life Stressors*

In 2008, Aboriginal and Torres Strait Islander peoples reported high levels of stressors in their lives, with 79% of people aged 18 years and over reporting that they, their family or close friends had experienced at least one stressor in the last 12 months. The most common stressors reported were the death of a family member or close friend (40%), serious illness or disability (33%), inability to get a job (23%), alcohol-related problems (21%), or mental illness (17%). People living in major cities tended to experience a greater number of stressors on average than those living in regional or remote areas. Stressors that were more common for this group compared with those living in regional and remote areas included serious illness or disability, drug related problems, witness to violence, discrimination/racism, abuse or violent crime and involuntary loss of job. Those living in remote/very remote areas tended to report death of a family member or close friend and overcrowding at home as stressors more often than those living in major cities and regional areas.

Research has shown that parental stress such as employment and financial status is associated with the wellbeing of children, through decreased health service utilisation for the child’s needs and emotional or behavioural difficulties (Ou et al. 2010; Strazdins et al. 2010).

### *Social and emotional wellbeing of children*

The Western Australia Aboriginal Child Health Survey (WAACHS) collected information on the social and emotional wellbeing of Aboriginal children during 2001 and 2002 (only a small number of Torres Strait Islander

children participated in the survey). This survey found that a variety of health conditions, social circumstances and behaviours experienced by individuals, their carers and families are associated with the social and emotional wellbeing of Indigenous children (Zubrick et al. 2005). Using a well established method to measure emotional and behavioural difficulties in children (the Strengths and Difficulties Questionnaire), 24% of Aboriginal children aged 4–17 years surveyed were assessed as being at high risk of clinically significant emotional or behavioural difficulties compared with 15% of all children. Aboriginal boys were twice as likely as Aboriginal girls to be at high risk of clinically significant emotional or behavioural difficulties. Those children living in areas of extreme isolation were less at risk than those living in urban areas.

Factors associated with high risk of clinically significant emotional or behavioural difficulties in Aboriginal children included the number of stressful events experienced by the family in the 12 months before the survey (such as illness, hospitalisation, death of a close family member, family break-up, arrests, job loss, financial difficulties), quality of parenting, family functioning and family care arrangements. Residential mobility, the physical health of the child (speech, hearing and vision problems), the physical health of the carer, and carer's use of mental health services were also associated with an increased risk of clinically significant emotional or behavioural difficulties in children.

Around one-fifth of children were living in families that functioned poorly (families with poor communication and decision making, poor emotional support, limited time spent together, and poor family cooperation). These children were over twice as likely to be at high risk of emotional and behavioural difficulties as children living in families with very good quality of parenting or very good family functioning. Those who had been subject to racism in the past 6 months were more than twice as likely to be at high risk of emotional and behavioural difficulties than those who had not experienced racism.

#### *Suicidal behaviour of teenagers*

In 2001–2002, an additional survey was administered to young people aged 12–17 years in Western Australia to measure rates of suicidal thoughts and suicide attempts. Suicidal thoughts were reported by around 1 in 6 (16%) of these young people in the 12 months prior to the survey. A higher proportion of Aboriginal girls reported they had seriously thought about ending their own life than Aboriginal boys (20% compared with 12%). Of those who had suicidal thoughts in the 12 months prior to the survey, 39% reported they had attempted suicide in the same period. The proportion of Aboriginal children who reported suicidal thoughts was significantly higher among those who smoked regularly, used cannabis, drank to excess in the 6 months prior to survey, were exposed to some form of family violence, or who had a friend who had attempted suicide.

#### *Hospitalisation for mental health issues*

In the period July 2006 to June 2008, mental health-related conditions were the principal reason for 4.2% of hospital admissions for Aboriginal and Torres Strait

Islander peoples in the jurisdictions with adequate data quality (NSW, Vic, Qld, WA, SA and NT). Indigenous men were hospitalised for mental health-related conditions at rates that were 2.2 times the rate of other Australian men, and Indigenous women at rates that were 1.5 times the rate for other Australian women. There has been a very slight increase in the gap between Indigenous and other Australian people for hospitalisation for these conditions over time.

The most common reasons for mental health-related hospitalisation were mental and behavioural disorders due to psychoactive substance use (37% of episodes); schizophrenia (26%); mood disorders (14%); and neurotic, stress-related disorders (14%). Indigenous hospitalisation rates for mental health-related issues vary between jurisdictions. The highest rates were for South Australia (44 per 1,000). In the Northern Territory, mental health-related hospitalisation rates were very low for both Aboriginal and Torres Strait Islander peoples and other Australians (13 and 6 respectively).

#### *Other Services*

During the period 2004–05 to 2008–09, 10% of encounters between GPs for Indigenous patients were for mental health-related problems. This was almost 2% higher than for other patients. Depression was the most frequently reported mental health-related problem managed by GPs for Aboriginal and Torres Strait Islander people, followed by drug misuse (licit or illicit), anxiety and sleep disturbance. Depression was also the most common mental health-related problem managed for other Australians followed by anxiety.

#### *Mortality for mental health issues*

Deaths due to self-harm (suicide) accounted for 4% of Indigenous deaths between 2004 and 2008 in the jurisdictions with adequate data quality (NSW, Qld, WA, SA and the NT). After adjusting for age differences this was twice the rate for non-Indigenous Australians. Mental health-related conditions were responsible for 2.5% of Aboriginal and Torres Strait Islander Australian deaths in 2004–08, one and a half times the rate for non-Indigenous Australians. The highest rate ratio was in the 15–24 year age group for men and 35–44 year group for women (7 and 11 times the non-Indigenous rate respectively).

**IMPLICATIONS:** Data on this issue are incomplete, including for children. The collection of additional national data is important. The policy response to social and emotional wellbeing problems needs to be multidimensional, and focus not only on mental health services. It needs to involve a wide range of stakeholders including Indigenous communities, the health sector, housing, education, employment and economic development, family services, crime prevention and justice. It needs to support culturally valid understandings of health, build on the strengths, resilience and endurance within Aboriginal and Torres Strait Islander communities and recognise the important historical and cultural diversity within communities (Social Health Reference Group 2004).

The Australian Government has committed to supporting the social and emotional wellbeing of the Stolen Generations, their families and communities through the *Bringing Them Home Counsellors and Link Up Services* programs.

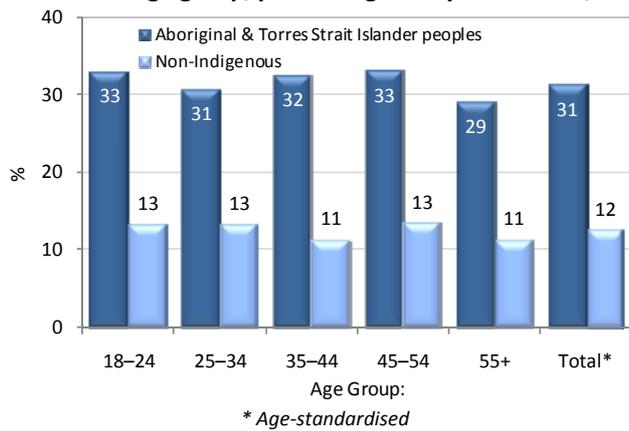
In 2006, COAG agreed to several mental health measures including the *Improving the capacity of workers in Aboriginal and Torres Strait Islander communities* initiative to support health practitioners to identify mental illness and make referrals. Projects implemented under this initiative include Aboriginal Mental Health First Aid training, a mental health literacy training course and funding of 10 mental health worker positions nationally. Cultural competence training for non-Indigenous mental health practitioners has just been completed through the Australian Indigenous Psychologists Association. The Indigenous Mental Health Book *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing Principles and Practice* will help prepare students and health

practitioners to meet Indigenous mental health needs when working in mainstream and Aboriginal Medical Services.

The *Fourth National Mental Health Plan: An agenda for collaborative government action in mental health 2009–2014* includes 34 actions aimed at improving outcomes for people with mental disorders. The plan takes a whole of government approach, acknowledging that many of the determinants of good mental health and of mental illness are influenced by factors beyond the health system. One of the actions is ‘the development of coordinated actions to implement a renewed Aboriginal and Torres Strait Islander social and emotional wellbeing framework’. AHMAC is considering a year-by-year approach to how these actions will be implemented.

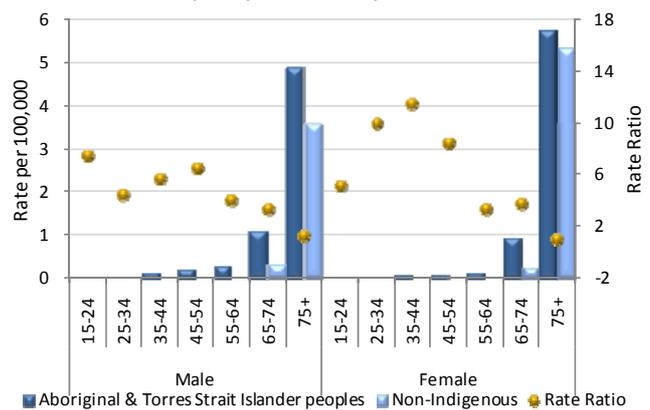
The *Mental Health: taking action to tackle suicide* package includes \$22.6 million for community-led activities for high risk groups including Indigenous Australians. *National Health Reform* is also an important foundation for taking mental health forward.

**Figure 43 – Proportion of people who reported high or very high levels of psychological distress, by Indigenous status and age group, persons aged 18 years & over, 2008**



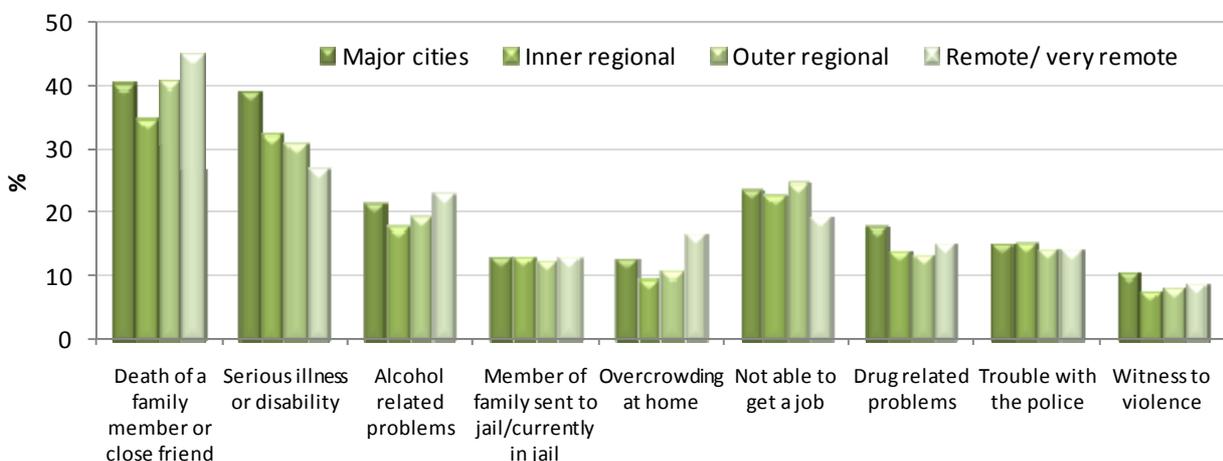
Source: AIHW analysis of the 2008 NATSISS and 2007–08 NHS

**Figure 44 – Mental health-related mortality rates per 100,000, by Indigenous status, age group and sex, NSW, Qld, WA, SA and NT, 2004–2008**



Source: AIHW and ABS analysis of National Mortality Database

**Figure 45 – Proportion of people reporting selected stressors, by remoteness area, Indigenous persons aged 18 years and over, 2008**



Source: AIHW analysis of the 2008 NATSISS

**Table 24 – Proportion of people who reported psychological distress, by level of psychological distress, by selected population characteristics, Indigenous persons aged 18 years and over, 2008**

	Level of psychological distress:			Level of psychological distress:	
	Low/moderate	High/very high		Low/moderate	High/very high
	%	%		%	%
<b>Total population:</b>	66.7	31.7			
<b>Self-assessed health status</b>					
Excellent/very good	78.1	20.3			
Good	67.3	31.2			
Fair/poor	46.7	51.7			
<b>Highest year of school completed:</b>					
Year 9 or below	60.4	37.1			
Year 10	69.3	29.9			
Year 12	73.3	25.5			
			<b>Personal income:</b>		
			1st quintile (lowest)	59.9	37.2
			5th quintile (highest)	78.8	20.5
			<b>Housing:</b>		
			Owner	75.3	24.2
			Renter	63.1	34.9
			<b>Employment status:</b>		
			Employed	74.3	24.7
			Unemployed	53.7	45.9
			Not in labour force	58.9	38.3

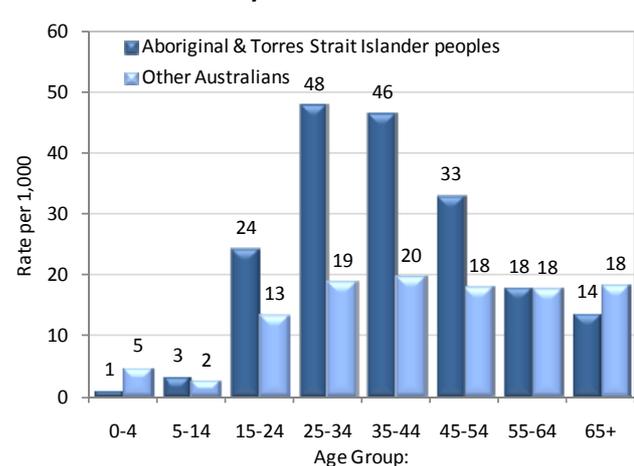
Source: AIHW analysis of the 2008 NATSISS

**Figure 46 – Hospitalisation rates from mental health-related conditions by Indigenous status, Qld, WA, SA and NT, age-standardised, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 47 – Age-specific hospitalisation rates for a principal diagnosis of mental health-related conditions, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

**Table 25 – Age-standardised hospitalisations of Indigenous persons for principal diagnosis of mental health-related conditions, by type of condition and sex, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**

	Males		Females		Total	
	Rate per 1,000	Ratio	Rate per 1,000	Ratio	Rate per 1,000	Ratio
Mental & behavioural disorders due to psychoactive substance	13.1	4.4	6.7	3.4	9.8	3.9
Schizophrenia, schizotypal and delusional disorders	7.5	3.0	4.9	2.5	6.2	2.8
Mood disorders	3.0	0.9	4.9	0.7	3.9	0.8
Neurotic, stress-related disorders	2.8	1.2	4.1	1.5	3.5	1.4
<b>Total mental health related conditions<sup>1</sup></b>	<b>28.7</b>	<b>2.2</b>	<b>23.5</b>	<b>1.5</b>	<b>26.0</b>	<b>1.8</b>

<sup>1</sup> Includes mental health-related conditions in addition to those listed above. See Technical appendix.

Source: AIHW analysis of National Hospital Morbidity Database

## 1.17 Life expectancy at birth

**WHY IS IT IMPORTANT?:** Life expectancy at birth is an estimate of how long a person born today would live, on average, if current mortality rates in every age group remained constant throughout the person's life. It is a way to summarise current mortality rates in an easily understood measure to which most people can directly relate.

Life expectancy is widely viewed as a key measure of the health of populations. Closing the life expectancy gap between Aboriginal and Torres Strait Islander peoples and other Australians has been adopted as a high level target by COAG, which aims to close the life expectancy gap within a generation (COAG 2008a).

Life expectancy is affected by many factors such as: socioeconomic status, including employment, income, education and economic wellbeing; the quality of the health system and the ability of people to access it; health behaviours such as tobacco and excessive alcohol consumption, poor nutrition and lack of exercise; social factors; genetic factors; and environmental factors including overcrowded housing, lack of clean drinking water and adequate sanitation.

In 2003, the Indigenous Australian population made up 2.4% of the total Australian population but, despite its much younger structure, carried 3.6% of the total population disease burden. The rate of burden increased at much younger ages for Indigenous Australians and was also considerably higher at each age group compared with the total Australian population (Vos et al. 2007).

**FINDINGS:** For this report, life expectancy has been updated to reflect the latest Australian Bureau of Statistics estimates for the period 2005–07.

In this period, Aboriginal and Torres Strait Islander life expectancy was estimated to be 11.5 years lower than that of the non-Indigenous population for males (67.2 compared with 78.7 years) and 9.7 years lower for females (72.9 compared with 82.6 years). For the four jurisdictions with sufficient size Indigenous populations to calculate Indigenous life expectancy estimates, the lowest were for those living in the Northern Territory and Western Australia and highest in New South Wales and Queensland.

National trend data on life expectancy for Aboriginal and Torres Strait Islander peoples are not available due to changes in methods for estimating life expectancy, and the unknown and variable quality of the

identification of Indigenous Australians in mortality data in previous years. However, a study of mortality trends in the Northern Territory found that the life expectancy at birth of Indigenous Australians has risen considerably, increasing from 52 years for males and 54 years for females in the late 1960s to around 60 years for males and 68 years for females in recent years (Wilson et al. 2007). The gap between life expectancy for Northern Territory Indigenous women and total Australian women narrowed between 1967 and 2004, while the gap between Northern Territory Indigenous men and total Australian men remained the same. Declines in infant mortality accounted for a large proportion of the increase in life expectancy for the Northern Territory Indigenous population between the late 1960s and mid 1980s, especially for males. From the mid 1980s to the early 2000s, declines in mortality at ages 45 years and over were responsible for the majority of life expectancy gains for both Indigenous males and females in the Northern Territory.

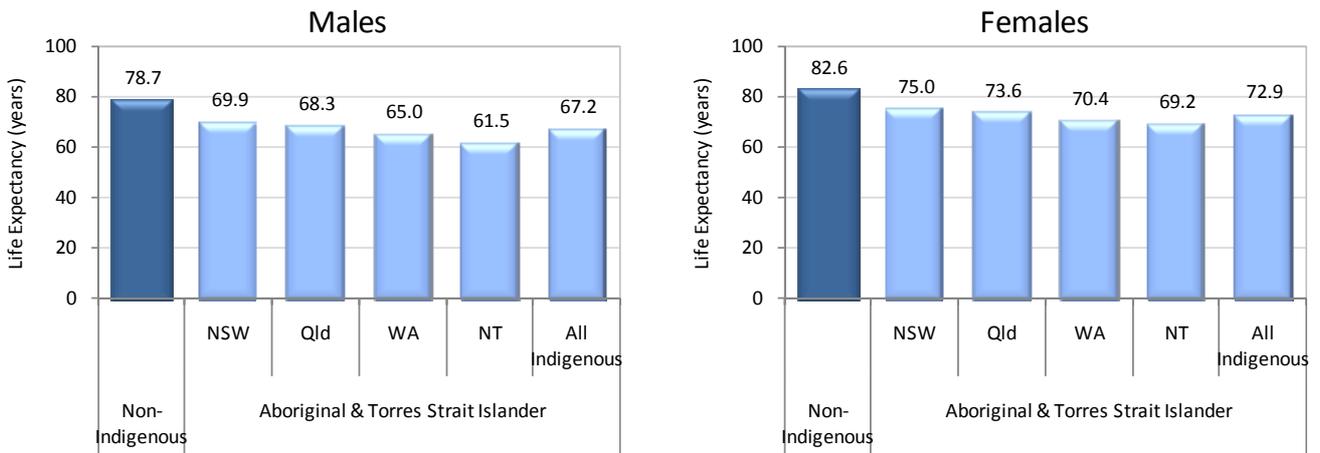
The gap in life expectancy between Indigenous Australians and the rest of the population in Australia appears to be larger than in other countries where Indigenous peoples share a similar history of relatively recent European colonisation, such as Canada, New Zealand and the United States. Caution must be used in comparing data with other countries due to variations in data quality and scope.

**IMPLICATIONS:** The limited trend data available for the Northern Territory indicate that life expectancy is increasing for Aboriginal and Torres Strait Islander peoples, but slowly.

Mortality trends are encouraging (see Measure 1.22). However, there remain deficiencies in the data on which life expectancy is based. This limits the extent to which differences in life expectancy can be calculated for Aboriginal and Torres Strait Islander peoples living in different jurisdictions and different remoteness areas. More accurate measurement of life expectancy and the gap between Indigenous and non-Indigenous Australians is needed on a consistent basis to track progress over time.

The COAG commitment to close the life expectancy gap within a generation will require action addressing health, social, economic and environmental factors. The commitments Governments have made in these areas are reflected in the *National Indigenous Reform Agreement* (COAG 2008b), and the related National Partnership Agreements.

Figure 48 – Life expectancy at birth, Indigenous and non-Indigenous population 2005–2007, by sex and state/territory



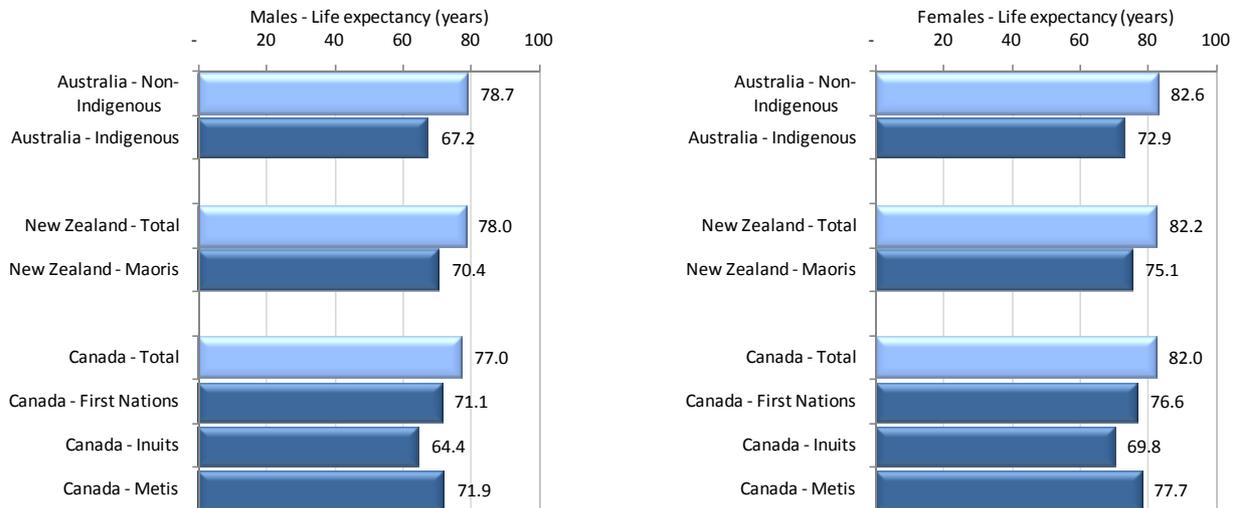
Source: ABS 2009a

Table 26 – Life expectancy at birth, Indigenous and non-Indigenous population, by sex and selected state/territory, 2005–2007

	Males		Females	
	Indig.	Non-Indig.	Indig.	Non-Indig.
New South Wales	69.9	78.7	75.0	82.5
Queensland	68.3	78.6	73.6	82.5
Western Australia	65.0	79.0	70.4	82.9
Northern Territory	61.5	75.7	69.2	81.2
<b>Australia</b>	<b>67.2</b>	<b>78.7</b>	<b>72.9</b>	<b>82.6</b>

Source: ABS 2009a

Figure 49 – Life expectancy at birth for males and females in Australia, Canada and New Zealand, by Indigenous status, various years



Sources: Life expectancy estimates for Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians are for 2005–2007 (ABS 2009a). Life expectancy estimates for Maoris and the total New Zealand population are for 2005–2007. Life expectancy estimates for Canada are for 2001. First Nations refers to the total North American Indian population including both Registered Indians and Non-Status Indians. Registered Indians are individuals who are registered under the Indian Act. Métis refers to individuals with mixed Aboriginal and European ancestry. Inuit are the original inhabitants of Arctic Canada

## 1.18 Median age at death

**WHY IS IT IMPORTANT?:** The median age at death represents the age at which exactly half the deaths registered (or occurring) in a given time period were deaths of people above that age and half were deaths below that age. Median age at death is a general measure of the health status of a population. It is affected by the same factors determining life expectancy and general mortality rates. These include socioeconomic status (such as employment, income, education and economic wellbeing), lifestyle factors (such as tobacco use, excessive alcohol consumption, poor nutrition, lack of exercise), environmental factors (such as overcrowding in housing, lack of clean drinking water and adequate sanitation), genetic factors, the quality of the health system and the ability of people to access it.

A possible advantage of the median age measure is that it may be less impacted by under-identification of Indigenous people in mortality statistics if the people identified in deaths data have similar age characteristics to those that are not. For other measures, such as death rates, under-identification makes it difficult to calculate accurate population rates. Therefore median age at death has been suggested as an additional measure to complement mortality rates and life expectancy measures. However, there are several significant limitations of median age at death (Coory & Baade 2003). Median age at death is affected by the age structure of the population. In a population with a high fertility rate and a large proportion of younger people, a higher proportion of deaths will occur at a young age than in a population with low fertility and a small proportion of young people. Comparisons of Indigenous and non-Indigenous median age at death are severely impacted by the very different age distributions of these two populations.

Median age at death does not necessarily change significantly as mortality levels change. For example, modeling has shown that for Indigenous Australians, a two-year increase in the median age at death over five years would require a 30% decrease in the mortality rates, but the same increase in the median age at death for non-Indigenous Australians would mean only a 15% decrease in mortality (Coory & Baade 2003).

**FINDINGS:** Reliable deaths data for Aboriginal and Torres Strait Islander peoples are only available for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. During the period 2004–08 the median age at death for these jurisdictions combined was 52 years for Indigenous males and 77 years for non-Indigenous males—a gap of 25 years. The median age at death was 59 years for Indigenous females and 83 years for non-Indigenous females—a gap of 24 years. As noted above, these measures are significantly impacted by the differences in age structure of the

Aboriginal and Torres Strait Islander population and the non-Indigenous population.

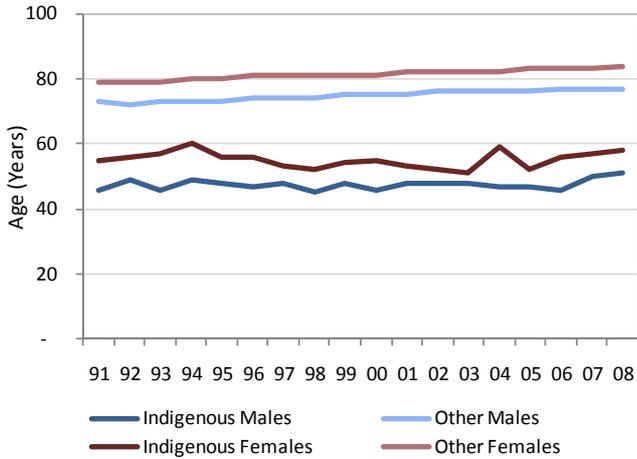
Median age at death varies between jurisdictions. In 2004–08 the median age at death for Indigenous males was 46 years in the Northern Territory, 48 years in South Australia, 51 years in Western Australia, 53 years in Queensland and 57 years in New South Wales. For Indigenous females the median age at death was 54 years in the Northern Territory, 55 years in South Australia, 60 years in Western Australia, 59 years in Queensland and 63 years in New South Wales. The age profile for the Indigenous population varies by jurisdiction with the Northern Territory having a younger age profile than New South Wales.

For the three jurisdictions with adequate quality data for long-term trends (WA, SA and the NT), between 1991 and 2008 median age at death for males has fluctuated year-to-year, with an overall significant increase of 3.2% over the 17 year period. Median age at death for females has also fluctuated year to year, with an overall significant decline of 1.4% over the period. This decrease is difficult to interpret due to changes in the population structure over this period. The median age at death statistics contrast with the estimates for all-cause mortality—which are adjusted for age structure and show that for the same jurisdictions, mortality rates decreased for males by 23% and decreased for females by 27% (see measure 1.22).

The first quartile of age at death is the age below which 25% of deaths occur. Trends in the first quartile of age at death are an indication of change in the deaths of young people, children and young adults. The first quartile of age at death increased between 1991 and 2008 for Aboriginal and Torres Strait Islander peoples in the three jurisdictions combined. The increase was significant for Aboriginal and Torres Strait Islander females but not for males. The third quartile of age at death is the age below which 75% of deaths occur. For the three jurisdictions combined, this remained fairly stable for males and increased slightly (but significantly) for females over this time period.

**IMPLICATIONS:** Median age at death increased non-significantly for Indigenous males between 1991 and 2008 and decreased non-significantly for Indigenous females. A decline in median age at death suggests that a higher proportion of deaths are occurring at a younger age. This could be due to a range of possible changes. However, the increase in the first quartile of age at death for Aboriginal and Torres Strait Islander women suggests that there was a relative reduction in the proportion of deaths occurring in girls and young women. Over the same time period, the overall death rate for the same three jurisdictions decreased (see measure 1.22). This suggests that the decrease in the median age at death for Indigenous women was most likely because of a greater relative decrease in deaths for the young age groups.

**Figure 50 – Median age at death, by Indigenous status and sex, WA, SA and NT, 1991–2008**



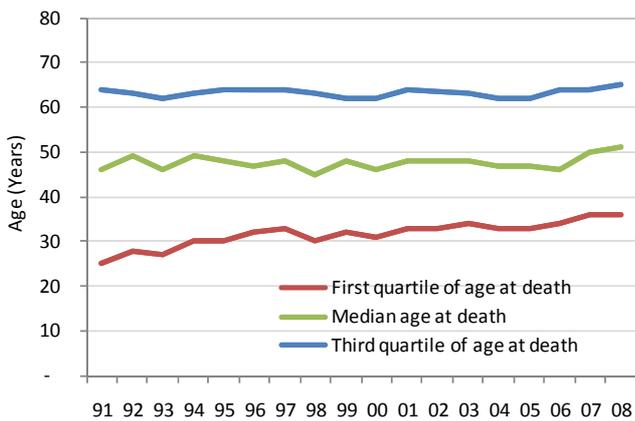
Source: AIHW and ABS analysis of National Mortality Database

**Table 27 – Median age at death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2004–2008**

	Indigenous		Non-Indigenous	
	Male	Female	Male	Female
NSW	57	63	77	83
Qld	53	59	76	83
WA	51	60	76	83
SA	48	55	78	84
NT	46	54	64	71
<b>Total of 5 jurisdictions</b>	<b>52</b>	<b>59</b>	<b>77</b>	<b>83</b>

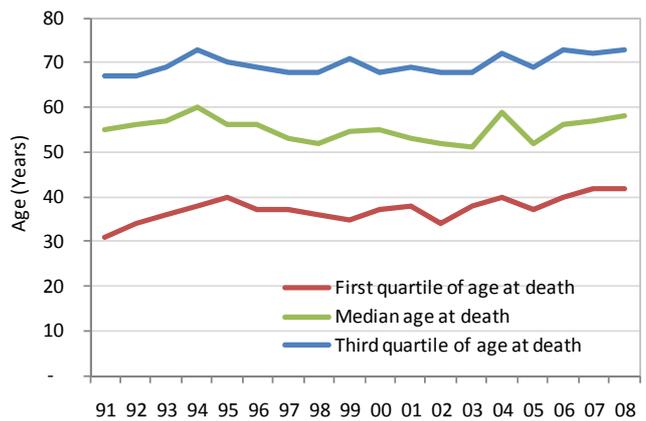
Source: AIHW and ABS analysis of National Mortality Database

**Figure 51 – First quartile, median and third quartile of age at death, Indigenous males, WA, SA and NT, 1991–2008**



Source: AIHW and ABS analysis of National Mortality Database

**Figure 52 – First quartile, median and third quartile of age at death, Indigenous females, WA, SA and NT, 1991–2008**



Source: AIHW and ABS analysis of National Mortality Database

## 1.19 Infant mortality

**WHY IS IT IMPORTANT?:** Infant mortality is a long established measure of child health as well as the overall health of the population and its physical and social environment. COAG has committed to halving the gap in mortality rates for Indigenous children under 5 years by 2018. Infant mortality contributes 82% of mortality for children under 5 years of age. It reflects the health status and health care of the population, the effectiveness of preventive care and the attention paid to child and maternal health, as well as broader social factors such as socioeconomic deprivation, maternal education, smoking and other behavioural risk factors (NIHEC 2010a). Improvements in Australia's infant mortality rates in the last 100 years were largely due to improved social and public health conditions such as sanitation and health education in the first half of the twentieth century, followed by the development of immunisation, and in more recent years by better treatment in neonatal intensive care and interventions for SIDS.

In the Aboriginal and Torres Strait Islander population, dramatic reductions in post-neonatal infant mortality, such as in the Northern Territory in the 20 years up to the late 1980s, reflected improved access to primary health care (including antibiotics for acute infection) and earlier evacuation to hospital for severe illness. However, infant mortality remains high for Aboriginal and Torres Strait Islander peoples because many have not benefitted from the improved physical and social environment that most other Australians achieved more than fifty years ago.

**FINDINGS:** Infant mortality is the death of infants in the first year of life. Reliable data on infant mortality for Aboriginal and Torres Strait Islander peoples are only available for WA, SA, NT, Qld and now NSW. For these five jurisdictions combined, for the period 2004–08, infant mortality for Aboriginal and Torres Strait Islander infants was 10 per 1,000 live births, compared with 4 for non-Indigenous infants. Rates were higher for Indigenous male infants (11 per 1,000 live births) compared with Indigenous female infants (8 per 1,000).

The most common cause of death for Aboriginal and Torres Strait Islander infants between 2004 and 2008 were conditions originating in the perinatal period (46%) such as birth trauma, fetal growth, complications of pregnancy, and respiratory and cardiovascular disorders specific to the perinatal period. The second leading cause of death was signs, symptoms and ill-defined conditions (19%). This category includes SIDS which accounted for 7% of infant deaths. The third most common cause was congenital malformations accounting for 13% of infant deaths.

Over this period in these jurisdictions there were 566 deaths of Indigenous infants, around 2 times the rate for non-Indigenous children in this age group. Around 79% of the gap between Indigenous and non-Indigenous child deaths was caused by three groups of conditions: conditions originating in the perinatal period; signs,

symptoms and ill-defined conditions including SIDS; and congenital malformations.

In the period 2004–08, infant mortality rates varied across jurisdictions, from 8 per 1,000 in New South Wales and South Australia, to 15 per 1,000 in the Northern Territory.

Data on longer-term time-trends are available for Western Australia, South Australia and the Northern Territory. For these three jurisdictions, the Aboriginal and Torres Strait Islander infant mortality rate declined between 1991 and 2008 by 55%, compared with a reduction of 43% for non-Indigenous infants and the gap has closed significantly. Recent trends (2001–08) for these three jurisdictions combined with New South Wales and Queensland show a 32% decline in Indigenous infant mortality rates. Over this period the gap in rates between Indigenous and non-Indigenous declined from around 6.3 to 3.8 infant deaths per 1,000 live births.

International statistics show that indigenous infants in the US, Canada and New Zealand have higher mortality rates than infants in the general population but the gap is not as great as for Aboriginal and Torres Strait Islander infants (Smylie & Adomako 2009).

**IMPLICATIONS:** The infant mortality rate for Aboriginal and Torres Strait Islander infants is declining. While infant mortality for other Australian infants is also declining the gap in infant mortality between Indigenous and other Australian infants is reducing in both absolute and relative terms. Improvements have been most noticeable in the jurisdictions with the highest rates (Northern Territory and Western Australia).

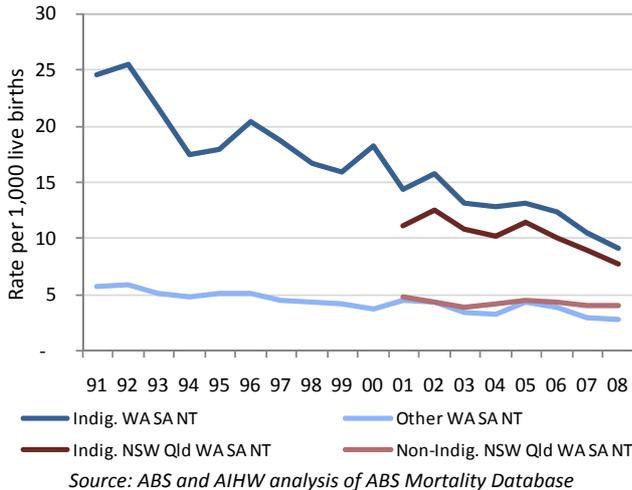
The improvement in Aboriginal and Torres Strait Islander infant mortality rates is partly due to reduced perinatal mortality (i.e. deaths in the first 28 days after birth; see measure 1.20) and reduced mortality of infants after the perinatal period. Deaths during the perinatal period are due predominantly to problems during pregnancy and birth, while in the post-neonatal period (1–11 months of age), nutritional and environmental problems predominate.

The birthweight of Aboriginal and Torres Strait Islander babies does not appear to be improving (see measure 1.01) suggesting there are still significant opportunities to improve maternal health during pregnancy and consequently, in the growth and development of the baby in-utero. It may be that the improvements in infant mortality are predominantly due to improvements in acute care for seriously ill new-born babies rather than reduced problems during pregnancy; and in post-natal factors such as nutrition and growth, environment and infectious diseases, and access to primary health and acute care. This suggests that some improvements in post-natal factors have been realised in recent years (and need to continue) but that the overall burden of disease within the child-bearing population and during pregnancy needs more attention. In December 2007, COAG committed to closing the gap in Indigenous disadvantage, and in particular, to halving the gap in

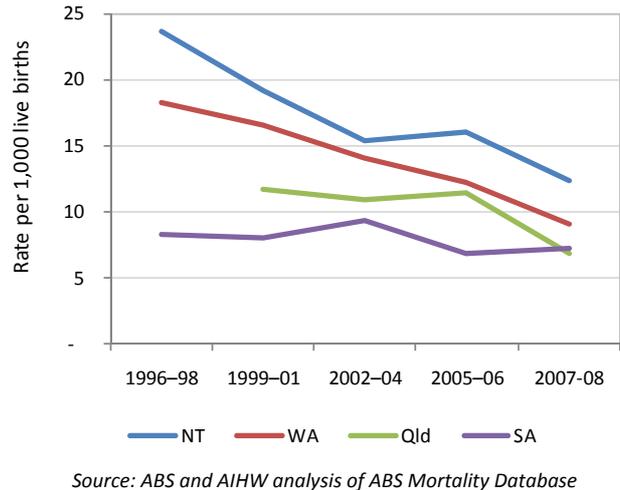
mortality rates for Indigenous children under 5 years by 2018. In October 2008, COAG signed the *National Partnership Agreement on Indigenous Early Childhood Development* with joint funding of \$564 million over six years to address the needs of Indigenous children in their early years. The Australian Government’s *New Directions: Mothers and Babies Services* provide Aboriginal and Torres Strait Islander children and their mothers with access to antenatal care; standard

information about baby care; practical advice and assistance with parenting; monitoring of developmental milestones by a primary health care service; and health checks for children. The *Australian Nurse Family Partnership Program* is focused on providing sustained home visiting to selected Indigenous communities across Australia and aims to improve pregnancy outcomes and childhood development including reducing infant mortality, and effect positive life course decisions.

**Figure 53 – Infant mortality rates, Aboriginal and Torres Strait Islander infants and other Australians, WA, SA and NT, 1991–2008, NSW, Qld, WA, SA and NT, 2001–2008**



**Figure 54 – Indigenous infant mortality rates per 1,000 live births, Qld, WA, SA and NT, 1996–1998, 1999–2001, 2002–2004, 2005–2006 and 2007–08**



**Table 28 – Infant mortality rates per 1,000 live births, by Indigenous status, NSW Qld, WA, SA and NT, 2004–2008**

Jurisdiction	Number of deaths		Rate per 1,000 live births		Ratio	Rate Difference
	Indig.	Non-Indig.	Indig.	Non-Indig.		
NSW	140	1,876	7.8	4.4	1.8	3.4
Qld	178	1,201	9.2	4.7	2.0	4.5
WA	106	410	10.6	3.3	3.2	7.3
SA	27	311	8.0	3.6	2.2	4.4
NT	115	48	14.9	4.4	3.4	10.5
<b>Total of 5 jurisdictions</b>	<b>566</b>	<b>3,846</b>	<b>9.7</b>	<b>4.3</b>	<b>2.3</b>	<b>5.4</b>

Source: ABS and AIHW analysis of ABS Mortality Database

**Table 29 – Causes of infant death by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**

Cause of death:	Number of deaths		Rate per 1,000 live births		Ratio
	Indig.	Non-Indig.	Indig.	Non-Indig.	
Certain conditions originating in the perinatal period	262	1,884	4.4	2.1	2.1
Signs, symptoms & ill-defined conditions	109	407	1.8	0.4	4.1
<i>SIDS (subcategory of Signs, symptoms etc)</i>	39	206	0.7	0.2	2.9
Congenital malformations	75	965	1.3	1.1	1.2
Diseases of the respiratory system	33	98	0.6	0.1	5.2
Injury & poisoning	29	103	0.5	0.1	4.3
Infectious and parasitic diseases	8	44	0.1	-	2.8
Diseases of the circulatory system	16	68	0.3	0.1	3.6
Other conditions	34	277	0.6	0.3	1.9
<b>Total</b>	<b>566</b>	<b>3,846</b>	<b>9.7</b>	<b>4.3</b>	<b>2.3</b>

Source: ABS and AIHW analysis of ABS Mortality Database

## 1.20 Perinatal mortality

**WHY IS IT IMPORTANT?:** The perinatal mortality rate includes fetal deaths (stillbirths) and deaths of live-born babies within the first 28 days after birth. Almost all of these deaths are due to factors during pregnancy and childbirth. Perinatal mortality reflects the health status and health care of the general population, access to and quality of preconception, reproductive, antenatal and obstetric services for women, and health care in the neonatal period. Broader social factors such as maternal education, nutrition, smoking, alcohol use in pregnancy, and socio-economic disadvantage are also significant.

Perinatal mortality rates are higher for Aboriginal and Torres Strait Islander peoples than for other Australians, indicating that the health status of, and/or health care available to, Aboriginal and Torres Strait Islander mothers is lower than that for other Australian women.

**FINDINGS:** Reliable data on fetal and neonatal deaths for Aboriginal and Torres Strait Islander peoples are only available for Queensland, Western Australia, South Australia, the Northern Territory and now New South Wales. Over the period 2004–2008 the perinatal mortality rate for Aboriginal and Torres Strait Islander babies was around 13 per 1,000 births compared with 9 per 1,000 births for other Australian babies. Fetal deaths (stillbirths) account for around 58% of perinatal deaths for Indigenous babies and 66% of perinatal deaths for other Australian babies.

The perinatal mortality rate for Aboriginal and Torres Strait Islander peoples decreased by around 34% between 1999 and 2008—an average yearly decline of 0.6 deaths per 1,000 births. The perinatal mortality rate for other Australians also decreased, but by a smaller amount, so that the gap between Aboriginal and Torres Strait Islander peoples and other Australians decreased significantly in both absolute and relative terms over this period.

Estimated rates vary between jurisdictions from 10 deaths per 1,000 births to Indigenous mothers in NSW to 21 per 1,000 births in the Northern Territory. Declines in perinatal mortality were observed for all states and territories included in the analysis.

The most common causes of perinatal mortality were a group of conditions originating in the perinatal period (37%), including birth trauma and disorders specific to the fetus/newborn. Premature birth/inadequate fetal growth were contributing factors in 33% of perinatal deaths in Aboriginal and Torres Strait Islander peoples (compared with 29% of other perinatal deaths). Congenital malformations, deformations and chromosomal abnormalities were the third most common group of

conditions (13% for Indigenous and 19% for others). The main conditions in the mother leading to perinatal deaths were complications of the placenta, cord and membranes (18%) followed by complications of pregnancy (13%).

**IMPLICATIONS:** There have been reductions in perinatal mortality rates for Aboriginal and Torres Strait Islander peoples since the 1990s. In contrast, rates of low birthweight for Aboriginal and Torres Strait Islander babies are increasing (see measure 1.01). It may be that the improvement in the perinatal mortality rate for Aboriginal and Torres Strait Islander babies is predominantly due to improved acute care, which has reduced deaths during late pregnancy and following birth, rather than improvements in the health of mothers during pregnancy and improvements in the growth and development of babies in-utero.

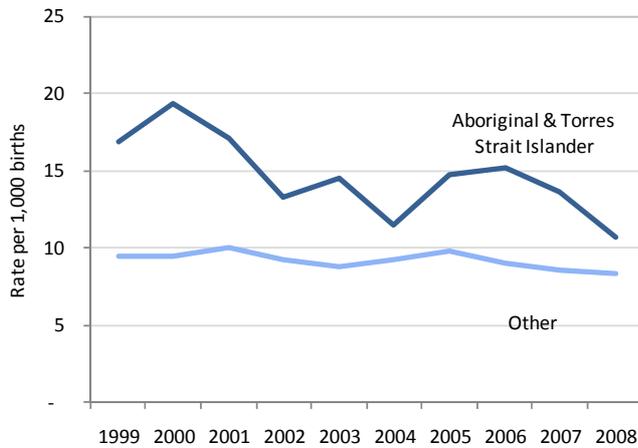
There are insufficient data available to assess whether the decrease in perinatal mortality has occurred because of decreases in particular causes of death.

Enhanced primary care services and continued improvement in antenatal care for Aboriginal and Torres Strait Islander women is very important to achieve further reductions in perinatal mortality rates. Australian governments are investing in a range of initiatives to improve child and maternal health. In October 2008, COAG agreed to the *National Partnership Agreement on Indigenous Early Childhood Development* with joint funding of \$564 million over six years to address the needs of Indigenous children in their early years. The Australian Government's *New Directions: Mothers and Babies Services* provide Aboriginal and Torres Strait Islander children and their mothers with access to antenatal care; standard information about baby care; practical advice and assistance with parenting; monitoring of developmental milestones by a primary health care service; and health checks for children. The *Australian Nurse Family Partnership Program* is focused on providing sustained home visiting to selected Indigenous communities across Australia and aims to improve pregnancy outcomes and childhood development including reducing perinatal mortality, and effect positive life course decisions.

The *Healthy for Life* program encourages behavioural change during pregnancy and includes the monitoring of maternal use of tobacco, alcohol and illicit drugs.

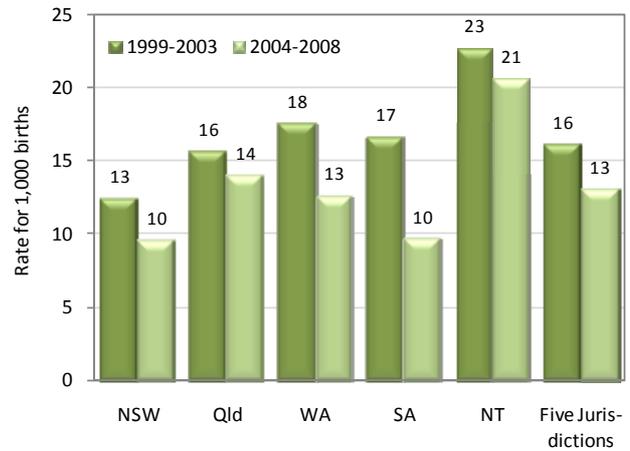
Improvements in socioeconomic, environmental and behavioural factors are also needed to achieve healthy outcomes for Aboriginal and Torres Strait Islander mothers and their babies.

**Figure 55 – Perinatal mortality rate by Indigenous status, NSW, Qld, WA, SA and NT, 1999 to 2008**



Source: AIHW analysis of ABS Deaths Registration Database

**Figure 56 – Perinatal mortality rate for Aboriginal and Torres Strait Islander children, NSW, Qld, WA, SA and NT 1999–2003 and 2004–2008**



Source: AIHW analysis of ABS Deaths Registration Database

**Table 30 – Proportion of deaths for perinatal babies by underlying cause of death and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**

Cause of death:	Foetal deaths		Neonatal deaths		Perinatal deaths	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
	%	%	%	%	%	%
<b>Main condition in the fetus/infant:</b>						
Disorders related to length of gestation and fetal growth	30.1	28.2	37.4	31.4	33.2	29.3
Respiratory and cardiovascular disorders	6.5	6.1	13.7	14.2	9.5	8.8
Infections	n.p.	0.9	5.8	3.8	n.p.	1.9
Other conditions originating in the perinatal period	52.5	49.5	16.4	17.6	37.2	38.8
Congenital malformations, deformations and chromosomal abnormalities	9.4	14.9	17.6	26.0	12.9	18.6
Other conditions	n.p.	0.5	9.1	7.0	n.p.	2.6
<b>Main condition in the mother:</b>						
Complications of placenta, cord and membranes	20.8	18.9	14.6	13.2	18.1	17.0
Maternal complications of pregnancy	8.5	10.3	17.9	18.8	12.5	13.1
Maternal conditions that may be unrelated to present pregnancy	11.6	8.6	5.8	4.4	9.1	7.2
Complications of labour and delivery and noxious influences transmitted via placenta or breast milk	3.1	4.1	3.3	4.1	3.2	4.1
<b>Total deaths (Number)</b>	<b>448</b>	<b>5,499</b>	<b>329</b>	<b>2,783</b>	<b>777</b>	<b>8,282</b>

Source: AIHW analysis of ABS Deaths Registration Database

## 1.21 Sudden infant death syndrome

**WHY IS IT IMPORTANT?:** Sudden Infant Death Syndrome (SIDS) is the sudden and unexplained death of an apparently healthy infant, for which no cause can be found. A SIDS death usually occurs in healthy infants under 1 year of age, with the highest incidence between 1 and 4 months. A SIDS death occurs quickly, usually during sleep. There are several risk factors associated with SIDS: prone sleeping position, sleeping on a soft surface, maternal smoking during pregnancy, environmental tobacco smoke, overheating, late or no prenatal care, young maternal age, prematurity and/or low birthweight, and male sex. In Australia, the rate of SIDS declined by 84% between 1983 and 2003, with a sustained fall following the introduction in 1991 of the public health campaign encouraging parents to mitigate the known risk factors for SIDS deaths.

**FINDINGS:** Between 1991 and 2008 there has been a significant decline in Indigenous death rates from SIDS in the three jurisdictions with adequate data quality for long-term trends (WA, SA and the NT). Over this period Indigenous SIDS deaths dropped from 62 deaths in 1991–93 to less than 5 deaths in 2006–08. While there have also been declines for other Australian infants there has been a significant reduction in the gap between Indigenous and other infants. Although the Indigenous rate remains 3 times higher, the absolute difference between Indigenous and other Australian infant rates has been almost eliminated. Recent trends (2001–08) in the five jurisdictions with adequate data quality for short-term trends (NSW, Qld, WA, SA and the NT) show a continuation of the decline in Indigenous SIDS rates (81%) and a significant closing of the gap.

However, analysis of infant mortality data in Western Australia has found a shift away in recent years from a classification of ‘SIDS’ towards a classification of ‘unascertainable’, particularly for Aboriginal infants. This has implications for the analysis of trends in SIDS over time (Freemantle et al. 2005). Note: the overall Indigenous infant mortality rate has also declined over this period (see measure 1.19).

During the five-year period 2004–08, there were 39 Indigenous deaths from SIDS in the five jurisdictions with adequate data quality (NSW, Qld, WA, SA and the NT). This represented 16% of all SIDS deaths—around 3 times the rate for non-Indigenous infants. SIDS deaths accounted for 7% of all Indigenous infant deaths. The number of deaths ranged from no deaths in South Australia to 22 in New South Wales.

Data on risk factors for SIDS show that Indigenous infants are more likely to be exposed. In 2008, nationally, 21% of Indigenous infants were slept prone. Aboriginal and Torres Strait Islander children were 3 times more likely to live in households with a regular smoker who smoked at home indoors (22% of children) compared with non-Indigenous children (7% of children) (see measure 2.03). In 2007, approximately half of Aboriginal and Torres Strait Islander mothers

smoked during pregnancy—3 times that of non-Indigenous mothers (see measure 2.19). Access to antenatal care is high, but occurs later and less frequently (see measure 3.01). Low birthweight is more than twice as common among babies born to Aboriginal and Torres Strait Islander mothers than other Australian babies (see measure 1.01). In terms of protective factors, in 2004–05, 79% of Aboriginal and Torres Strait Islander infants aged 0–3 years in non-remote areas had been breastfed compared with 88% of non-Indigenous infants (see measure 2.24).

A small Queensland study of 30 Indigenous Australian women and 30 non-Indigenous Australian women (Panaretto et al. 2002) found that 37% of Indigenous infants were slept lying face down compared with 17% of non-Indigenous infants. The Indigenous households had significantly more members. Sixteen Indigenous women (53%) smoked during pregnancy compared with seven non-Indigenous women (23%) and 18 of the Indigenous women (60%) were smokers at the time of the interview. Smoking occurred inside 40% of Indigenous houses compared with 20% of non-Indigenous houses. This survey suggests SIDS risk factors may be higher in the Indigenous Australian population and new approaches to promoting SIDS awareness may be needed. A study in Western Australia found that 73% of Aboriginal and 60% of non-Aboriginal mothers whose infants died of SIDS, had smoked during their pregnancy (Freemantle, de Klerk et al. 2004). In a Perth study of Aboriginal mothers (Eades & Read 1999), 11% of their infants slept prone, 96% shared a room and 68% shared a bed. Sixty-five per cent of these mothers smoked during pregnancy and 80% of infants were regularly exposed to tobacco smoke. Eighty-nine per cent of the mothers initiated breastfeeding and 70% were breastfeeding at the time of the interview. The authors conclude that the prevalence of non-prone sleeping and breastfeeding are similar for Indigenous infants and other infants, but tobacco smoke exposure is significantly higher (see measure 2.03).

Disparities also exist between non-Indigenous populations and babies born to Indigenous mothers in Canada, New Zealand and the United States. For Inuit, excess mortality is observed for all major causes of infant death compared to the rest of Canada; the Maori SIDS rate was 1.4 per 1,000 live births, significantly higher than the non-Maori rate; and a 40% reduction in the infant mortality rate would be achieved if the gap in American Indian infant mortality for SIDS and low birthweight was closed (Smylie et al. 2010).

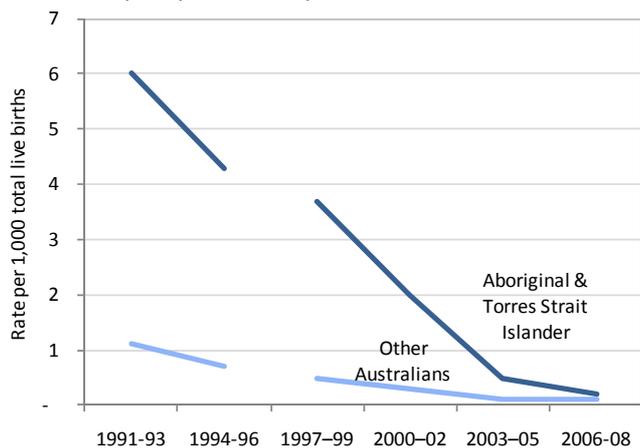
**IMPLICATIONS:** National statistics show promising trends in both the SIDS death rates for Indigenous infants and also in the gap. The higher rate ratio in SIDS mortality rates is similar to the rate ratio for a number of risk factors comparing Indigenous infants and other infants.

Sids and Kids Western Australia runs the *Reducing the Risk of SIDS in Aboriginal Communities* program to specifically target the high rates of SIDS among Indigenous infants. Aboriginal Coordinators educate and raise community awareness about preventative

measures, such as safe sleeping practices. An evaluation of this program is underway. An outstanding question is whether anything more needs to be done specifically targeted to Aboriginal and Torres Strait Islander peoples or are the measures that have worked well for the

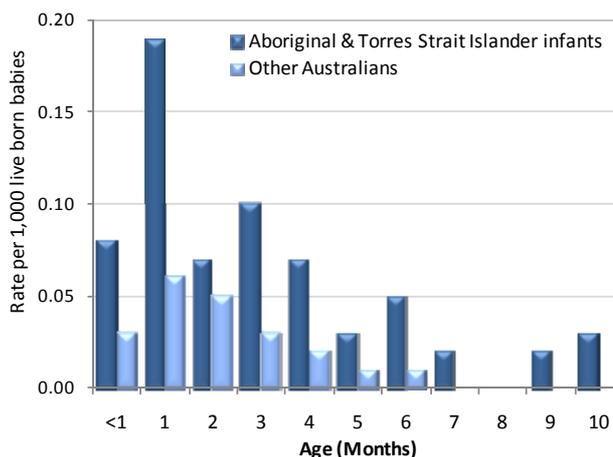
general population sufficient? Additional Australian research on the prevalence of risk factors and their link to the higher rate of SIDS in Aboriginal and Torres Strait Islander babies would be very useful.

**Figure 57 – SIDS mortality rates per 1,000 live births, Aboriginal and Torres Strait Islander and other Australian infants, WA, SA and NT, 1991–1993 to 2006–2008**



Source: AIHW and ABS analysis of National Mortality Database

**Figure 58 – SIDS mortality rates per 1,000 live births, by age (months) and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**



Source AIHW and ABS analysis of National Mortality Database

**Table 31 – SIDS mortality rates per 1,000 live births and rate ratios, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**

	Deaths		Rate		Rate ratio
	Indig.	Non-Indig.	Indig.	Non-Indig.	
New South Wales	22	130	1.2	0.3	4.0*
Queensland	10	61	0.5	0.2	2.2*
Western Australia	n.p.	9	n.p.	0.1	5.5*
South Australia	0	n.p.	0.0	n.p.	..
Northern Territory	n.p.	n.p.	n.p.	n.p.	1.4
<b>Qld, WA, SA &amp; NT</b>	<b>39</b>	<b>206</b>	<b>0.7</b>	<b>0.2</b>	<b>2.9*</b>

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p<.05 level n.p. Indicates rate of <5 per 1,000 births .. Could not be calculated

Note: Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. Cells with a zero value have not been affected by confidentialisation.

Source: AIHW and ABS analysis of National Mortality Database

## 1.22 All-causes age-standardised death rate

**WHY IS IT IMPORTANT?:** The mortality rate of a population provides a summary measure of the overall health status of that population. However, it has some well-known limitations. There may be delays for many years before improvements in health status lead to reductions in mortality, and mortality statistics do not reflect the burden of illness in a population for diseases that do not necessarily result in death, such as arthritis and depression.

Despite these limitations, mortality rates are a useful measure with which to compare the overall health status of different populations and to monitor changes in overall health status of populations over time.

The all-causes mortality rate for Aboriginal and Torres Strait Islander peoples is several times higher than that for other Australians, indicating that the overall health status of Aboriginal and Torres Strait Islander peoples is worse than that of other Australians.

**FINDINGS:** During the period 2004–08, 10,840 deaths were identified as those of Aboriginal and Torres Strait Islander people in those jurisdictions with adequate quality data (NSW, Qld, WA, SA, and the NT). After adjusting for age differences between the two populations, the all-cause mortality rate was almost 2 times higher for Aboriginal and Torres Strait Islander peoples than for non-Indigenous Australians (12 vs 6 deaths per 1,000 population).

There has been a 25% reduction in all-causes mortality rates for Indigenous Australians between 1991 and 2008 in jurisdictions with adequate data quality for long-term trends (WA, SA and the NT). The decrease was greater for females (27%) than males (23%). There has been a statistically significant closing of the gap in mortality rates between Indigenous Australians and other Australians over this period.

Current trends (2001–08), in the five jurisdictions, show a slowing in this decline. There has been a non-significant increase in Indigenous mortality rates, and for women, a significant increase in the gap. Note the national results have been affected by a sudden increase of 103 Indigenous deaths in WA between 2007 and 2008. 2009 data which has not yet been included in this analysis shows a decline of 161 Indigenous deaths in WA since 2008.

Most deaths for Aboriginal and Torres Strait Islander peoples occur in the middle age groups. Most deaths for the non-Indigenous population occur in the older age groups. Approximately 66% of Indigenous deaths occur before the age of 65. The greatest relative disadvantage in mortality rates is in the 25–54 years age range, where the mortality rates for Aboriginal and Torres Strait Islander peoples were between 4 and 5 times as high as for other Australians, for both males and females. In the period 2004–08, mortality rates ranged from 9 deaths per 1,000 in New South Wales to 17 in Western Australia.

Mortality rates are also available for other countries where Indigenous peoples share a similar history of relatively recent European colonisation, such as New Zealand and the United States. For the period 2004–08 in New Zealand, the age-standardised all-cause mortality rate for the Maori population was 7 per 1,000, compared with 4 per 1,000 for the non-Indigenous population (Statistics New Zealand unpublished data). For the period 2002–06 in the United States, the age-standardised all-cause mortality rate for American Indians/Alaskan Natives was 5 per 1,000, which was lower than the age-standardised all-cause mortality rate for non-Indigenous persons over this period (6 per 1,000) (United States Department of Health and Human Services unpublished data). Caution must be used in comparing data with other countries due to variations in data quality, methods applied for addressing data quality issues and definitions for identifying Indigenous peoples.

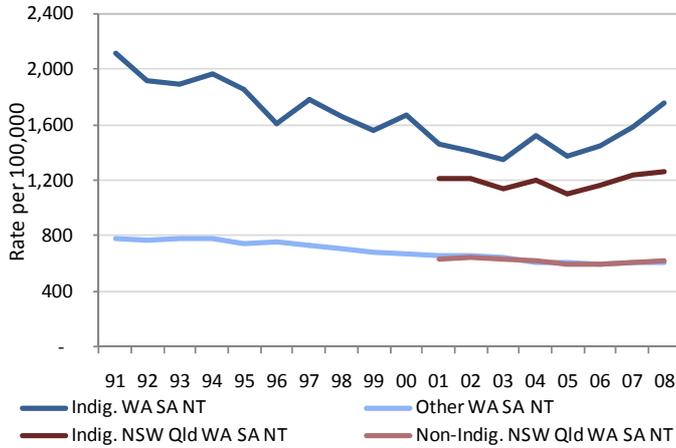
**IMPLICATIONS:** The very high mortality rates for Aboriginal and Torres Strait Islander peoples, particularly in early childhood and the middle adult years, are an indication of the poor overall health status of Aboriginal and Torres Strait Islander peoples and the high rate of chronic disease and injury.

There has been improvement in mortality rates for Aboriginal and Torres Strait Islander peoples in the past 17 years in WA, SA and the NT, although this has slowed and possibly reversed in the last few years. While the reduction in mortality for Aboriginal and Torres Strait Islander peoples has not kept pace with that for other Australians, the fact that improvements have occurred demonstrates that the severe health problems of Aboriginal and Torres Strait Islander peoples have been reduced to some extent and can be reduced further, and faster, with sustained and increased effort.

In December 2007, COAG agreed to a partnership between all levels of government to work with Indigenous communities to achieve the target of closing the gap in Indigenous disadvantage. To achieve this, COAG committed to six ambitious targets across a range of priority areas, one of which is to ‘close the gap in life expectancy within a generation.’

The *National Indigenous Reform Agreement* (NIRA) provides the overarching framework for working towards the six targets. The NIRA provides links to relevant National Agreements and Partnership Agreements established to address Indigenous disadvantage across various social, economic and environmental dimensions. Through the COAG, all Governments have agreed to contribute to the \$1.6 billion *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*. The Commonwealth Government is contributing \$805.5 million and states and territories are collectively contributing up to \$771.5 (over 4 years) from 2009–10 with a focus on decreasing chronic disease mortality rates.

**Figure 59 – Age-standardised mortality rates by Indigenous status, WA, SA and NT, 1991–2008, NSW, Qld, WA, SA and NT, 2001–2008**



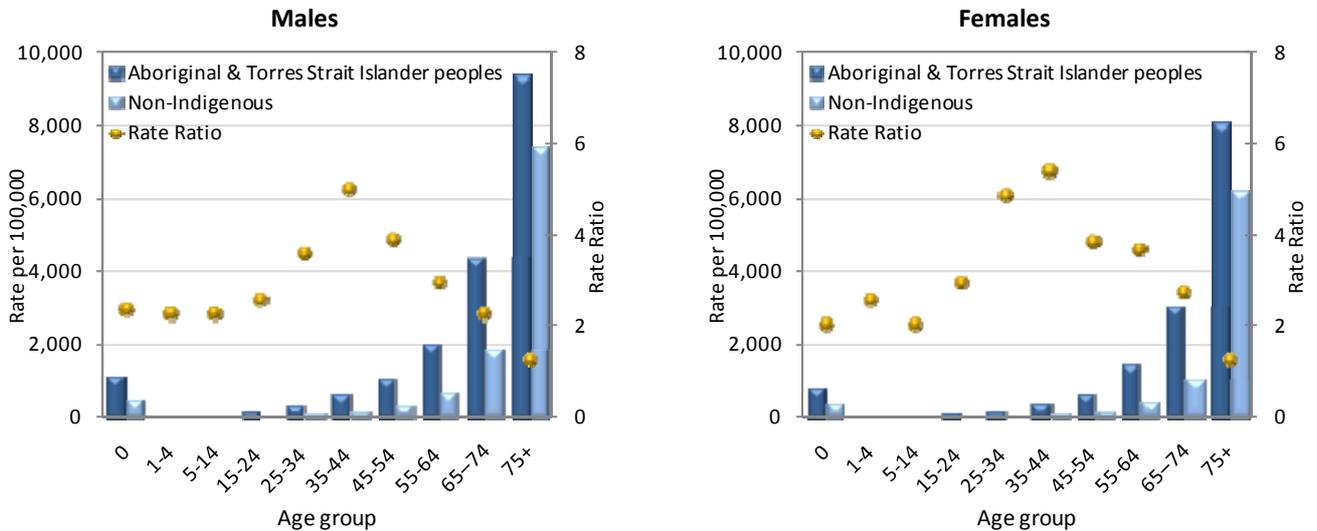
Source: ABS and AIHW analysis of ABS Mortality Database

**Table 32 – All-causes mortality, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**

	Number of deaths		Rate per 1,000		Ratio
	Indig.	Non-	Indig.	Non-	
NSW	2,687	228,242	9.5	6.1	1.5
Qld	2,838	120,913	10.6	6.1	1.7
WA	2,356	56,394	16.7	5.8	2.9
SA	676	59,166	10.2	6.2	1.7
NT	2,283	2,537	15.8	6.8	2.3
<b>Total NSW, Qld, WA, SA &amp; NT</b>	<b>10,840</b>	<b>467,252</b>	<b>11.8</b>	<b>6.1</b>	<b>1.9</b>

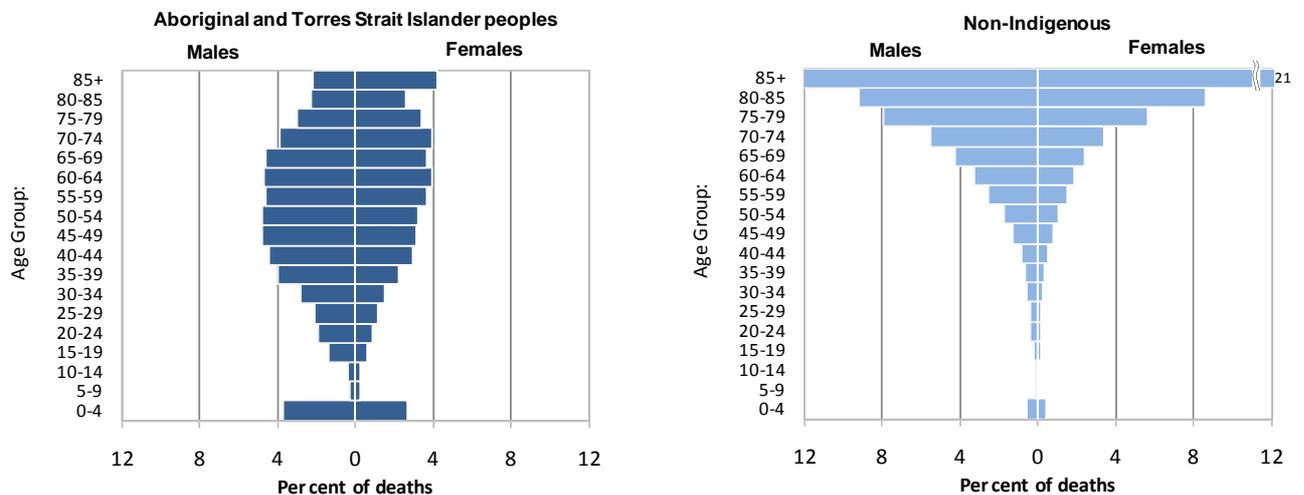
Source: ABS and AIHW analysis of ABS Mortality Database

**Figure 60 – Age-specific mortality rates per 100,000 and rate ratios, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2004–2008**



Source: ABS and AIHW analysis of ABS Mortality Database

**Figure 61 – Age distribution of percentage of deaths by sex and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**



Source: AIHW and ABS analysis of National Mortality Database

## 1.23 Leading causes of mortality

**WHY IS IT IMPORTANT?:** Mortality rates are a useful measure of the overall health status of a population, particularly to compare one population with another or to measure improvements over time. The gap between the Aboriginal and Torres Strait Islander population and the rest of the Australian population for particular causes of death provides an indication of the prevention, prevalence and management of particular diseases for Aboriginal and Torres Strait Islander peoples, relative to the rest of the population. This is a useful indication of the diseases that have a greater impact on Aboriginal and Torres Strait Islander peoples. However, some significant health problems will not be reflected in mortality statistics; many conditions that cause serious health problems may not be fatal (such as depression, arthritis and intellectual disability) and so do not appear as common causes of death. As health status and health services improve for Aboriginal and Torres Strait Islander peoples, the excess mortality from these problems should reduce over time.

**FINDINGS:** During the period 2004–08, the most common cause of death among Indigenous Australians was circulatory diseases (27% of all deaths), followed by cancer (18%) and external causes (15%). Circulatory diseases were also the most common cause of death for other Australians followed by cancer. After adjusting for age, mortality rates for endocrine, metabolic and nutritional disorders (which includes diabetes) were around 6 times as high for Aboriginal and Torres Strait Islander peoples as for other Australians.

Circulatory diseases accounted for 27% of excess deaths of Aboriginal and Torres Strait Islander males and 27% for females. Deaths related to external causes accounted for a further 21% of excess deaths of Indigenous males and 8% for females. Other chronic diseases including endocrine, metabolic and nutritional disorders (which includes diabetes), cancer and respiratory diseases also accounted for a significant component of excess deaths for Indigenous males and females.

For Indigenous Australians the leading causes of death due to external injury were intentional self-harm (suicide) (27%), transport accidents (27%), accidental poisoning (9%), assault (9%) and accidental drowning (7%). Around two-thirds of these deaths occurred between 15 and 39 years of age.

Circulatory disease mortality rates have declined for both Aboriginal and Torres Strait Islander peoples and other Australians since 1991. Over the period 1997–2008 in Western Australia, South Australia and the Northern Territory combined, there was a 29% reduction in the mortality rate for Indigenous people, and a 35% reduction in the rate for other Australians (both significant). Current trends (2001–08) in the five jurisdictions with adequate data (NSW, Qld, WA, SA, and the NT) show a decline in death rates due to circulatory disease for both Indigenous and

non-Indigenous Australians and no further closing of the gap.

Respiratory disease mortality rates have declined significantly for both Indigenous and other Australians in both the short-term and long-term and there has been no significant change in the gap. For kidney disease there was a non-significant decline in longer-term trends but a significant increase in recent years (2001–08) in both the Indigenous rate and the gap. There has been a significant increase in the mortality gap due to cancer in both short-term and long-term trends, mainly reflecting that mortality rates for other Australians have fallen, while rates for Indigenous Australians have increased slightly. Trends for other conditions such as injury and poisoning and diabetes suggest there have been only small changes in the gap between Indigenous and other Australians.

**IMPLICATIONS:** Four groups of chronic conditions account for almost two-thirds of excess deaths among Indigenous Australians: circulatory disease, diabetes and other endocrine/metabolic/nutritional disorders, cancer, and respiratory diseases. External causes such as injury also significantly contribute to excess deaths. The greatest reductions in mortality rates and excess deaths for Aboriginal and Torres Strait Islander peoples will come from a combination of preventive strategies and medical services. Improved chronic disease management can prevent the development of life-threatening complications but cannot cure these diseases. In the long-term, the more important factors will be reduced smoking rates and improvements in living conditions and life-styles, including better nutrition and increased levels of physical activity.

The 15–29 year age group had the highest death rates for suicide while deaths due to transport accidents were highest in the 15–39 year age group. Some of these deaths are associated with alcohol misuse (see measures 1.03, 1.16 and 2.20) (Vos et al. 2007). Acute care services can save the lives of seriously injured people, and there is scope for improvements in timely access to life-saving emergency care for Indigenous Australians. High levels of intentional self harm highlight the need for improved access to mental health services for Indigenous Australians.

In December 2007, COAG committed to closing the life expectancy gap between Indigenous and non-Indigenous Australians within a generation. The \$1.6 billion *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c), sets priorities for a broad range of health measures, which are discussed in more detail elsewhere in this report. The Commonwealth is contributing \$805.5 million and states and territories are collectively contributing up to \$771.5 million (over 4 years) from 2009–10. Other national partnerships and agreements have been established to address Indigenous disadvantage across a range of social, economic and environmental dimensions.

**Table 33 – Age-standardised mortality rate (per 100,000), by selected causes of death, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008**

Underlying cause of death	Per cent of deaths		Age standardised rate per 100 000 persons		Ratio	Gap
	Indig.	Non Indig.	Indig.	Non Indig.		
Circulatory diseases	26.8	35.2	376.6	213.0	1.8	163.6
Cancer	18.0	29.7	241.2	181.0	1.3	60.2
<i>Digestive organs</i>	5.0	7.9	68.1	48.2	1.4	19.9
<i>Lung cancer</i>	4.4	5.6	59.1	34.0	1.7	25.1
<i>Cervical cancer</i>	0.5	0.2	4.3	1.0	4.3	3.3
External causes	14.9	5.7	88.3	36.5	2.4	51.8
Endocrine, metabolic & nutritional disorders	8.4	3.5	119.3	21.5	5.5	97.8
<i>Diabetes</i>	7.2	2.5	103.4	15.0	6.9	88.4
Respiratory diseases	7.8	8.4	115.5	50.9	2.3	64.6
Digestive diseases	6.0	3.4	59.8	20.5	2.9	39.3
Kidney diseases	2.5	1.8	36.6	10.9	3.4	25.7
Nervous system diseases	2.5	3.7	28.5	22.6	1.3	5.9
Infectious & parasitic diseases	2.2	1.4	25.1	8.8	2.9	16.3
Conditions originating in perinatal period	2.4	0.4	5.9	2.7	2.2	3.2
Other causes	8.4	6.7	87.3	41.1	2.1	46.2
<b>All causes</b>	<b>100.0</b>	<b>100.0</b>	<b>1,184.2</b>	<b>609.3</b>	<b>1.9</b>	<b>574.9</b>

Source: ABS analysis of National Mortality Database

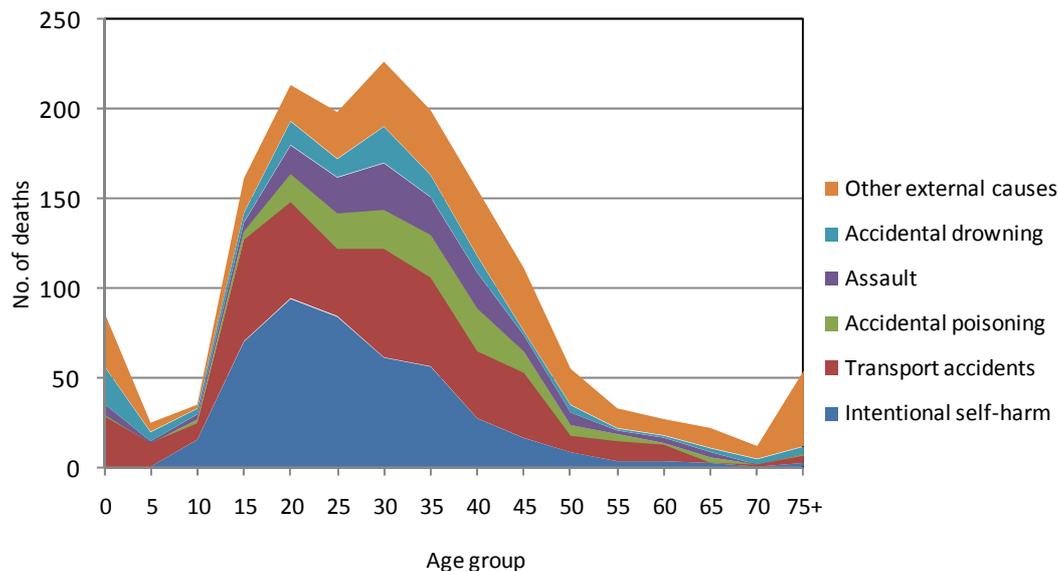
**Table 34 – Main causes of excess Indigenous deaths, by sex, NSW, Qld, WA, SA and NT, 2004–2008**

Underlying cause of death	Males			Females			Total		
	Total	Excess <sup>(a)</sup>	% Excess	Total	Excess <sup>(a)</sup>	% Excess	Total	Excess <sup>(a)</sup>	% Excess
	no.	no.	%	no.	no.	%	no.	no.	%
Circulatory diseases	1,606	1,144	27.3	1,302	655	27.0	2,908	1,799	27.2
External causes	1,127	857	20.5	488	200	8.2	1,615	1,057	16.0
Endocrine, metabolic & nutritional disorders	429	372	8.9	480	406	16.7	909	778	11.8
<i>Diabetes</i>	367	332	7.9	410	362	14.9	777	694	10.5
Cancer	1,002	433	10.3	953	237	9.8	1,955	670	10.1
<i>Lung cancer</i>	272	169	4.0	206	75	3.1	478	244	3.7
<i>Cervical cancer</i>	–	–	–	51	45	1.9	51	41	0.6
<i>Digestive organ cancer</i>	317	170	4.1	226	40	1.6	543	210	3.2
Respiratory diseases	468	354	8.4	380	222	9.1	848	575	8.7
Digestive diseases	352	290	6.9	296	217	9.0	648	508	7.7
Conditions originating in the perinatal period	154	91	2.2	111	50	2.1	265	141	2.1
Nervous system diseases	165	98	2.3	105	20	0.8	270	118	1.8
Kidney diseases	129	108	2.6	143	112	4.6	272	220	3.3
Infectious and parasitic diseases	134	105	2.5	108	72	3.0	242	177	2.7
Other causes	489	336	8.0	419	235	9.7	908	571	8.6
<b>All causes</b>	<b>6,055</b>	<b>4,187</b>	<b>100.0</b>	<b>4,785</b>	<b>2,427</b>	<b>100.0</b>	<b>10,840</b>	<b>6,614</b>	<b>100.0</b>

(a) Total deaths minus the number of deaths that would have been expected if Aboriginal and Torres Strait Islander peoples had the same mortality rates as non-Indigenous Australians.

Source: ABS (unpublished) Causes of Death, Australia, 2008

**Figure 62 – Deaths of Indigenous Australians from external causes of injury and poisoning, by age, NSW, Qld, WA, SA and NT, 2004–2008**



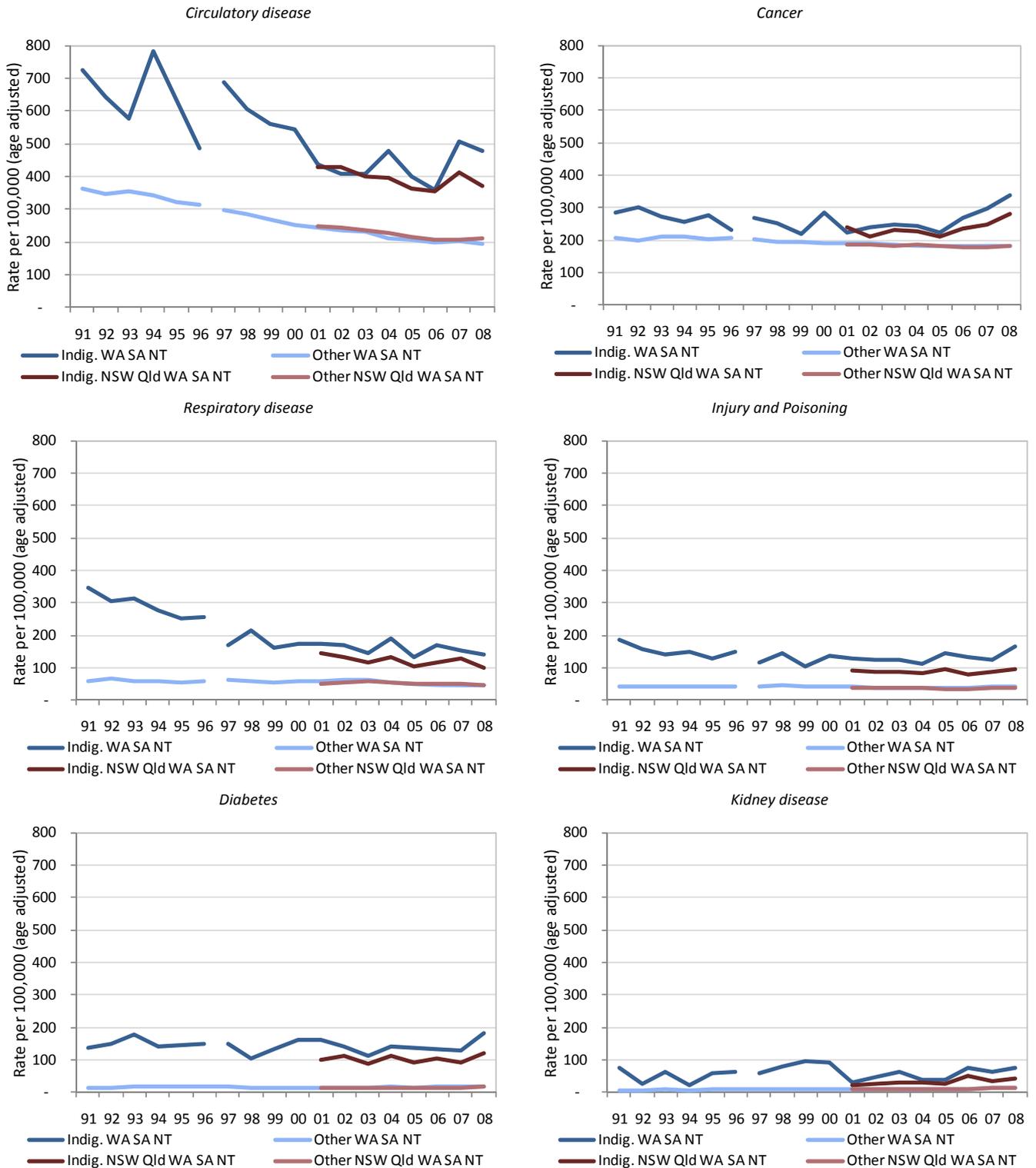
Source: ABS analysis of National Mortality Database

**Table 35 – Detailed causes of death for circulatory disease, cancers and respiratory disease, Aboriginal and Torres Strait Islander peoples, NSW, Qld, WA, SA and NT, 2004–2008**

Underlying cause of death	Males		Females		Total	
	Deaths	%	Deaths	%	Deaths	%
<b>Circulatory Disease</b>						
Ischaemic heart disease	961	15.9	598	12.5	1,559	14.4
<i>Acute myocardial infarction</i>	438	7.2	273	5.7	711	6.6
Cerebrovascular disease	260	4.3	277	5.8	537	5.0
<i>Stroke</i>	206	3.4	222	4.6	428	3.9
Other heart disease	263	4.3	232	4.8	495	4.6
Rheumatic heart disease	30	0.5	69	1.4	99	0.9
Other	92	1.5	126	2.6	218	2.0
<b>Total circulatory diseases</b>	<b>1,606</b>	<b>26.5</b>	<b>1,302</b>	<b>27.2</b>	<b>2,908</b>	<b>26.8</b>
<b>Cancers (site of neoplasm)</b>						
Digestive organs	317	5.2	226	4.7	543	5.0
Respiratory and intrathoracic organs	299	4.9	217	4.5	516	4.8
Breast	-	-	127	2.7	128	1.2
Lymphoid, haematopoietic and related tissue	59	1.0	67	1.4	126	1.2
Female genital organs	-	-	121	2.5	121	1.1
<i>Cervix</i>	-	-	51	1.1	51	0.5
Male genital organs	52	0.9	-	-	52	0.4
Lip, oral cavity and pharynx	91	1.5	28	0.6	119	1.1
Other	184	3.0	167	3.5	350	3.2
<b>Total cancers</b>	<b>1,002</b>	<b>16.5</b>	<b>953</b>	<b>19.9</b>	<b>1,955</b>	<b>18.0</b>
<b>Respiratory diseases</b>						
Chronic lower respiratory diseases	268	4.4	238	5.0	506	4.7
Pneumonia and influenza	115	1.9	97	2.0	212	2.0
Other	85	1.4	45	0.9	130	1.2
<b>Total respiratory diseases</b>	<b>468</b>	<b>7.7</b>	<b>380</b>	<b>7.9</b>	<b>848</b>	<b>7.8</b>

Source: AIHW analysis of National Mortality Database

**Figure 63 – Age-standardised mortality rates for selected causes of death, by Indigenous status<sup>(a)</sup>, WA, SA, NT, 1991–2008<sup>(b)</sup>; NSW, Qld, WA, SA, NT, 2001–2008**



(a) Prior to 1998, 'not stated' was included as non-Indigenous deaths. Rates for the longer term trends (from 1991 to 2008) for WA, SA and NT, have therefore been calculated for 'Other Australians', which included deaths where Indigenous status is 'not stated'.

(b) Causes of death were classified and coded in ICD-9 up until 1996 and ICD-10 from 1997 onwards. The change in classification/coding scheme affects the comparability of rates calculated for 1996 and prior years with rates calculated for 1997 onwards.

Source: AIHW analysis of National Mortality Database

## 1.24 Maternal mortality

**WHY IS IT IMPORTANT?:** Serious, sometimes life-threatening, complications occasionally occur during pregnancy and childbirth. The death of a woman as a result of pregnancy or childbirth is now a rare event in Australia, but in developing countries a considerable risk of serious damage or death with each pregnancy continues to exist (IIMMHR 2010). Improvements in the general health and fitness of Australian women, and advances in medical care during the twentieth century, have reduced the frequency and consequences of complications during pregnancy and childbirth for both mothers and babies.

The risk of death from complications of pregnancy and childbirth has also been reduced for Aboriginal and Torres Strait Islander women, but not to the same level as for other Australian women. The maternal mortality rate for Aboriginal and Torres Strait Islander women remains higher than for other Australian women; although deaths as a result of pregnancy or childbirth are also rare for Aboriginal and Torres Strait Islander women, they are not as rare as they should be.

**FINDINGS:** The maternal mortality rate is the total of direct, indirect and incidental maternal deaths. A direct maternal death is one caused by complications of the pregnancy itself. An indirect maternal death is the death of a woman during or shortly after pregnancy as the result of a disease that did not arise because of the pregnancy (e.g. heart disease, diabetes, renal disease) but was made worse by the physiological effects of pregnancy. An incidental death is the death of a woman as the result of a condition or event that occurred during pregnancy, where the pregnancy is unlikely to have contributed significantly to the death, such as cancer or a motor vehicle accident.

In the period 2003–05, there were 6 maternal deaths of Aboriginal and Torres Strait Islander women—2 direct maternal deaths and 4 indirect maternal deaths. These deaths accounted for 10% of the 60 maternal deaths where Indigenous status was known.

The maternal mortality rate for Aboriginal and Torres Strait Islander women was 23 per 100,000 confinements in 1991–93, 17 in 1994–96, 24 in 1997–99, 46 in 2000–02 and 22 in 2003–05. The maternal mortality rates for Indigenous women were between 2 and 5 times the maternal mortality rate for non-Indigenous women in these periods. The rate leveled out in the last three-year cycle, but this could be due to random variation.

The small number of deaths and problems in under-identification of Aboriginal and Torres Strait Islander

mothers in the numerator (maternal deaths) and denominator (number of confinements) makes it difficult to interpret trends.

**IMPLICATIONS:** If Aboriginal and Torres Strait Islander women had the same maternal mortality rate as other Australian women, there would have been 9 maternal deaths of Aboriginal and Torres Strait Islander women between 1991 and 2005 rather than the 33 that actually occurred. Therefore, in this 15-year period, there were 24 excess maternal deaths of Aboriginal and Torres Strait Islander women, an average of 1 or 2 excess deaths per year. Detecting changes in maternal mortality is difficult when the average number of maternal deaths amongst Aboriginal and Torres Strait Islander women each year is fewer than 10.

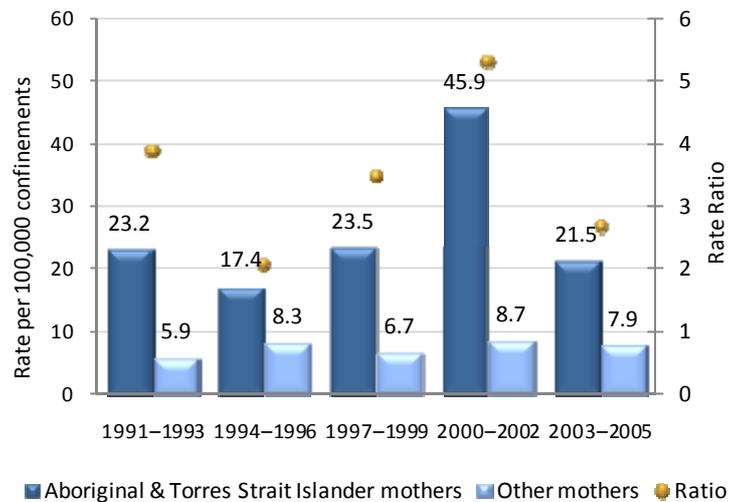
The excessive maternal mortality rate among Aboriginal and Torres Strait Islander women is an indicator that their health and wellbeing during pregnancy is not what it should be.

Timely access to safe and effective medical interventions is essential to achieving the best possible outcomes for Aboriginal and Torres Strait Islander women during pregnancy and childbirth. However, obstetric medical services to treat serious illness when it arises during pregnancy and childbirth is only part of the answer.

Strategies that improve the overall health of Aboriginal and Torres Strait Islander women before, during and after pregnancy will all have an impact on improving their pregnancy outcomes and the health and future prospects of their babies. A focus on improved antenatal care is also relevant here (see measure 3.01).

Programs seeking to improve child and maternal health include the COAG *National Partnership Agreement on Indigenous Early Childhood Development* and the *New Directions: Mothers and Babies Services* program. These provide Aboriginal and Torres Strait Islander children and their mothers with access to antenatal care; standard information about baby care; practical advice and assistance with parenting; monitoring of developmental milestones by a primary health care service; and health checks for children. The *Australian Nurse Family Partnership Program* is focused on providing sustained home visiting to selected Indigenous communities across Australia and aims to improve pregnancy outcomes and childhood development including reducing maternal mortality, and effect positive life-course decisions.

**Figure 64 – Maternal mortality rates and rate ratios by Indigenous status, 1991–1993 to 2003–2005**



Note: Includes direct and indirect deaths only.

Source: National Maternal Deaths Data Collection

**Table 36 – Number of maternal deaths and maternal mortality rates, by Indigenous status, 1991–1993 to 2003–2005**

Triennium:	Aboriginal & Torres Strait Islander :			Non-Indigenous maternal mortality rate per 100,000 confinements	Rate ratio
	Direct & indirect deaths	Total confinements	Maternal mortality rate per 100,000 confinements		
1991–1993	5	21,539	23.2	5.9	3.9
1994–1996	4	22,996	17.4	8.3	2.1
1997–1999	6	25,530	23.5	6.7	3.5
2000–2002	12	26,128	45.9	8.7	5.3*
2003–2005	6	27,901	21.5	7.4	2.9

Note: Includes direct and indirect deaths only. \*Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the  $p < .05$  level.

Sources: Slaytor et al. 2004; Sullivan et al. 2008; Sullivan & King 2006

## 1.25 Avoidable and preventable deaths

**WHY IS IT IMPORTANT?:** Avoidable and preventable mortality refers to deaths from conditions that are considered avoidable given timely and effective health care (including disease prevention and population health initiatives) (Page et al. 2006). Avoidable deaths have been used in various studies to measure the quality, effectiveness and/or accessibility of the health system, although deaths from most conditions are influenced by a range of factors in addition to health system performance, including the underlying prevalence of conditions in the community, environmental and socioeconomic factors and health behaviours. Avoidable mortality includes conditions that are significantly attributable to factors outside the health system such as socioeconomic factors, environmental factors, lifestyle factors and legal issues.

Causes of avoidable mortality can be sub-divided into 'preventable' conditions for which there are effective means to prevent the condition occurring (e.g. conditions caused by smoking) and 'amenable' conditions for which death may be averted even after the condition has developed through early detection and effective treatment (e.g. cervical cancer).

Potentially avoidable deaths can sometimes be further assigned to categories reflecting whether they could be avoided through primary interventions (prevention), secondary (early intervention) and tertiary interventions (medical treatment) (National Health Performance Committee 2004).

**FINDINGS:** In the period 2004–08, there were 6,443 deaths of Aboriginal and Torres Strait Islander people aged 0–74 years from avoidable causes in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined. This represented 72% of deaths of Indigenous Australians aged 0–74 years in these five jurisdictions and 59% of deaths in all age groups. In contrast, deaths from avoidable causes for non-Indigenous people represented 67% of deaths of other Australians aged 0–74 years in these five jurisdictions and 23% of all deaths for non-Indigenous Australians.

Amenable mortality accounted for 2,498 Indigenous deaths in the five jurisdictions, or 28% of deaths of Indigenous Australians aged 0–74 years. For non-Indigenous Australians aged 0–74 years, amenable mortality accounted for 27% of deaths.

After adjusting for differences in age structure, Aboriginal and Torres Strait Islander peoples died from all avoidable causes at 4 times the rate of non-Indigenous Australians. The avoidable mortality rate of Aboriginal and Torres Strait Islander peoples was higher than that of non-Indigenous Australians in all age groups, and particularly high (4–5 times that of other

Australians) in the middle adult age groups (25–64 years).

Reliable data on time-trends in avoidable mortality is available since 1991 for Western Australia, South Australia and the Northern Territory. There was a significant decline in the avoidable mortality rate for Aboriginal and Torres Strait Islander peoples in the period 1991 to 1996 in these jurisdictions combined. This decline continued in the period 1997 to 2008, when the trend in rates has been a decline of 20% for Indigenous Australians. The difference in rates between Indigenous and other Australians has narrowed significantly over this period.

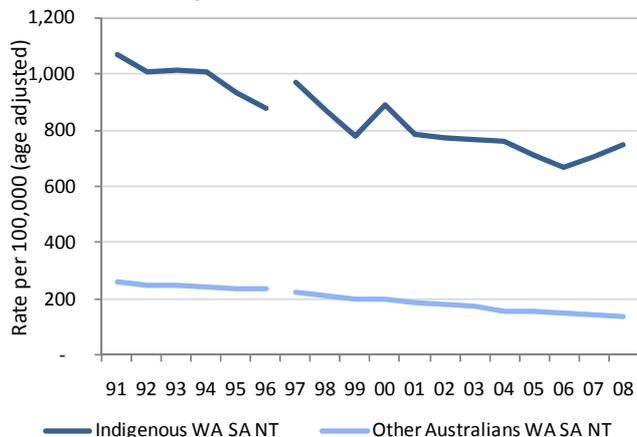
The most common conditions or events causing avoidable mortality were ischaemic heart disease (19%), cancer (17%, in particular lung cancer), diabetes (10%) and suicide (8%). Mortality rates for Indigenous Australians aged 0–74 years for these conditions were significantly higher than non-Indigenous Australians: 4 times higher for ischaemic heart disease, 2 times higher for cancer, 13 times higher for diabetes and 2 times higher for suicide. Although not causing such a high proportion of avoidable deaths, several other conditions or events caused a high relative excess of avoidable deaths for Aboriginal and Torres Strait Islander peoples compared with non-Indigenous Australians including: rheumatic and other valvular heart disease (17 times as high); nephritis and nephrosis (11 times as high); violence (9 times as high); alcohol-related disease (7 times as high); and selected invasive bacterial and protozoal infections (avoidable mortality rate 6 times as high as for non-Indigenous Australians).

In terms of the number of potentially avoidable deaths, the greatest opportunities to reduce mortality for Indigenous Australians relate to primary prevention. However, there are also significant opportunities in terms of secondary and tertiary interventions.

**IMPLICATIONS:** Avoidable mortality presents a similar picture to that seen in other mortality measures: death rates for Aboriginal and Torres Strait Islander peoples are declining and the gap is closing. Chronic diseases and injury are the conditions causing the greatest proportion of excess deaths for Aboriginal and Torres Strait Islander peoples, and these conditions are amenable to both prevention and treatment. While all conditions causing excess deaths among Aboriginal and Torres Strait Islander peoples are important and need to be reduced, chronic conditions and injury are the conditions for which the greatest reductions in excess mortality could be achieved.

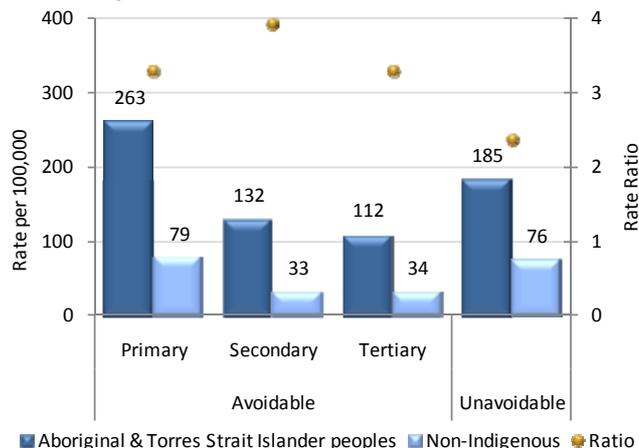
The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* comprises a package of health reforms that include a focus on preventive health and primary health care. Through this agreement a range of initiatives are being implemented which address prevention, early detection and management of chronic disease.

**Figure 65 – Age-standardised mortality rates for avoidable causes of death, Indigenous and other Australians aged 0–74 years, WA, SA, NT, 1991–2008**



Source: AIHW analysis of National Mortality Database

**Figure 66 – Avoidable mortality (by subcategory) and unavoidable mortality, by Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2002–2008**



Source: AIHW analysis of National Mortality Database

**Table 37 – Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2004–2008**

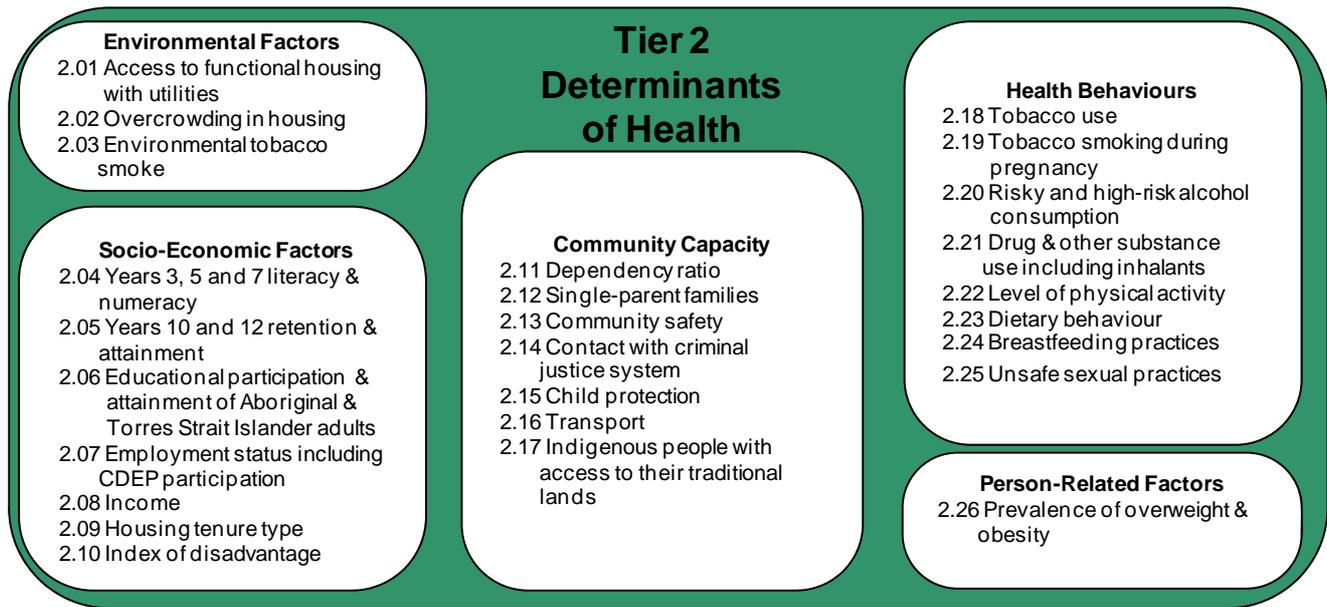
Cause of death	Per cent		Age standardised rate per 100,000		Rate ratio	Rate difference
	Indigenous	Non Indig.	Indigenous	Non Indig.		
Ischaemic heart disease	19.2	19.0	110.1	27.6	4.0	82.5
Cancer	16.8	38.0	104.8	54.7	1.9	50.1
<i>Lung cancer</i>	6.4	13.4	42.4	19.2	2.2	23.2
Diabetes	9.5	3.2	61.5	4.7	13.1	56.8
Suicide	8.0	6.9	22.5	10.4	2.2	12.1
Road traffic injuries	6.3	3.9	18.9	5.9	3.2	13.0
Alcohol related disease	6.0	2.7	26.5	3.8	6.9	22.7
Cerebrovascular disease	5.1	6.0	31.9	8.9	3.6	23.0
Selected infections	4.0	2.4	19.1	3.5	5.5	15.6
COPD	3.9	4.7	29.8	6.9	4.3	22.9
Nephritis and nephrosis	3.3	1.3	20.0	1.9	10.7	18.1
Complications of perinatal period	2.2	1.0	3.3	1.5	2.1	1.8
Violence	2.2	0.5	6.8	0.8	8.9	6.0
Birth defects	2.1	1.6	4.3	2.6	1.7	1.7
Rheumatic and other	1.5	0.3	6.2	0.4	16.7	5.8
Other	9.7	8.7	40.8	12.9	3.2	27.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>506.5</b>	<b>146.4</b>	<b>3.5</b>	<b>360.1</b>
<b>Total avoidable deaths</b>	<b>6,443</b>	<b>108,455</b>				
<b>Total deaths people 0-74 years</b>	<b>8,917</b>	<b>164,731</b>				
<b>Total deaths</b>	<b>11,449</b>	<b>659,647</b>				

\* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p<.05 level.

Source: AIHW and ABS analysis of National Mortality Database

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## Tier 2: Determinants of Health



Tier 2, Determinants of Health, includes measures that convey the impact on health from environmental and socioeconomic factors, community capacity, health behaviours and person-related factors. Many of these issues do not relate directly to the activities of the health system, but they impact on health outcomes and how people access health care. Reliable information on the size and distribution of determinants of health in the Aboriginal and Torres Strait Islander population, and comparisons with the non-Indigenous population is crucial for evaluating the effects of current health and social policies; developing and prioritising strategies for health gain; highlighting areas for intersectoral action; and to support identification of research priorities. The determinants of health are now widely recognised as an essential element of health system analysis (WHO Commission on Social Determinants of Health 2008).

Measures in Tier 2 underpin health outcomes and shape how patients interact with the health system. For example, analysis has confirmed that lower levels of education, a key measure of socioeconomic status, is

associated with a higher prevalence of health risk factors such as smoking and obesity (see discussion in key findings). Similarly, health status impacts on its determinants: improvements in education outcomes can be anticipated with improvements in health (see measure 1.12 *Children's hearing loss* for an example of this connection).

Readers are encouraged to consider health determinants as both risk and protective factors. Improvements made in health behaviours, such as reduced smoking rates or educational attainment will flow on to improvements in how people utilise the health system and to improvements in health outcomes. Many of the measures in Tier 2, particularly those determinants grouped as 'community capacity' relate to the measure of 'Community functioning' (measure 1.14) in Tier 1. This measure illustrates the positives of health determinants, health behaviours and use of the health system in a combined analysis of strengths and capabilities using values determined by Aboriginal and Torres Strait Islander peoples.

## 2.01 Access to functional housing with utilities

**WHY IS IT IMPORTANT?:** Research on housing and health shows a relationship between inadequate housing and related infrastructure, and poor health outcomes (Atkinson et al. 2007). For Aboriginal and Torres Strait Islander peoples, lack of access to clean water, adequate sanitation and reliable electricity services is associated with higher rates of infectious diseases (ABS & AIHW 2008).

The right to water 'entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements' (WHO 2010). Internationally, poor water supply, sanitation and personal and domestic hygiene were estimated to account for 7 per cent of the total burden of disease measured in the Global Burden of Disease Study (Vos et al. 2007). These determinants of health outcomes were second only to malnutrition as a major risk factor category. An adequate and reliable supply of water is required for washing people, food, kitchen utensils, and clothes.

A functional sewerage system prevents sewerage from contaminating drinking water, and reduces the risks of infectious diseases. Waste water in the living environment can be a source of infection for diseases such as diarrhoea and hepatitis (WHO 2010).

A power supply such as electricity/gas contributes to health through improved nutrition by ensuring food is safely stored through refrigeration, prepared and cooked appropriately. Avoiding less safe forms of fuel for cooking and heating may improve indoor air quality and decrease the risk of harm from fire.

Aboriginal and Torres Strait Islander peoples in remote and very remote areas are more likely to live in conditions considered to be unacceptable by general Australian standards. Problems can include overcrowding, poorly maintained buildings, high housing costs relative to income and a lack of basic environmental health infrastructure, such as adequate sanitation, water supply and appropriate housing.

**FINDINGS:** In the 2006 Community Housing and Infrastructure Needs Survey (CHINS), 1,187 discrete Aboriginal and Torres Strait Islander communities were surveyed (ABS 2007b). These communities had a population of 92,960 people, representing 18% of the Indigenous population. Most of these communities were in remote areas. Just over half of these people (52%) relied on bore water as their main source of water supply. This proportion was down from 65% in 2001. Over the same period there was an increase in the proportion of the discrete communities' population whose main source of drinking water was a connection to a town water supply, from 17% in 2001 to 30% in

2006. Very few communities (9 with a population of 20 people) reported they had no organised water supply.

More detailed analysis is available for 366 communities that were larger or were independently administered. Sixty-nine communities (19%), with a combined population of 21,291 usual residents, experienced 5 or more interruptions to water supply in the 12 months prior to survey. For 22% of the 366 communities surveyed, the duration of the longest water supply interruption was two days or more.

Of the 164 communities that were not connected to a town water supply and had their drinking water tested for levels of microbiological agents, drinking water failed water quality tests for 48 communities (24% of the reported usual population). Test results were not known for 16 communities (10%) that had their water tested. The proportion of communities whose water failed testing was lower than in 1999 (34%) and 2001 (33%).

There were 4,796 people in 45 discrete Indigenous communities, not connected to a town water supply, where drinking water was not sent away for testing in the 12 months prior to the 2006 survey.

Community generators supplied electricity for 377 Indigenous communities (32%). There was an increase since 2001 (from 21% to 23%) in the proportion of communities whose main source of electricity was the state grid or other transmitted supply. In 2006, 212 communities (18%) relied on solar or solar hybrid sources but this proportion was higher (24%) in smaller communities of fewer than 50 people. Thirty-two communities, all but one having a population of fewer than 50 persons, reported no organised electricity supply compared with 80 communities in 2001.

In 2006, interruptions to the electricity supply in the 12 months prior to the CHINS survey occurred in 246 communities (76% of the discrete Indigenous communities with a reported population of 50 or more). This was slightly lower than in 2001 and 1999 when interruptions were reported for 82% and 81% of these communities respectively. Approximately one-third (32%) of the larger communities experienced fewer than 5 electricity interruptions, while 12% had experienced 20 or more interruptions in the previous 12 months. In 2006, approximately 26% of communities experienced interruptions to electricity supply lasting longer than 24 hours. This was higher than that reported in 2001 (13%) and 1999 (14%), with an increase evident across all remoteness categories.

The number of discrete Indigenous communities connected to a town sewerage system increased from 89 in 2001 to 121 in 2006 (10% of communities). Septic tanks remained the most commonly used sewerage disposal system (694 or 58% of all communities). Approximately 22 discrete Indigenous communities did not have an organised sewerage system. A further 202 communities relied on pit toilets for their sewerage. The proportion of discrete Indigenous communities in very remote areas without an organised sewerage system dropped from 8% (86 communities) in 2001 to 2% (20 communities) in 2006.

In 2006, 142 discrete Indigenous communities (38%) reported sewerage system overflows or leakages in the previous 12 months. Of these 82 (22%) reported up to 4 overflows/leakages and 14 (4%) reported 20 or more overflows/leakages. These were most common in discrete Indigenous communities with septic tanks with leach drains as the main sewerage system. In 22% of communities the leakages or outflows had continued for longer than 48 hours.

In 2008, the National Aboriginal and Torres Strait Islander Social Survey found that approximately 99% of Indigenous households reported that they had working facilities for washing people, 94% reported working facilities for washing clothes/bedding (down from 98% in 2002), 94% reported working facilities for preparing food and 98% reported working sewerage systems. This varied considerably by remoteness with 21% of households in very remote communities reporting a lack of working facilities for the storage and preparation of food. This is important in considering intake of fresh fruit and vegetables (measure 2.23) by remoteness.

**IMPLICATIONS:** Improved access to functional housing is associated with better health outcomes. An evaluation of the NSW *Housing for Health Program* found that ‘Those who received the *Housing for Health* intervention had a significantly reduced rate of hospital separations for infectious diseases—40% less than the hospital separation rate for the rest of the rural NSW Aboriginal population without the *Housing for Health* interventions’.

The *National Partnership Agreement on Remote Indigenous Housing* has been established as a ten-year funding strategy to address overcrowding, homelessness, poor housing condition and severe housing shortage in remote Indigenous communities. Over 10 years the agreement will deliver construction of up to 4,200 new houses to address overcrowding and homelessness and upgrades and repairs to around 4,800 existing houses through a program of major repairs and/or replacement. Funding is also provided for property and tenancy management arrangements, including a program of tenant support and ongoing repairs and maintenance.

Under the partnership, a municipal and essential services audit of 86 communities was completed in March 2010. The audit assessed levels of services and related infrastructure in remote Indigenous communities.

In addition, there are a number of complementary programs being delivered by the Commonwealth including:

- The *National Indigenous Infrastructure Guide*, launched in February 2010, which consolidates codes and standards together with research for those involved in the design, installation, operation and maintenance of infrastructure in Indigenous communities. It covers water supply, storm water, wastewater, energy, waste management, telecommunications and transport, with an emphasis on community involvement.
- The *National Indigenous Housing Guide* which assists in the design, construction and maintenance of housing for Aboriginal and Torres Strait Islander peoples, and focuses on Healthy Living Practices.
- *Fixing Houses for Better Health* which provides funding for small-scale critical repairs and maintenance carried out in houses located predominantly in remote communities. Projects funded under the program survey and fix critical health hardware items such as hot water systems, taps, toilets, drains, showers and electrical fittings, and;
- The *Army Aboriginal Community Assistance Program*, a grant program, designed to improve primary environmental health and living conditions in remote Indigenous communities. One project per year is undertaken targeting improvements in housing, essential services such as water, power and sewerage, other community infrastructure, health and municipal services, and education, training and employability initiatives.

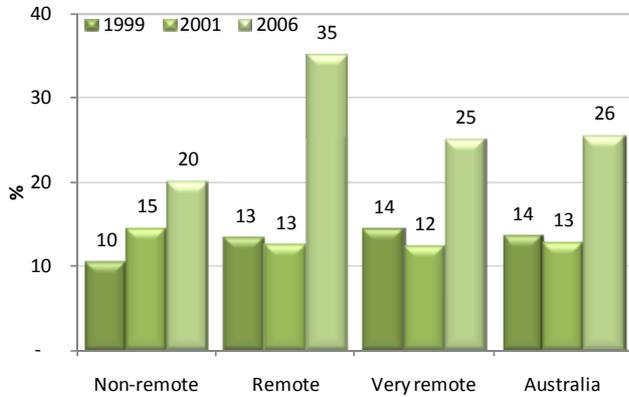
There is a need to better coordinate all parties, including the range of government portfolios and jurisdictions with responsibility for health, housing, water and sewerage.

**Table 38 – Main source of drinking water, discrete Indigenous communities, by state/territory, 2006**

	Communities										Communities Population			
	NSW		Qld		WA		SA		NT		Australia			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Connected to town supply	51	89.5	11	8.9	43	15.9	19	20.9	84	13.1	209	17.6	28,084	30.2
Bore water	2	3.5	32	25.8	197	72.7	48	52.7	414	64.6	694	58.5	48,511	52.2
Rain water tank(s)	2	3.5	24	19.4	-	-	6	6.6	8	1.2	41	3.5	2,378	2.6
River/reservoir	2	3.5	24	19.4	5	1.8	3	3.3	22	3.4	57	4.8	11,667	12.6
Well or spring	-	-	21	16.9	2	0.7	1	1.1	15	2.3	39	3.3	887	1.0
Carted water	-	-	4	3.2	2	0.7	-	-	21	3.3	27	2.3	637	0.7
Other organised water supply	-	-	1	0.8	1	0.4	1	1.1	-	-	3	0.3	104	0.1
No organised water supply	-	-	-	-	1	0.4	1	1.1	7	1.1	9	0.8	20	0.02
<b>Total</b>	<b>57</b>	<b>100</b>	<b>124</b>	<b>100</b>	<b>271</b>	<b>100</b>	<b>91</b>	<b>100</b>	<b>641</b>	<b>100</b>	<b>1,187</b>	<b>100</b>	<b>92,960</b>	<b>100</b>

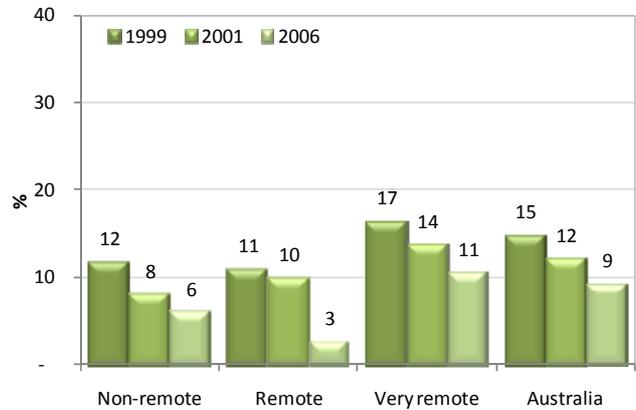
Source: ABS 2007b

**Figure 67 – Proportion of discrete Indigenous communities, with reported usual population 50 or more, experiencing interruptions to electricity supply greater than 24 hours in the previous 12 months, by remoteness, 1999, 2001 & 2006**



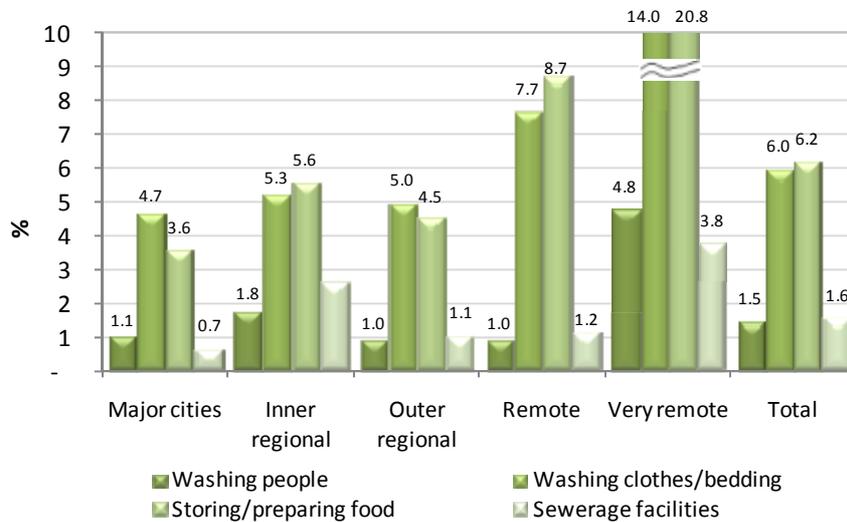
Source: AIHW analysis of the 1999 and 2001 Community Housing and Infrastructure Needs Surveys; FaHCSIA and AIHW analysis of 2006 Community Housing and Infrastructure Needs Survey

**Figure 68 – Proportion of discrete Indigenous communities, with reported usual population 50 or more, experiencing 10 or more sewerage system overflows or leakages in previous 12 months, by remoteness, 1999, 2001 and 2006**



Source: AIHW analysis of the 1999 and 2001 Community Housing and Infrastructure Needs Surveys; FaHCSIA and AIHW analysis of 2006 Community Housing and Infrastructure Needs Survey

**Figure 69 – Proportion of Indigenous households reporting lack of working facilities for each of the first 4 Healthy Living Practices by remoteness, 2008**



Source: AIHW analysis of 2008 NATSISS

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## 2.02 Overcrowding in housing

**WHY IS IT IMPORTANT?:** The effects of overcrowding in housing include inadequate access to facilities, which may increase the risk of infectious diseases such as meningitis, acute rheumatic fever, tuberculosis, and skin and respiratory infections (AIHW 2005b). However, the impact of overcrowding occurs in combination with other environmental health factors such as water quality and sanitation. One example is the contribution of overcrowding in housing to failure of sewerage systems. Septic tanks, used in many remote Indigenous communities, can leak or overflow if they are used by more people than they are designed for.

Overcrowding can potentially affect health in different ways. It is a risk factor for diseases such as acute rheumatic fever and its possible progress to rheumatic heart disease (measure 1.06). Overcrowding may increase psychological stress resulting in increased physical or verbal abuse. It may also adversely affect study opportunities for students in the household and impact adversely on educational attainment (measure 2.05). However, the presence of more people may decrease social isolation, which may have a positive impact on health (Booth & Carroll 2005). Other factors may assist in reducing the health impacts of overcrowding such as good nutrition to improve immunity and vaccination against communicable diseases.

**FINDINGS:** In 2008, there were around 81,500 Aboriginal and Torres Strait Islander persons aged 15 years and over living in overcrowded households, that is, households requiring one or more additional bedrooms according to the Canadian National Occupancy Standard for housing appropriateness. This represented 25% of all Indigenous persons aged 15 years and over. According to the same standard, 4% of other Australians aged 15 years and over were living in overcrowded households in 2007–08.

Overcrowding is more common in remote areas than in other parts of Australia. In 2008, more than half (58%) of Indigenous Australians aged 15 years and over were living in very remote areas, followed by 33% in remote areas, 23% in outer regional areas, 18% in inner regional areas and 13% in major cities. As a reflection of this, proportions also varied by jurisdiction. The Northern Territory had the highest proportion (58%), followed by Western Australia (29%) and Queensland (26%).

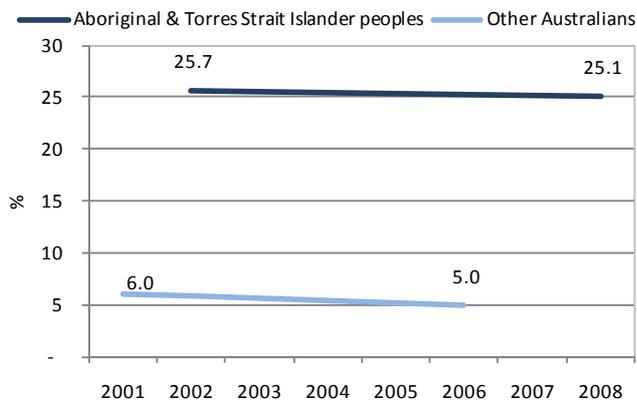
The 2006 census recorded approximately 20,700 Indigenous households (14%) that were overcrowded according to the Canadian National Occupancy Standard—a slightly smaller proportion than in 2001. Household overcrowding varies by tenure type. In 2006, approximately 40% of Indigenous households in cooperative/community/church group housing, 16% of state/territory housing authority households, 11% of private and other renter households and 7% of home owners or purchaser households were overcrowded.

The National Aboriginal and Torres Strait Islander Social Survey confirms the association between overcrowding and socioeconomic status. In 2008, Indigenous Australians aged 15 years and over were more likely to be living in overcrowded households if their household income was in the lowest income quintile rather than the highest income quintile (30% compared with 8%); if the highest year of school they completed was Year 9 or below than if Year 12 was the highest year of school completed (29% compared with 19%); and if they were unemployed or not in the labour force than if they were employed (27% and 31% compared with 20%).

**IMPLICATIONS:** Addressing the higher rate of overcrowding among Aboriginal and Torres Strait Islander peoples and its negative impact on health is complex. Living with extended family groupings may be culturally desirable for some Aboriginal and Torres Strait Islander peoples (Long et al. 2007). This requires innovation in the provision of appropriate housing (AIHW 2005b). Housing affordability is another issue affecting housing choices.

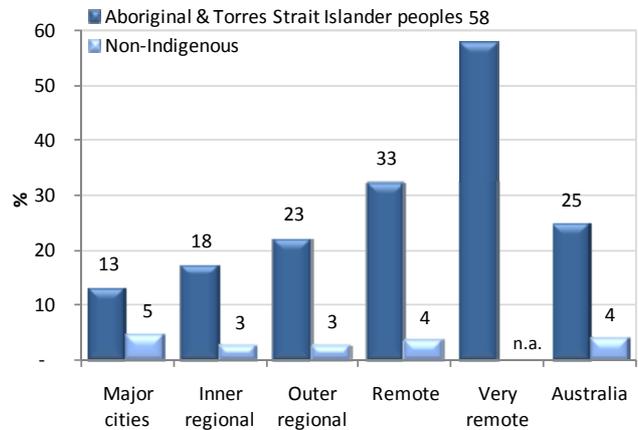
As discussed in measure 2.01 there are a range of housing initiatives designed to improve housing for Indigenous Australians. The *National Partnership Agreement on Remote Indigenous Housing* will facilitate the building of up to 4,200 new houses and the refurbishment of up to 4,800 existing houses in remote Indigenous communities over ten years. Improvements to the current poor standard of housing will be supported by the implementation of a standardised property and tenancy management framework. Rent collection, regular repairs and maintenance, tenant support and governance arrangements consistent with public housing standards will be central to the reform.

**Figure 70 – Proportion of people aged 18 years and over living in overcrowded households, by Indigenous status, 2002 , 2008 Indigenous Australians, 2001 , 2006 Other Australians**



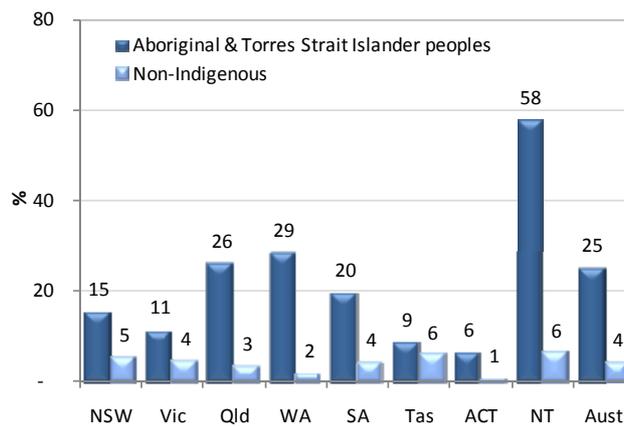
Source: ABS and AIHW analysis of 2002 and 2008 NATSISS and the 2001 and 2006 Census

**Figure 71 – Proportion of persons 15 years and over living in overcrowded households, based on the Canadian National Occupancy Standard, by Indigenous status and remoteness, 2008**



Source: ABS and AIHW analysis of 2008 NATSISS, non-Indigenous data from Survey of Income and Housing 2007–08

**Figure 72 – Proportion of persons aged 15 years and over living in overcrowded households according to the Canadian National Occupancy Standard, by Indigenous status and state/territory, 2008**



Source: ABS and AIHW analysis of 2008 NATSISS, non-Indigenous data from Survey of Income and Housing 2007–08

**Table 39 –Proportion of overcrowded Indigenous households, using the Canadian National Occupancy Standard, by tenure type and by state and territory, 2006**

Tenure type	NSW & ACT	Vic	Qld	WA	SA	Tas	NT	Aust
Home owner/purchaser	6.6	6.0	7.9	7.2	6.1	4.8	11.6	6.9
Renter:								
Mainstream public housing	11.4	12.3	21.5	20.5	14.5	10.7	24.9	15.9
Housing co-operative/ community/ church	17.9	15.6	33.0	41.7	36.9	8.7	60.8	39.9
Private	11.0	10.1	12.8	9.5	9.1	9.2	16.4	11.4
Landlord type not stated	14.9	13.3	24.1	17.9	14.5	7.7	43.3	19.0
Other tenure types	11.2	11.4	20.7	19.4	14.6	11.4	39.9	18.1
Total	9.8	9.0	14.8	16.0	11.8	7.2	38.5	13.6

Source: ABS and AIHW analysis of 2006 Census data

## 2.03 Environmental tobacco smoke

**WHY IS IT IMPORTANT?:** Environmental tobacco smoke, or passive smoking, is now firmly established as a significant cause of morbidity and mortality. The first evidence of harm to children emerged in the early 1970s (Colley 1974; Harlap & Davies 1974; Leeder et al. 1976), and the first evidence of increased lung cancer risk in 1981 (Hirayama 1981). By 1986 the US Surgeon General (Centers for Disease Control and Prevention 2006) and the Australian National Health and Medical Research Council (NHMRC 1986; NHMRC 1997) were able to conclude without doubt that passive smoking was harmful (VicHealth Centre for Tobacco Control 2001).

Environmental tobacco smoke is a significant contaminant of indoor air. There is strong and consistent evidence that passive smoking increases a non-smoker's risk of lung cancer and ischaemic heart disease. Passive smoking is also associated with increased risk of respiratory disease in adults (NHMRC 1997) and otitis media in children (Jacoby et al. 2008).

The home is the most likely setting for exposure to environmental tobacco smoke for pregnant women, children, and young children living with parents or relatives who smoke—all of whom are particularly vulnerable. Overcrowding in housing (measure 2.02) increases the risk of such exposure. Passive 'environment' smoking of tobacco around a new-born child is considered to be one of the major risk factors for sudden infant death syndrome (measure 1.21). Exposure to smoke in the atmosphere also increases an infant's risk of ear infections (measure 1.12) and developing asthma (AMA 1999). Smoking in cars is also a significant environment for child exposure to second-hand smoke (Freeman et al. 2008).

The benefits of reducing exposure to environmental tobacco smoke include reducing the incidence of short, medium and long-term health effects in non-smokers, and reducing the uptake of smoking in children of smokers (VicHealth Centre for Tobacco Control 2001).

**FINDINGS:** In 2008, there were around 122,000 Aboriginal and Torres Strait Islander children aged 0–14 years living in households with a current daily smoker, representing 65% of all Aboriginal and Torres Strait Islander children in this age range. In comparison, 32% of non-Indigenous children within the same age range lived in households with a current daily smoker.

Aboriginal and Torres Strait Islander children were also 3 times more likely to live in households with a current daily smoker who smoked at home indoors (22% of children) compared with non-Indigenous children (7% of children).

Between 2004–05 and 2008 the proportion of Indigenous children aged 0–14 years living in households with a regular smoker fell from 68% to 65%, however this change is not statistically significant. For non-Indigenous children there was a significant reduction from 37% in 2004–05 to 32% 2007–08.

In 2008, the proportions of Indigenous children aged 0–14 years that were exposed to environmental smoke ranged from 59% in inner regional areas, 71% in remote areas and 77% in very remote areas.

The proportion of Aboriginal and Torres Strait Islander children aged 0–14 years who lived in households with regular smokers ranged from 53% in the ACT to 77% in the Northern Territory. The proportion of Aboriginal and Torres Strait Islander children aged 0–14 years who lived in households with a regular smoker who smoked at home indoors ranged from 13% in the ACT to 25% in the Northern Territory.

**IMPLICATIONS:** The policy implications for addressing the dangers of environmental tobacco smoke are similar to those for tobacco smoking in general (measure 2.18) and tobacco smoking during pregnancy (measure 2.19). Exposure to environmental tobacco smoke should be monitored in conjunction with those measures. In May 2008, the Australian Government announced the new *Indigenous Tobacco Control Initiative* which aims to address the high rates of tobacco smoking in the Indigenous population by investing \$14.5 million over four years from 2008–09 until 2011–12. This Initiative complements the comprehensive national approach for reducing Indigenous smoking rates through the Tackling Smoking measure under the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*. A major part of the Tackling Smoking measure is establishing a Tackling Smoking Workforce across 57 regions nationally. A successful outcome would reduce the high proportion of children who are exposed to environmental tobacco smoke in their households. More information about current smoking initiatives is provided under measures 2.18 and 2.19.

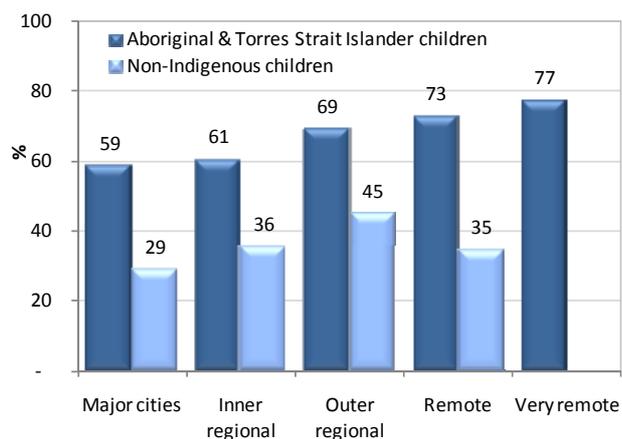
**Table 40 – Children aged 0–14 years living in households with current daily smoker(s), by Indigenous status of children, 2008 and 2007–08**

	Aboriginal and Torres Strait Islander children aged 0-14	Non-Indigenous children aged 0-14
	%	%
<b>Current daily smoker in household:</b>		
No	34.9*	67.8*
Yes	65.1*	32.2*
<b>Whether any regular smokers smoke at home indoors:</b>		
No	78.4*	93.4*
Yes	21.6*	6.6*
<b>Total number:</b>	<b>187,591</b>	<b>3,907,621</b>

\* Difference between Indigenous/non-Indigenous groups is statistically significant at the p<.05 level.

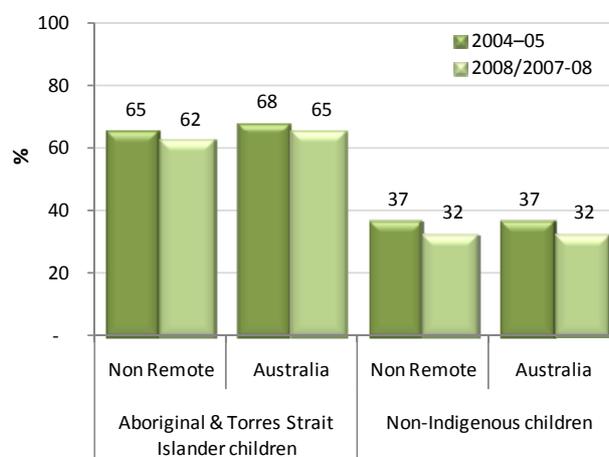
Source: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS

**Figure 74 – Children aged 0–14 years living with current daily smoker(s), by Indigenous status and remoteness, 2008 and 2007–08**



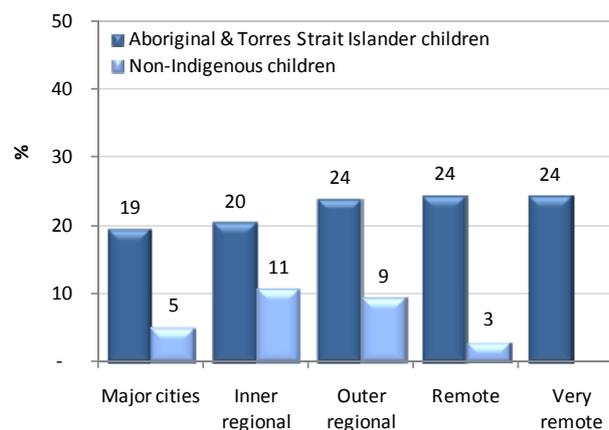
Source: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS

**Figure 73 – Proportion of children aged 0–14 years who live in households with current daily smoker(s), by remoteness and Indigenous status, 2004–05, 2008 and 2007–08**



Source: ABS and AIHW analysis of 2004–05 NATSIHS, 2008 NATSISS, 2004–05 NHS, and 2007–08 NHS

**Figure 75 – Children aged 0–14 years living with current daily smokers inside the household, by Indigenous status and remoteness, 2008 and 2007–08**



Source: ABS and AIHW analysis of 2008 NATSISS and 2007–08 NHS

## 2.04 Years 3, 5 and 7 literacy and numeracy

**WHY IS IT IMPORTANT?:** Education is a key factor for improving the health and wellbeing of Aboriginal and Torres Strait Islander peoples. Access to education is an important determinant of health and links with other social factors such as poverty, unemployment, quality of housing and access to primary health services. Furthermore, there is a two-way association between health and education. People who have low educational attainment tend to have poorer health, fewer opportunities, low incomes and lower employment prospects (Johnston et al. 2009). In turn, poorer health is associated with lower educational attainment, impacting unfavourably upon income and employment (Conti et al. 2010).

Early educational experiences are important as they influence future academic performance (Frigo et al. 2003; SCRGSP 2007). Students who do not attain the national literacy and numeracy benchmark standards, for example, will have difficulty progressing through school and are less likely to enter higher education. Furthermore, school leavers who lack fundamental skills in literacy and numeracy face lower employment prospects. Poor educational outcomes of Indigenous Australian students apparent in upper primary/lower secondary school are symptomatic of inadequate educational progress in the early years of schooling (Frigo et al. 2003). Aboriginal and Torres Strait Islander primary school students have considerably lower literacy and numeracy attainment than non-Indigenous students. Improvements in this area are crucial to the achievement of headline educational outcomes such as Years 10 and 12 retention and attainment (See measure 2.05).

In December 2007, COAG agreed to a target of halving the gap between the proportion of Indigenous and non-Indigenous students achieving reading, writing and numeracy benchmarks within a decade.

**FINDINGS:** In 2009, 75% of Indigenous students achieved the Year 3 benchmark in reading, 67% in Year 5, 73% in Year 7 and 67% in Year 9. Around 80% of Indigenous students achieved the writing benchmark in Year 3, 70% in each of Years 5 and 7 and 59% in Year 9. In each of these Year levels in 2009, around 75% achieved numeracy benchmark standards. The proportion of Aboriginal and Torres Strait Islander students achieving the standards for each of the benchmarks in all school years tested remain below corresponding proportions for all students, including for spelling and punctuation, and grammar.

Data for this report have been based on the NAPLAN results for 2008 and 2009. It is important to note that trends in results for Indigenous students will be impacted by changes in the levels of participation in NAPLAN. Participation rates are generally lower for Indigenous students, particularly in jurisdictions with more people living in remote areas. It is also important to note that small increases or decreases may not be statistically significant. Between 2008 and 2009 there

were mixed results. For reading, there was a slight reduction in the gap between Indigenous and non-Indigenous students for Years 3, 5 and 7 and a slight increase for Year 9. For writing there was a slight narrowing of the gap in Years 3, 5 and 7 and a slight increase for Year 9. For numeracy, there were declines in the gap between Indigenous and non-Indigenous achievement for Years 5 and 9 but increases in the gap for Years 3 and 7.

Proportions of Aboriginal and Torres Strait Islander students achieving literacy and numeracy benchmarks are much lower for students living in remote and very remote areas. This relationship was evident also for non-Indigenous students, but was much less marked.

There are significant differences between jurisdictions in levels of achievement for Indigenous students, although the proportions of students from remote and very remote regions significantly impacts jurisdictional level results.

**IMPLICATIONS:** To achieve the goals set by COAG, significant improvements will need to be achieved. All governments have made commitments to a broad range of initiatives to address existing educational disadvantages.

An important step in improving the achievement of Indigenous students will be to improve access to early childhood education opportunities. Fewer Indigenous Australian children have the opportunity to attend a pre-school, and so are less school-ready than children who have attended pre-schools. COAG has agreed that within five years all Aboriginal and Torres Strait Islander 4 year olds in remote Indigenous communities will have access to a quality early childhood education program. Harnessing strong networks both at home and through involvement with the education system is fundamental to supporting educational participation and attainment (NATSIHC 2008a). Attendance rates are associated with academic performance (ACER 2004; Fred Hollows Foundation 2006; Zubrick et al. 2006). It is evident from the data that geographic remoteness is associated with much higher levels of disadvantage in achievement of educational benchmarks.

Educational disadvantages have many associations with people's health and health risk factors. Indigenous students at high risk of clinically significant emotional and behavioural difficulties are less likely to achieve academic milestones (Zubrick et al. 2006). Child hearing loss (see measure 1.12) will also impact on academic achievement. A longitudinal multi-school study conducted by Australian Council for Education Research (ACER 2004) found that a school's ability to adapt to the needs of Indigenous students accounted for much of the variation in academic outcomes by the students.

COAG has agreed to several reforms in education including the *National Early Childhood Development Strategy* which seeks to achieve positive early childhood development outcomes and to reduce inequalities. The *National Partnership Agreement on Indigenous Early Childhood Development* commits \$564 million over 6 years to improve outcomes for Indigenous children in the early years. Under the COAG *National Education*

Agreement several partnership agreements have been developed including the *National Partnership Agreement on Literacy and Numeracy*, which commits \$540 million for improving literacy and numeracy outcomes for all Australian students, particularly those who are at risk of falling behind. The *Indigenous Education Action Plan 2010–2014* involves government and non-government education providers in actions to achieve the education-related close the gap targets. The Indigenous Education (Targeted Assistance) Act 2000

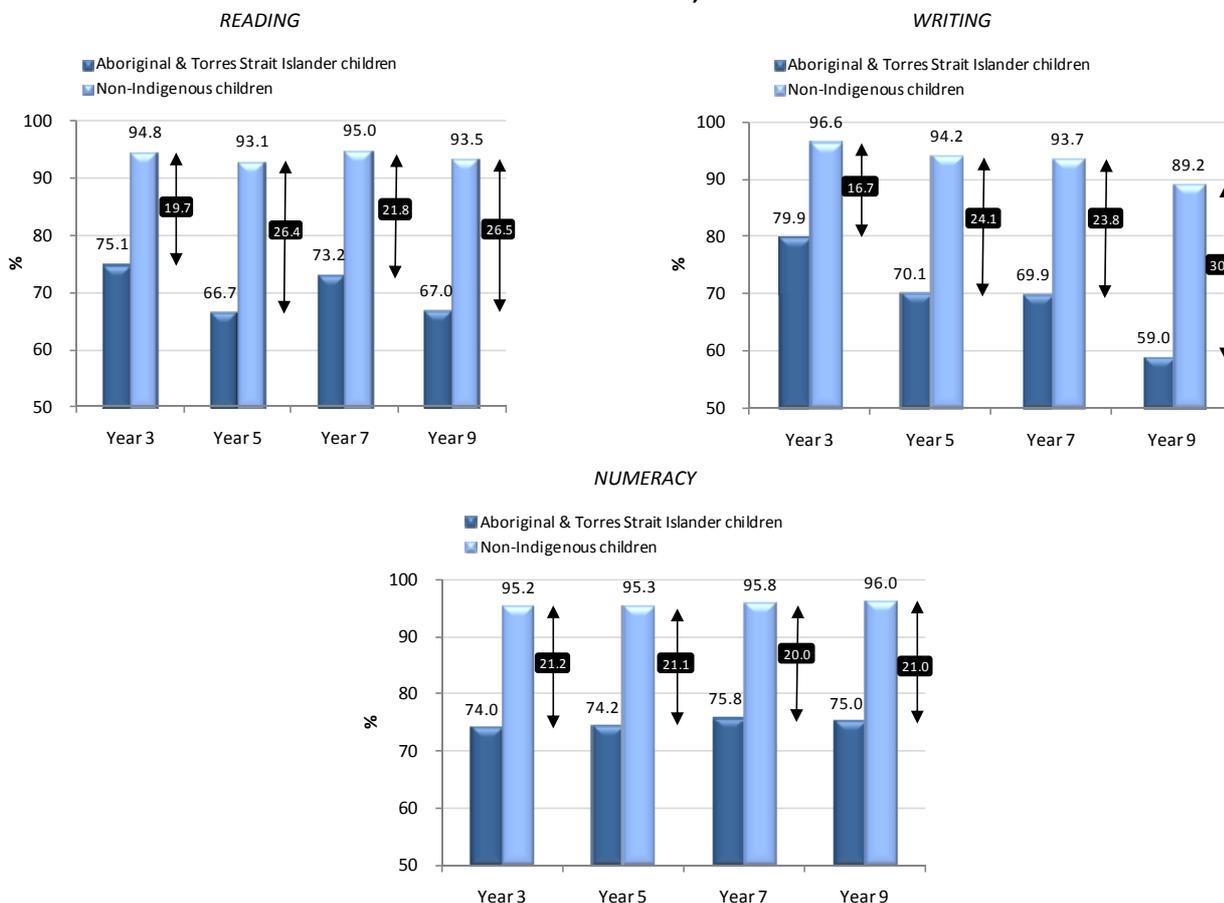
provides the legislative basis for a variety of Indigenous education and training programs, including the *National Indigenous English Literacy and Numeracy Strategy*. The Government has also committed \$56.4 million over 4 years (2008–12) to the *Closing the Gap—Expansion of Intensive Literacy and Numeracy Programs and Personalised Learning Plans* which is designed to expand programs that have been successful for Indigenous students.

**Table 41 – Proportion of students achieving reading, writing and numeracy benchmarks, by Indigenous status, 2008–2009**

	2008	2009	2008	2009	2008	2009
	Reading:		Writing:		Numeracy:	
<i>Aboriginal and Torres Strait Islander Students</i>						
Year 3	68.3	75.1	78.8	79.9	78.6	74.0
Year 5	63.4	66.7	69.7	70.1	69.2	74.2
Year 7	71.9	73.2	67.9	69.9	78.6	75.8
Year 9	70.7	67.0	59.7	59.0	72.5	75.0
<i>Other Students</i>						
Year 3	93.5	94.8	96.4	96.6	96.0	95.2
Year 5	92.6	93.1	93.9	94.2	94.0	95.3
Year 7	95.4	95.0	93.2	93.7	96.4	95.8
Year 9	94.2	93.5	88.8	89.2	94.8	96.0

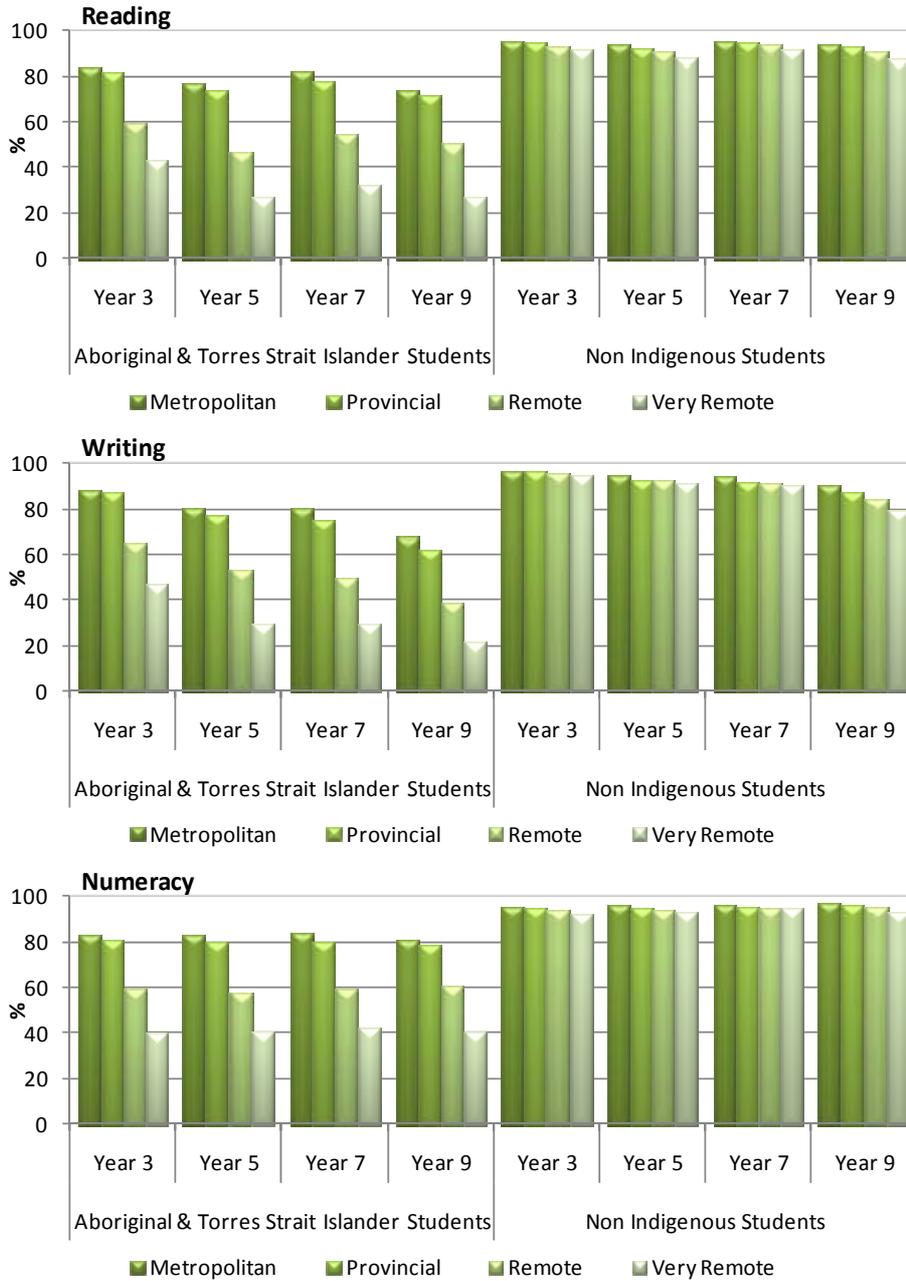
Source: AIHW analysis of National Report on Schooling in Australia 2008 (MCEETYA 2009) and the 2009 National assessment program: Literacy and Numeracy (ACARA 2009)

**Figure 76 – Proportion of Indigenous students achieving literacy and numeracy benchmarks to corresponding proportion of all students, 2009**



Source: National Report on Schooling in Australia 2008 (MCEETYA 2009) and the 2009 National assessment program: Literacy and Numeracy (ACARA 2009)

**Figure 77 – Proportion of Year 3, 5, 7 and 9 students achieving the reading, writing and numeracy benchmarks, by remoteness area and Indigenous status, 2009**



Source: AIHW analysis of the 2009 National assessment program: Literacy and Numeracy (ACARA 2009)

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## 2.05 Years 10 and 12 retention and attainment

**WHY IS IT IMPORTANT?:** Education is a key factor in improving the health and wellbeing of Aboriginal and Torres Strait Islander peoples (see measure 2.04). An important educational outcome is the extent to which Indigenous students stay on at school, until Year 10 and until Year 12, which is measured by the ‘retention rate’. Another measure is the extent to which Indigenous students are awarded a certificate at the end of Year 10 or Year 12, which is measured by the ‘attainment rate’.

Historically, Aboriginal and Torres Strait Islander students have had lower retention and attainment rates compared with non-Indigenous students. COAG has acknowledged that the pathway to closing the gap in Indigenous disadvantage is linked to economic development and improved education outcomes (COAG 2007). COAG has agreed to a target to halve the gap in Year 12 or equivalent attainment rates by 2020 (COAG 2008a). Successful completion of Year 12 is critical to improving the economic and social status of Indigenous Australians. Higher levels of education improve employment prospects, future income, standard of housing and access to health care (ABS 2002; SCRGSP 2007; ABS & AIHW 2008).

Higher levels of education have been associated with reduced propensity to engage in health risk behaviours, particularly smoking, but also for alcohol consumption. Improved health literacy is associated with education. Research has shown that health outcomes are influenced by a person’s ability to use a wide range of health-related materials (ABS 2008). Research in the US (Wong et al. 2002) found that mortality from all-causes was higher for persons with fewer years of education, particularly for smoking-related diseases. Persons without a high school education lost 12.8 potential life-years per person. International literature has also documented improvements in child mortality associated with increased levels of maternal education and attributed this to a variety of factors, including improved understanding of and greater willingness to access health services (Gakidou et al. 2010).

**FINDINGS:** Data for 2009 show that the apparent retention rate of full-time Aboriginal and Torres Strait Islander students from Years 7/8 to Year 10 was 91% compared with 100% for other students. In the same year, the apparent retention rate of full-time Indigenous students from Years 7/8 to Year 12 was 45% compared with 77% for other students. The apparent retention rate of full-time Aboriginal and Torres Strait Islander students from Year 11 to Year 12 was 67% compared with 86% for other students. The apparent retention rates for Aboriginal and Torres Strait Islander females were similar to those for males from Year 7/8 to Year 10 (92% compared with 90%) but higher than males for retention from Year 7/8 to Year 12 (50% compared with 42%).

There have been significant improvements in Indigenous student retention rates to both Year 10 and Year 12 in

the last decade. Apparent retention rates from Year 7/8 to Year 10 increased for Indigenous full-time students between 1998–2006 and have remained at around 90% since 2007. Apparent retention rates for Indigenous full-time students from Year 7/8 to Year 12 increased from 32% to 47% between 1998 and 2008, but declined slightly in 2009 to 45%.

In 2009, the Australian Capital Territory, South Australia and Tasmania had the highest retention rates of Indigenous students from Year 7/8 to Year 10 (98% and 107% respectively), while the Northern Territory and Victoria had the lowest (75% and 80% respectively). Retention rates of Indigenous students from Year 7/8 to Year 12 were highest in the Australian Capital Territory (70%) and Queensland (58%) and were lowest in the Northern Territory (35%) and New South Wales (37%). Rates for Tasmania and the Australian Capital Territory should be interpreted with caution, due to small numbers in these jurisdictions. Some rates exceed 100%, reflecting the movement of students interstate and from non-government to government schools in Years 11 and 12.

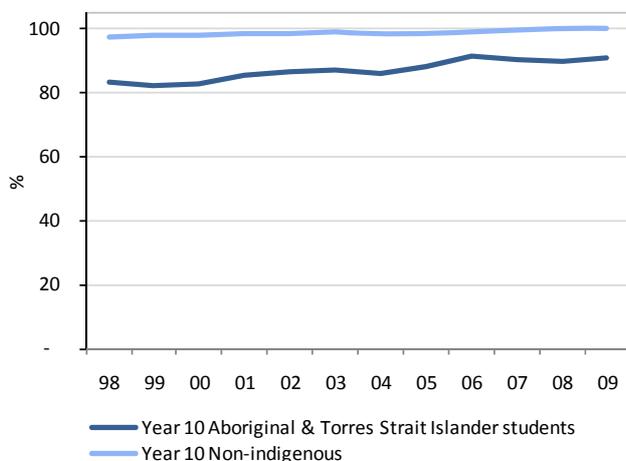
National attainment rates indicate that in 2006 less than half (47%) of Indigenous 20–24 year olds had attained at least a Year 12 or equivalent qualification compared with 84% of non-Indigenous Australians of the same age. Indigenous attainment rates were highest in the Australian Capital Territory (66%), followed by Queensland, Victoria and Tasmania (around 57%) and lowest in the Northern Territory (18%) (CRC 2010).

In this same period, attainment rates for Indigenous young people steadily decreased with remoteness (from 59% in major cities to 50% in regional areas, 37% in remote areas and 23% in very remote areas). In comparison, the non-Indigenous attainment rate was not as affected by remoteness, with a rate of 86% in major cities and around 75% in all other areas. The gap widens from 27 percentage points in major cities to 38 in remote areas and 54 in very remote areas (CRC 2010).

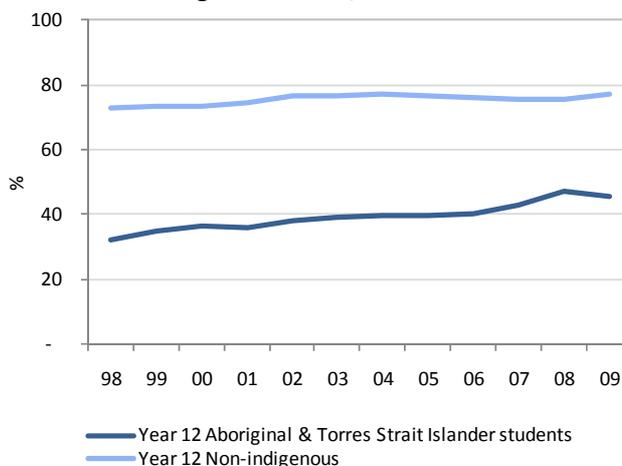
In the 2008 NATSISS, Indigenous parents identified a range of assistance that would support children to complete Year 12 such as support from family, friends and school (83%); career guidance (36%); subsidies or grants to help with affordability (25%); and schools being suitable for culture and/or beliefs (17%).

**IMPLICATIONS:** Improving retention and attainment for Indigenous students requires multi-faceted strategies addressing access to education, family and community engagement, home learning environments, mentors, culturally inclusive support strategies and pathways to employment. COAG has committed to a range of reforms in education designed to improve outcomes for Indigenous students (see measure 2.04). The *Indigenous Education Action Plan* (2010–2014) involves Commonwealth–State and non-government education providers in activities to close education related gaps. This measure should be examined in conjunction with educational participation in other settings, for instance Year 12 equivalent qualifications in VET education (see measure 2.06).

**Figure 78 – Apparent Year 10 retention rates, by Indigenous status, 1998–2009**



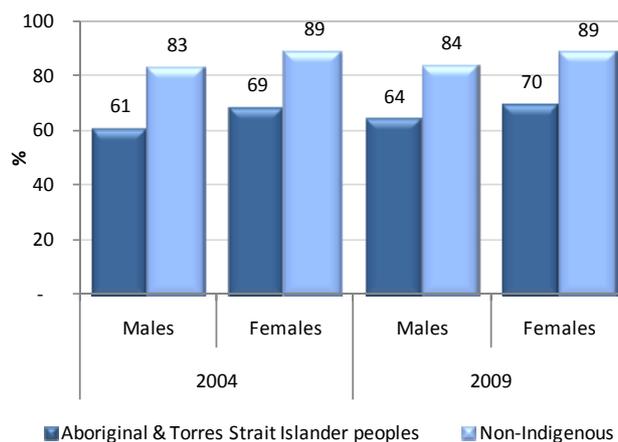
**Figure 79 – Apparent Year 12 retention rates, by Indigenous status, 1998–2009**



Source: AIHW analysis of ABS National Schools Statistics Collection

Source: AIHW analysis of ABS National Schools Statistics Collection

**Figure 80 –Year 11 to Year 12 retention, by Indigenous status and sex, 2004 to 2009**



■ Aboriginal & Torres Strait Islander peoples ■ Non-Indigenous

Source: AIHW analysis of ABS National Schools Statistics Collection

**Table 42 – Apparent retention rates , by Indigenous status, jurisdiction and sex, 2009**

	Aboriginal and Torres Strait Islander peoples								Non-Indig.	
	NSW	Vic.	Qld	WA	SA	Tas.	ACT	NT	Aust.	
<b>Year 7 to 10 - Apparent retention</b>										
Males	85.2	81.2	96.3	89.0	101.0	105.4	100.0	75.9	89.6	99.2
Females	90.0	79.6	99.4	93.8	94.9	109.2	94.4	74.0	92.3	101.1
Total	87.6	80.4	97.8	91.2	98.0	107.3	97.4	75.0	90.9	100.1
<b>Year 7 to 12 - Apparent retention</b>										
Males	33.3	35.8	53.6	39.3	53.3	27.4	69.0	30.1	41.5	72.1
Females	40.4	50.9	62.5	40.2	58.8	53.5	70.0	39.2	49.5	82.7
Total	36.7	43.4	58.0	39.7	56.0	39.7	69.5	34.5	45.4	77.3
<b>Year 11 to 12 - Apparent retention</b>										
Males	71.2	61.4	73.4	48.1	69.0	73.5	90.6	44.5	64.2	83.7
Females	72.0	65.8	77.2	50.8	78.5	89.1	121.7	56.0	69.6	88.5
Total	71.6	63.9	75.4	49.3	73.6	82.7	103.6	50.2	67.0	86.1

Source: AIHW analysis of ABS National Schools Statistics Collection (NSSC)

## 2.06 Educational participation and attainment of Aboriginal and Torres Strait Islander adults

**WHY IS IT IMPORTANT?:** Education is a key factor in improving the health and wellbeing of Aboriginal and Torres Strait Islander peoples. Longitudinal studies show that people who go on to higher education (universities, colleges of advanced education, and other tertiary institutions) and graduate with a degree or diploma are more likely to obtain full-time work and earn higher incomes compared with those who do not. Likewise people who complete a course at a Technical and Further Education (TAFE) institution are more likely to be employed after the completion of their course than they were before. Those undertaking TAFE education who are already employed are more likely to receive a promotion and/or an increase in income after completion of their TAFE course (SCRGSP 2007).

There is an association between socioeconomic factors such as education, employment, income, and health status. Generally, population groups with lower socioeconomic status have poorer health than those with higher socioeconomic status. Reporting socioeconomic factors affecting health such as educational attainment will help to inform public policy and encourage whole of government collaboration to address health inequalities.

Research has shown that health outcomes are influenced by a person's ability to use a wide range of health-related materials. The mean health literacy score for Indigenous Australians in 2006 was lower than for non-Indigenous Australians. Lower health literacy is likely to be a barrier to health promotion activities based around health education (Centre for Medicare Education 2000; National Centre for Education and Training Statistics & Australian Bureau of Statistics 2008).

International research has demonstrated that maternal education is a determinant of child health and survival (ABS & AIHW 2008). There has been little conclusive research undertaken in the Indigenous Australian context on this issue (Ewald & Boughton 2002).

**FINDINGS:** In 2008, 19% of Aboriginal and Torres Strait Islander persons aged over 15 years were currently studying at an educational institution compared with 16% of non-Indigenous Australians in the same age range.

Year 12 was the highest level of school completed by 23% of Aboriginal and Torres Strait Islander adults in 2008, compared with 51% of non-Indigenous adults. The proportion of Aboriginal and Torres Strait Islander adults who had completed Year 12 increased from 19% in 2002 to 23% in 2008. Younger age groups were more likely to have completed Year 12. Among those aged 18–24 years, the proportion who had completed Year 12 was 32%. People in remote areas were less likely than those in non-remote areas to have completed Year 12 (16% compared with 25%).

In 2008, approximately 40% of Aboriginal and Torres Strait Islander people aged 25–64 years reported they had a non-school qualification compared with 61% of

non-Indigenous Australians within this age group. A slightly higher proportion of Indigenous Australians were studying at TAFE, particularly in the older age group, compared with non-Indigenous Australians. A similar proportion of Indigenous and non-Indigenous Australians aged 25–64 years had completed a certificate qualification. Fewer Indigenous Australians were currently studying at university/other higher education institutions in 2008 compared with non-Indigenous Australians (3% and 6% respectively), particularly in the younger age groups. Much lower proportions of Aboriginal and Torres Strait Islander persons had a bachelor degree or above as their highest level of non-school qualification (7%) compared with non-Indigenous Australians (25%).

Vocational education and training (VET) courses are providing large numbers of Aboriginal and Torres Strait Islander peoples with non-school education training opportunities. During the year 2008, there were approximately 9,660 course completions in the VET sector by Indigenous Australians aged 15 years and over. This constitutes 3% of the Indigenous population aged 15 years and over compared with 2% for other Australians.

Between 1996 and 2008, there was an increase in the proportion of Indigenous students and other students who had completed a course in the VET sector and the magnitude of the increase among Indigenous students was considerably higher. In 2008, the VET load pass rate for Indigenous students was 70% compared with 80% for non-Indigenous students.

During 2008, 0.4% of Aboriginal and Torres Strait Islander Australians completed a course in the higher education sector compared with 1.3% of other Australians. In the 22–24 year age group, 0.9% of Indigenous Australians completed a course in the higher education sector compared with 8% of other Australians. The gap narrows in the older age groups indicating that Indigenous students completing higher education courses have an older age profile than other students.

**IMPLICATIONS:** Despite improvements in recent years there are still large gaps between Indigenous Australians and other Australians in educational participation and attainment. The greatest improvements have been in the VET sector where Indigenous participation exceeds non-Indigenous participation. However there are continuing large gaps in the university sector and in course completion rates for both VET and university.

A specific target agreed to by COAG aims to halve the gap for Aboriginal and Torres Strait Islander students in Year 12 or equivalent attainment rates by 2020.

The *National Aboriginal and Torres Strait Islander Education Policy* includes a number of goals relevant to this performance measure including equality of access, participation, involvement and outcomes for Aboriginal and Torres Strait Islander students.

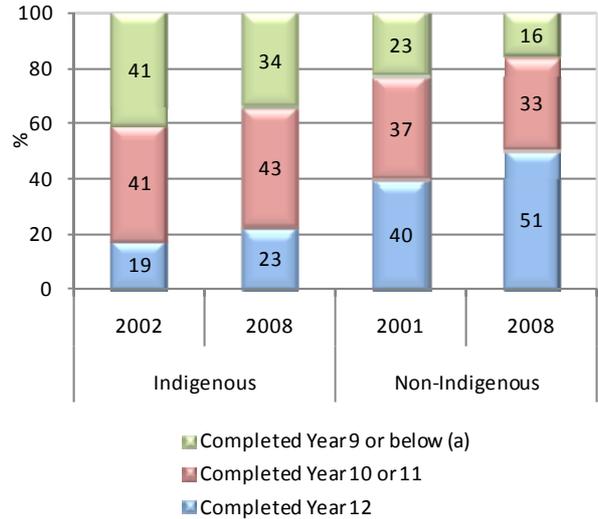
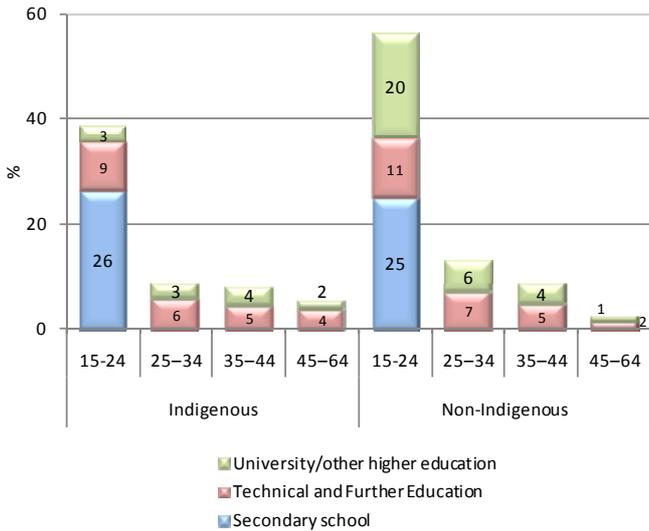
The Australian Government is the primary funding source and developer of policy relating to the higher education sector. A range of measures are in place to support Indigenous students in higher education including: the *Indigenous Support Program*, *Indigenous Higher*

*Education Centres and Tutorial Assistance.* Funding to support Indigenous students in the VET sector is also available (e.g. Supplementary Recurrent Assistance, Infrastructure and Tutorial Assistance). The universities with the highest success have formal policies for encouraging Indigenous students, allocated places and

specific pathways as well as support strategies (Drysdale et al. 2006). There remains a strong need to focus efforts on supporting Indigenous students to complete higher education qualifications to bridge the gap in participation and attainment.

**Figure 81 – Educational institution currently attended, by Indigenous status and age group, persons aged 15 years and over, 2008**

**Figure 82 – Highest level of school completed, by Indigenous status, persons aged 18 years and over, 2002 and 2008**



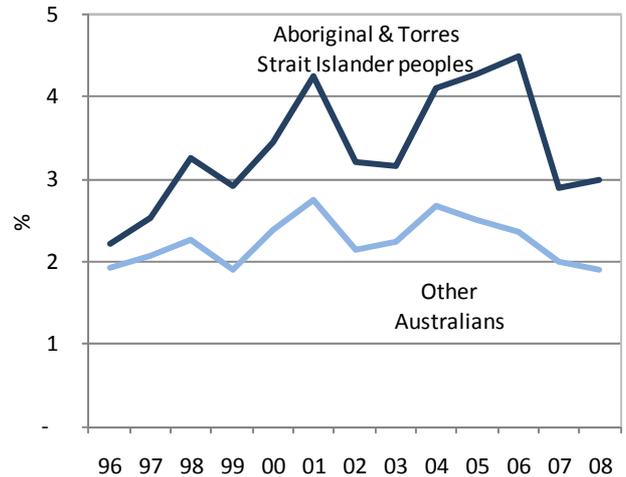
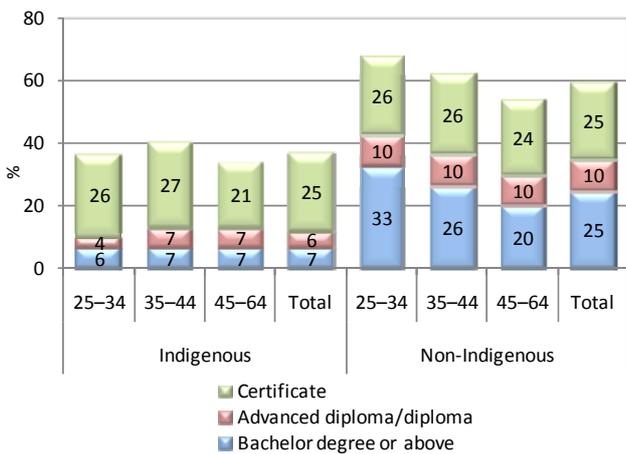
(a) Includes persons who never attended school.

Source: AIHW and ABS analysis of the 2008 NATSISS. Non-Indigenous estimates are from the NHS 2007–08

Source: AIHW and ABS analysis of the 2002 and 2008 NATSISS. Non-Indigenous estimates are from the NHS 2001 and 2007–08

**Figure 83 – Highest non-school qualifications, by Indigenous status and age group, persons aged 25–64 years, 2008**

**Figure 84 – Total completions in the VET sector for persons aged 15 years and over, by Indigenous status, 1996 to 2008**



Source: AIHW and ABS analysis of the 2008 NATSISS. Non-Indigenous estimates are from the NHS 2007–08

Source: AIHW analysis of National Centre for Vocational Education Research, National VET Provider Collection 2008

## 2.07 Employment status

**WHY IS IT IMPORTANT?:** Participation in employment has important consequences for living standards and social and emotional wellbeing, including self-esteem, opportunities for self-development and participation in the community. There are also strong associations between socioeconomic factors such as employment status and health (Marmot & Wilkinson 2006). Mathers and Schofield concluded that there was 'consistent evidence from different types of studies that unemployment is associated with adverse health outcomes and ... unemployment [can have] a direct effect on health over and above the effects of socioeconomic status, poverty, risk factors, or prior ill health' (Mathers & Schofield 1998). McLure (2000) noted that long periods out of the workforce can have negative effects on an individual's health (both physical and psychological). A recent research project reported good health outcomes in people employed in *Indigenous Natural and Cultural Resource Management* programs (Garnett & Sithole 2007).

There are three key measures of employment participation: the labour force participation rate, the unemployment rate and the employment to population ratio (or employment rate). The labour force includes all people contributing to, or willing to contribute to, the supply of labour. This includes the employed (people who have worked for at least 1 hour in the reference week and the unemployed (people who are without work, but are actively looking for work and available to start work within 4 weeks). The remainder of the population is not in the labour force. The labour force participation rate is calculated as the number of people in the labour force as a proportion of total people. The unemployment rate is calculated as the number of people unemployed as a proportion of the total labour force. The employment rate is the proportion of employed people as a proportion of the total population.

Under the recent changes to the Community Development Employment (CDEP) scheme, all new participants in the program are now classified as being in receipt of income support rather than being in receipt of CDEP wages. By 20 June 2011 all CDEP participants will be on income support. As a result of these changes, CDEP participants who do not have other paid employment, and who meet the criteria for being unemployed, will in future be classified as unemployed. CDEP participants who have not been looking for other paid work and are not available to work, will be classified as not in the labour force.

**FINDINGS:** Labour force participation by Aboriginal and Torres Strait Islander peoples remains lower than for other Australians. In 2008, the labour force participation rate for Indigenous persons aged 15–64 years was 65%, compared with 79% for non-Indigenous persons in the same age range. In the 2008 NATSISS the Indigenous employment rate was 54% compared with 76% for the non-Indigenous working age population. For the purposes of this survey Indigenous employed persons included those participating in the CDEP scheme, which

accounted for 6% of the working age population. Of Indigenous people who were in the labour force, 17% were unemployed, which was over 4 times as high as the rate for other Australians (4%).

In 2008, labour force participation rates for Indigenous Australians ranged from 72% for those aged 35–44 years to 40% for those aged 55–64 years. These variations mirror the age-related variations in labour force participation by non-Indigenous persons. Proportions of Indigenous Australians participating in the labour force are lower than the corresponding proportions of non-Indigenous persons across all age groups. Participation rates are lower for Indigenous females (55%) than males (75%).

Between 2001 and 2008, Indigenous employment increased from 44% to 54% of the working age population. The overall workforce participation rate also increased from 52% to 65% of the working age population. However, at the same time the proportion of people unemployed increased from 7% to 11%.

In 2008, Indigenous employment was high in major cities compared with regional and remote settings (59% compared to 51% and 52% respectively). In remote areas, participation in CDEP programs was high (19%) compared with non-remote areas (1%). Most CDEP participants were employed on a part-time basis.

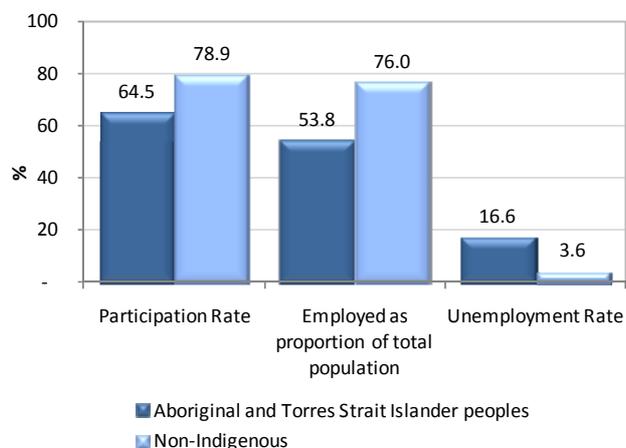
**IMPLICATIONS:** Despite improving trends in Indigenous employment there is still a significant gap. In March 2008, COAG committed to halve the gap between Indigenous and non-Indigenous employment outcomes within a decade (COAG 2008a). Achieving the target will require concerted additional effort to:

- build incentives and skills for those currently not in the labour force
- increase the skills of the unemployed
- up-skill those currently in a job for career development
- ensure that Indigenous youth complete school and transition successfully into a job.

Transition from education into sustainable employment will be aided by the achievement of educational attainment targets set by COAG. As a large employer, the health sector has a role to play in assisting Indigenous Australians in this area.

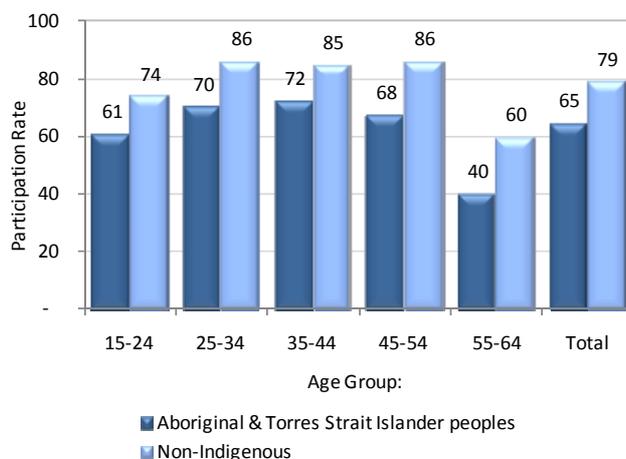
Other initiatives which will support the halving of the employment gap include the *National Partnership Agreement on Indigenous Economic Participation and the Indigenous Economic Development Strategy* (2010–18) which aims to improve work opportunities for Indigenous Australians across the private and public sectors. Through the *Australian Employment Covenant*, Australian employers, the Australian Government, and Indigenous people, aim to secure 50,000 sustainable jobs for Indigenous Australians and 50,000 workplace mentors. The reformed *Indigenous Employment Program* (\$750 million over 5 years) includes capital assistance, wage subsidies, cadetships and individually tailored assistance to help Indigenous job-seekers prepare for, gain and retain jobs.

**Figure 85 – Labour force status of persons aged 15–64 years, by Indigenous status, 2008 and 2007-08**



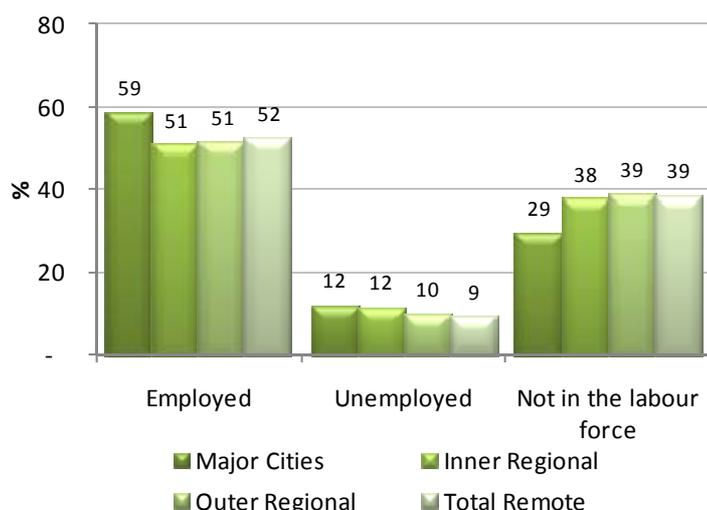
Source: ABS and AIHW analysis of 2008 NATSISS. Non-Indigenous data are from the 2008 and 2007-08 NHS

**Figure 86 – Persons aged 15–64 years: labour force participation, by Indigenous status and age, 2008 and 2007-08**



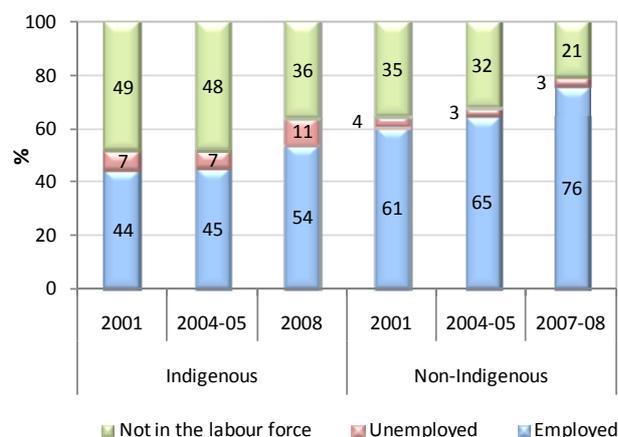
Source: ABS and AIHW analysis of 2008 NATSISS. Non-Indigenous data are from the 2008 and 2007-08 NHS

**Figure 87 – Labour force status, by remoteness, Indigenous persons aged 15–64 years, 2008**



Note: Unemployed are shown as proportions of total persons aged 15–64 years  
Source: ABS and AIHW analysis of 2008 NATSISS

**Figure 88 – Labour force status of persons aged 15–64 years, by Indigenous status, 2001, 2004–05 and 2008 and 2007-08**



Source: ABS and AIHW analysis of 2001 NHS (Indigenous supplement), 2004–05 NATSIHS, 2004–05 NHS, 2008 NATSISS and 2007-08 NHS

**Table 43 – Labour force status of Indigenous persons aged 15–64 years, by remoteness, 2008**

	Remote	Non-remote	Australia
<b>Labour Force Status</b>	%	%	%
In the Labour Force (Participation Rate)	61.5	65.5	64.5
Employed CDEP	19.4	1.2	5.6
Employed non-CDEP	33.0	53.1	48.2
<i>Total Employed</i>	52.4	54.3	53.8
Unemployed (% of Total Population)	9.2	11.2	10.7
Unemployment Rate (% of Labour Force)	14.9	17.2	16.6
Not in the Labour Force	38.5	34.5	35.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: ABS & AIHW analysis of 2008 NATSISS

## 2.08 Income

**WHY IS IT IMPORTANT?:** There is strong evidence, from Australia and other developed countries, that low socioeconomic status is associated with poor health (Turrell & Mathers 2000). Low income is associated with a wide range of disadvantages including poor health, shorter life expectancy, poor education, substance abuse, reduced social participation, crime and violence. People with lower socioeconomic status, including many Aboriginal and Torres Strait Islander people, bear a significantly higher burden of disease (Begg et al. 2007). The level of income inequality within a society has been suggested as a determinant of differential health outcomes (Wolfson et al. 1999). There are several competing explanations as to how income affects socioeconomic status and the reason why low income contributes to poor health (Wagstaff & van Doorslaer 2000).

Disparity in income is one aspect of socioeconomic status through which Aboriginal and Torres Strait Islander peoples face disadvantage. Income is closely linked to other measures but most particularly employment status (measure 2.07), single-parent families (measure 2.12) and educational attainment (measures 2.04, 2.05 and 2.06).

In measuring and comparing income, it is important that various factors, such as the number of people living in a household, particularly children and other dependants, are taken into account. The statistical measure adopted here is equivalised gross household income which adjusts reported incomes to take these factors into account.

**FINDINGS:** In 2008 an estimated 49% of Aboriginal and Torres Strait Islander adults had incomes in the bottom 20% of equivalised gross weekly household incomes (i.e. adjusted for the numbers of adult and child occupants). The corresponding rate in 2006 was 40%. This compares with 20% of non-Indigenous adults. Only 5% of Indigenous adults lived in households with an equivalised gross weekly income in the top quintile (over \$1,380 per week) compared with 22% of non-Indigenous Australians.

In 2008, the mean equivalised gross weekly household income for Aboriginal and Torres Strait Islander Australians aged 18 years and over was \$580—less than two-thirds of the corresponding figure for non-Indigenous Australians (\$983).

After adjusting for inflation, there was an increase in the mean equivalised gross household income for Aboriginal and Torres Strait Islander households between 1994 and 2002 (\$24; 5% increase) and between 2002 and 2008 (\$111; 24% increase).

These national estimates mask considerable geographic variation. For example, the mean equivalised gross income for Indigenous adults in 2008 ranged from \$990

in the Australian Capital Territory to \$489 in the Northern Territory.

The proportion of Aboriginal and Torres Strait Islander adults in the lowest quintile of equivalised household income varied across jurisdictions, from 60% in the Northern Territory to 21% in the ACT. In all other jurisdictions, the proportion of Indigenous adults in the lowest quintile of equivalised household income was in the range 44% to 52%.

A much higher proportion of Indigenous adults living in remote areas, than in non-remote areas, were in the lowest quintile of equivalised household income (58% compared with 46%).

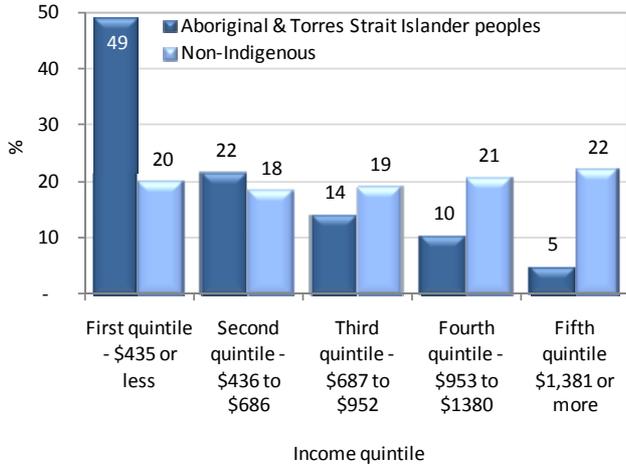
NATSISS 2008 found that 47% of Indigenous Australians aged 15 years and over were living in households which reported they could not raise \$2,000 within a week. Indigenous Australians in remote areas were more likely to report that they could not raise \$2,000 within a week than Indigenous Australians in major cities and regional areas (64% compared with 40% and 43% respectively). Approximately 28% of Indigenous Australians aged 15 years and over were living in households that had experienced days without money for basic living expenses in the last 12 months.

A clear indication of the relationship between low income and poorer health is provided by the 2008 NATSISS, which found that 46% of Indigenous people who assessed their health as fair or poor were in the lowest equivalised household income quintile. Relationships between income and educational attainment and employment are also evident. A higher proportion of non-Indigenous Australians reported better health in each income quintile compared with Indigenous Australians (see measure 1.15).

**IMPLICATIONS:** The large disparity in Aboriginal and Torres Strait Islander peoples' income compared with the non-Indigenous population has important implications for health. These include the capacity to access goods and services required for a healthy lifestyle, including adequate nutritious food, housing, transport and health care. Other factors that may exacerbate the situation faced by low income households include resource commitments to extended families and visitors (SCRGSP 2007).

Income discrepancies between states/territories and by remoteness are also an indicator of an uneven capacity to access services. Factors influencing the average levels of income and its distribution are generally beyond the influence of the health sector including education (measures 2.04, 2.05, 2.06) and employment (measure 2.07). A cross-portfolio approach is necessary for improving income distribution for Aboriginal and Torres Strait Islander peoples.

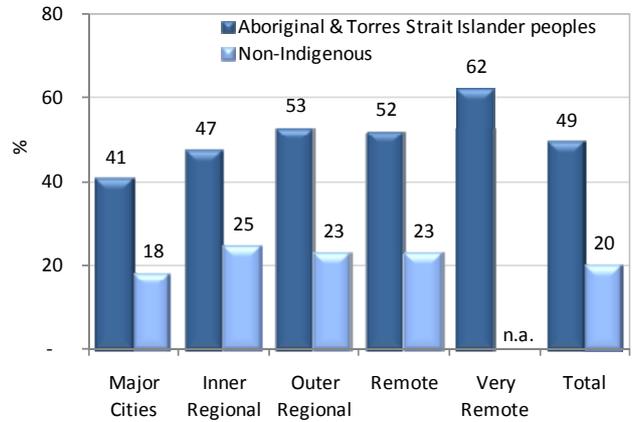
**Figure 89 – Proportion of persons aged 18 years and over in each equivalised gross weekly household income quintile, by Indigenous status, 2008**



Note: Equivalised gross weekly household income ranges for non-Indigenous vary slightly and are: first (0 to \$423); second (\$424 to \$666); third (\$667 to \$925); fourth (\$926 to \$1,341); and fifth (\$1,342 or more).

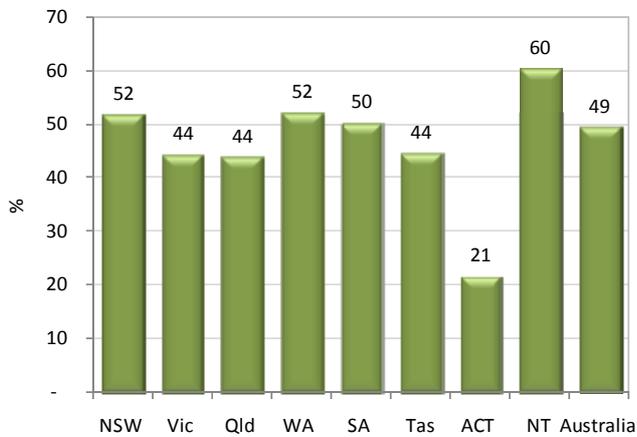
Source: ABS analysis NATSISS 2008 and Survey of Income and Housing 2007–08

**Figure 90 – Persons aged 18 years and over in the lowest quintile of equivalised gross weekly household income, by Indigenous status and remoteness, 2008**



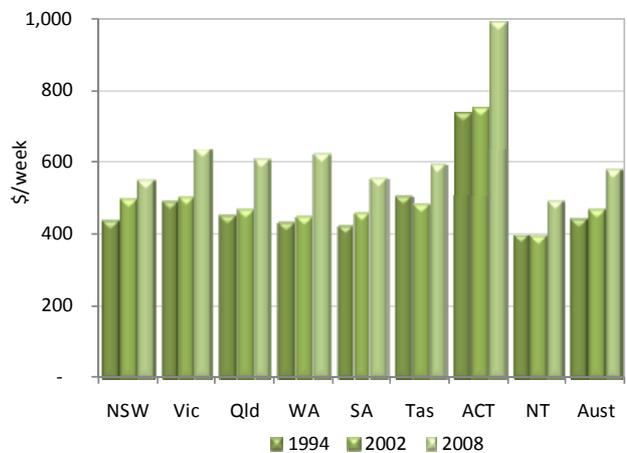
Source: ABS analysis NATSISS 2008 and Survey of Income and Housing 2007–08

**Figure 91 – Percentage of Aboriginal and Torres Strait Islander persons aged 18 years and over who were in the lowest quintile of equivalised gross weekly household income quintiles, 2008**



Source: ABS analysis of NATSISS 2008

**Figure 92 – Mean gross weekly equivalised household income, Indigenous Australians aged 18 years and over, by state/territory, 1994, 2002 and 2008**



Note: Data for 1994 and 2002 are CPI-adjusted to 2008 dollars.

Source: ABS analysis of NATSISS 2008

## 2.09 Housing tenure type

**WHY IS IT IMPORTANT?:** House tenure is associated with health outcomes including mortality and morbidity. People who own their own home typically experience better health than those who rent. There is a complex relationship between housing and health, and a number of inter-related factors. Housing tenure is also associated with socioeconomic status, with different levels of health hazards in the dwelling itself (e.g. overcrowding, structural problems) and the immediate environment (e.g. amenities, problems with crime) (AHURI 2010).

The health benefits of home ownership reflect the strong relationship between a person's socioeconomic status and their health (Mullins et al. 2001). Home ownership is closely linked to higher incomes and longer employment, is indicative of a strong savings history and past access to credit, and also represents a secure appreciating asset that can be used against future borrowings (SCRGSP 2007). 'Healthy homes' is one of seven strategic platforms identified by COAG as a 'building block' that needs to be in place in order to comprehensively address the current state of disadvantage. A healthy home is a fundamental precondition of a healthy population.

**FINDINGS:** In 2008, based on the National Aboriginal and Torres Strait Islander Social Survey, it was estimated that 33% of Indigenous households were home owners or purchasers, 33% were private and other renters, and 32% were renters of some form of social housing. This can be compared with data for non-Indigenous households from the 2007–08 National Health Survey, which show that 66% were home owner households, and 29% were renters.

In 2008, it was estimated that 29% of Indigenous persons aged 18 years and over lived in households that were owned or being purchased, 29% lived in households that were rented from the private sector, 23% lived in a property rented from a state housing authority and 17% were renting from an Indigenous Housing Organisation or other community housing provider. In comparison, 65% of non-Indigenous adults were home owners, and 29% were renters. For Aboriginal and Torres Strait Islander persons, home ownership was higher for older age groups, increasing from 22% for those aged 18–34 years to 36% for those aged 55 years and over.

Rates of Indigenous home ownership increased between 1994 and 2002 and between 2002 and 2008. The proportions of Indigenous people and households in privately rented properties have also increased during these periods. The proportion of Indigenous people and households renting from State/Territory housing authorities has fallen significantly between 1994 and 2008. These falls were partially offset by an increase in community or cooperative housing between 1994 and 2002, but since 2004 these forms of tenure have also fallen.

Lower rates of home ownership among Aboriginal and Torres Strait Islander peoples reflect both the lower socioeconomic status of many households and also that

some households live in remote areas on Indigenous land where individual home ownership has not been possible in the past. The pattern of housing tenure varies by remoteness. In 2008, in remote areas, 16% of Indigenous households were owned or being purchased compared with 36% in non-remote areas. In remote areas the largest category of housing was rentals through Indigenous Housing Organisations and other community housing providers (33%), whereas in non-remote areas this only represented 5% of Indigenous households. State and territory housing authority rentals were slightly higher in remote areas compared with non-remote areas (25% and 21% respectively), while private rentals were more common in non-remote areas (34%) compared with remote areas (20%).

In 2008, the Northern Territory had the lowest proportion of Indigenous home owner households (21%). The highest was in Tasmania (50%) followed by the ACT (48%) and Victoria (43%). There was a relatively high proportion of households renting from state/territory housing authorities in South Australia (34%), Western Australia (29%) and the Northern Territory (25%).

**IMPLICATIONS:** There is a complex relationship between housing and health and inter-related factors such as overcrowding (measure 2.02) and infrastructure (measure 2.01). Housing tenure is influenced by socioeconomic status e.g. income (measure 2.08) and employment (measure 2.07), and communal tenancy arrangements in some remote communities.

The Australian Government provides direct support to Indigenous Australians to purchase their own homes through financial literacy support and assisted loans by Indigenous Business Australia (IBA). IBA operates two programs assisting low-income Indigenous Australians to buy homes: the *Home Ownership Program* and the *Home Ownership on Indigenous Land Program*.

In May 2010, an issues paper on Indigenous home ownership was released to stimulate ideas and discussion about how government, the private sector and Indigenous communities can work together to provide greater opportunities and real choices for Indigenous people to own their own homes. The Australian Government also released its draft *Indigenous Economic Development Strategy* for consultation in May 2010. The draft strategy outlines a framework for Indigenous economic development, with home ownership a key priority.

The *National Partnership Agreement on Remote Indigenous Housing* will support the supply of safe and adequate housing in remote communities. The reform includes standardised tenancy arrangements for all remote Indigenous housing that include rent collection, asset protection, repairs, ongoing maintenance and governance arrangements consistent with public housing standards. The initiative includes progressive resolution of land tenure on remote community-titled land in order to secure investment and home ownership possibilities.

**Table 44 – Tenure type, households and persons, by Indigenous status, 2008**

	Persons aged 18 years and over			Households		
	Indig.		Non-Indig.	Indig.		Non-Indig.
	Number	%	%	Number	%	%
<b>Home owners:</b>						
Owned without a mortgage	25,232	8.7	27.3	17,460	9.9	29.3
Being purchased	59,180	20.5	37.9	39,811	22.6	36.5
<i>Total home owners</i>	<i>84,411</i>	<i>29.2</i>	<i>65.2</i>	<i>57,271</i>	<i>32.5</i>	<i>65.8</i>
<b>Renters:</b>						
Private and other landlord types	84,866	29.3	25.3	58,822	33.4	25.0
State/territory housing authority	67,127	23.2	2.9	38,258	21.7	3.9
Housing co-operative or church group	*1,804	*0.6	0.3	*992	*0.6	0.4
Indigenous Housing Organisation/Community housing	46,062	15.9	..	16,845	9.6	..
<i>Total renters</i>	<i>200,297</i>	<i>69.2</i>	<i>28.5</i>	<i>115,274</i>	<i>65.5</i>	<i>29.4</i>
Other tenure types	4,619	1.6	6.3	3,436	2.0	4.8
<b>Total stated</b>	<b>289,327</b>	<b>100.0</b>	<b>100.0</b>	<b>175,981</b>	<b>100.0</b>	<b>100.0</b>
Tenure type not stated	1,610	-	-	990	-	-
<b>Total (including 'not stated')</b>	<b>290,937</b>	<b>100.0</b>	<b>100.0</b>	<b>176,971</b>	<b>100.0</b>	<b>100.0</b>

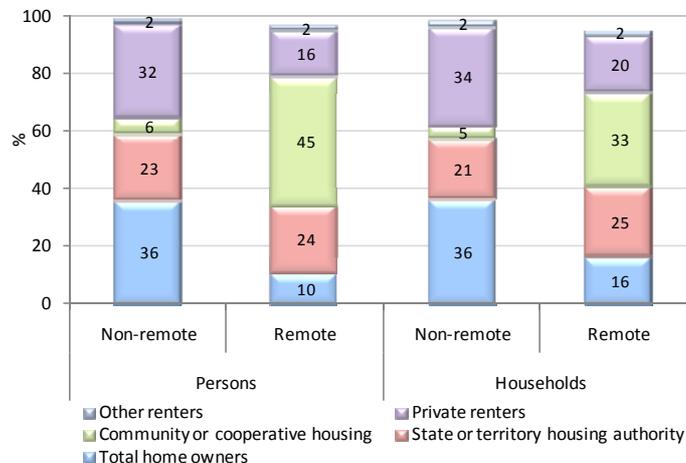
Source: AIHW and ABS analysis of National Aboriginal and Torres Strait Islander Social Survey 2008  
Non-Indigenous data from the National Health Survey 2007–08

**Table 45 – Tenure type, Indigenous households and persons, 1994, 2002 and 2008**

	Persons aged 18 years and over			Households		
	1994	2002	2008	1994	2002	2008
	%	%	%	%	%	%
<b>Home owners</b>						
Owned without a mortgage	10.9	10.0	8.7	12.7	10.8	9.9
Owner with a mortgage	10.6	16.5	20.3	12.8	19.7	22.5
<i>Total home owners</i>	<i>21.5</i>	<i>26.5</i>	<i>29.0</i>	<i>25.5</i>	<i>30.5</i>	<i>32.4</i>
<b>Renters</b>						
Private and other landlord types	21.1	24.2	29.2	23.0	28.2	33.2
State/territory housing authority	33.3	21.2	23.1	34.8	22.7	21.6
Community or cooperative housing	16.5	24.2	16.5	11.0	14.8	10.1
<i>Total renters</i>	<i>71.5</i>	<i>69.6</i>	<i>68.8</i>	<i>69.1</i>	<i>65.7</i>	<i>65.1</i>
Other	5.2	3.9	1.6	3.9	3.7	1.9
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: ABS and AIHW analysis of 1994 NATSIS, 2002 NATSISS & 2008 NATSISS

**Figure 93 – Tenure type by remoteness, proportion of Indigenous persons and households, 2008**



Note: Excludes tenure type 'not stated' and 'Other tenure types'

Source: AIHW analyses of 2008 NATSISS

## 2.10 Index of disadvantage

**WHY IS IT IMPORTANT?:** The links between poverty, unemployment, poor education, racism and consequent social dysfunction, stress, social exclusion, and poor health are well documented (Wilkinson & Marmot 2003; Marmot 2005; Paradies 2006; Saunders & Davidson 2007; Sassi 2009). This performance measure is a composite measure (an index) of advantage/disadvantage. It provides a broad basis for tracking progress in addressing Indigenous disadvantage across the spectrum of determinants of health.

The ABS has developed indexes to allow measurement of relative socioeconomic status at a small area level (Adhikari 2006). These indexes summarise a range of socioeconomic variables associated with advantage and disadvantage such as the proportion of families with high incomes, people with a tertiary education, and employees in skilled occupations. The indexes provide an estimate of relative advantage and disadvantage and are available for both urban and rural areas. Scores are calculated for each area. Areas are then sorted by score and grouped into 5 or 10 groups (quintiles or deciles). Low values indicate areas of disadvantage, and high values indicate areas of advantage.

**FINDINGS:** In 2006, Aboriginal and Torres Strait Islander peoples were over-represented in the three most disadvantaged deciles, ranked according to the ABS's SEIFA Index of Relative Socio-Economic Advantage/Disadvantage. For example, 31% of Indigenous Australians lived in the most disadvantaged decile areas, compared with 9% of the non-Indigenous population. Only 1% of Indigenous Australians lived in areas in the most advantaged decile.

Analysis at the jurisdiction level suggests that in all states and territories a greater proportion of the Indigenous Australian population lived in the most disadvantaged quintile compared with the non-Indigenous population. The Northern Territory had the highest proportion (58%) and the Australian Capital Territory the lowest proportion (27%) of Aboriginal and Torres Strait Islander people living in the most disadvantaged quintile areas. New South Wales had the lowest proportion (3%) and the Australian Capital Territory the highest proportion (10%) of Indigenous Australians living in the most advantaged quintile areas.

These results need to be interpreted with caution. Indigenous Australians often represent a small proportion of each Statistical Local Area (SLA) and therefore the socioeconomic status of the area will not

always reflect the socioeconomic status of Indigenous Australians who live in the area. An analysis commissioned from the ABS's 2001 census-based SEIFA Index of Advantage/Disadvantage (Kennedy & Firman 2004), shows that Indigenous Australians in Queensland have a high level of socioeconomic disadvantage regardless of whether they live in SLAs classified at area-level as having high or low socioeconomic status. The methodology used took the same weights developed for the overall SEIFA Index of Relative Socio-Economic Advantage/Disadvantage, but generated a separate score for Indigenous Australians compared with non-Indigenous Australians in each area. The results found that 93% of Aboriginal and Torres Strait Islander people in Queensland were in the lowest decile for disadvantage. Of the approximately 126,000 Aboriginal and Torres Strait Islander people living in Queensland in 2001, fewer than 2,000 had SEIFA scores in the top 5 deciles, even though 35,000 live in SLAs coded to SEIFA scores in the top 5 deciles.

In future versions of the HPF, it may be possible to report on SEIFA scores calculated for individuals rather than at the SLA level (Baker & Adhikari 2007).

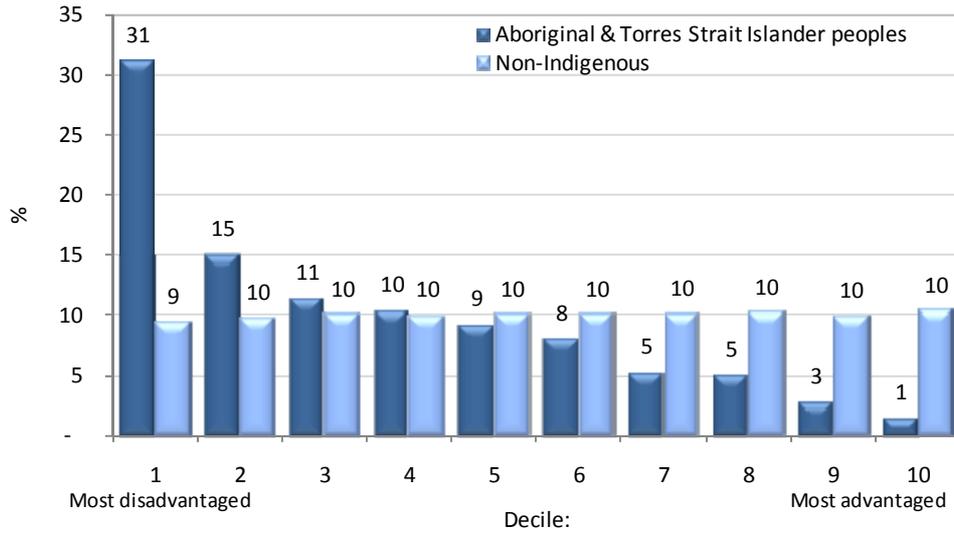
**IMPLICATIONS:** This summary measure of disadvantage supplements what is known and reported in other measures about the relative disadvantage that Aboriginal and Torres Strait Islander peoples experience across a wide spectrum. Government policies to address social and economic disadvantages faced by Indigenous people are a vital component in closing the gap in health.

Poor health can also be a contributor to poor socioeconomic circumstances, in addition to being an outcome of those circumstances. A recent Australian study of people with serious chronic illnesses highlighted the financial stressors placed on people with these conditions and their carers (Jeon et al. 2009).

COAG has set six targets to close the gap in Indigenous disadvantage across health, education and economic participation. The commitments governments have made in this area are reflected in the *National Indigenous Reform Agreement* and the related national partnership agreements.

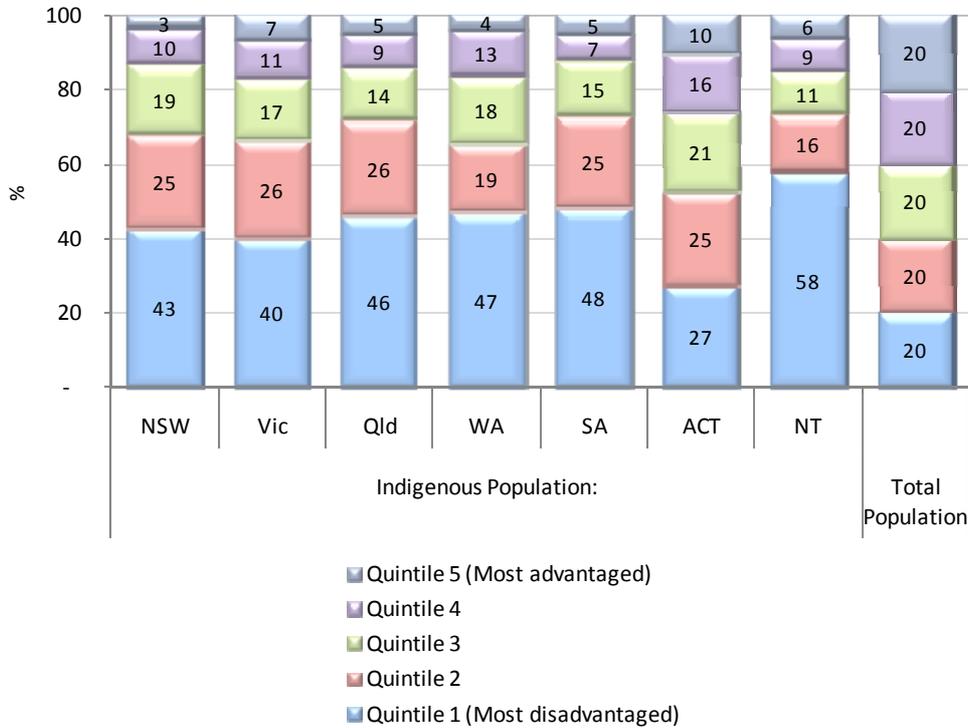
This measure will be a useful summary measure of progress in closing the gap in Indigenous life chances that are known to impact on health. However, it should be noted the measure can only be estimated every five years with each Australian census.

Figure 94 – Population distribution by SEIFA advantage/disadvantage decile, by Indigenous status, 2006



Source: AIHW analysis of ABS 2006 Census of population and housing

Figure 95 – Population distribution by SEIFA advantage/disadvantage quintiles, Indigenous population by state/territory and total population (Indigenous and non-Indigenous, 2006)



Source: AIHW analysis of ABS 2006 Census of population and housing

## 2.11 Dependency ratio

**WHY IS IT IMPORTANT?:** The dependency ratio is a demographic indicator which measures the ratio of the economically active section of the population to the economically inactive sector. There is an association between high dependency ratios (proportionately lower numbers of economically active people) and poverty is a strong determinant of poor health.

Traditionally dependency ratios are the ratio of people aged under 15 years (youth dependency) or 65 years and over (aged dependency), to people aged 15 to 64 years. Factors that impact on the usefulness of dependency ratios as a tool for policy analysis include the impact of economically active children or people aged 65 years and over, and people aged 15 to 64 years who are not economically active.

For Indigenous Australians the dependency ratio is less clear-cut as an indicator. The combined dependency ratio for Indigenous Australians is mainly influenced by the relatively high proportion of children, whereas the combined ratio for the non-Indigenous and total populations is much more strongly influenced by the relatively high proportion of older people. Therefore, it is necessary to calculate separately the youth and age dependency ratios for the Indigenous Australian population and compare these with the same ratios for other Australians. The youth dependency ratio for Aboriginal and Torres Strait Islander society is a measure of the burdens associated with child rearing and provision of support to dependent adolescents.

It is important to note that this measure does not take into account Aboriginal and Torres Strait Islander children who have one non-Indigenous parent. Such cases will tend to exaggerate the Indigenous youth dependency ratio.

**FINDINGS:** In 2010, 35% of Aboriginal and Torres Strait Islander Australians were aged under 15 years compared with 19% of non-Indigenous Australians. People aged 65 years and over made up 3% of the Indigenous population and 14% of the non-Indigenous population. The structural differences in the two

populations reflect the impact of the higher fertility experience of the Aboriginal and Torres Strait Islander population and higher mortality rates which result in deaths occurring at younger ages (see measures 1.18 and 1.22). In 2010, the youth dependency ratio was estimated to be 0.57 for Aboriginal and Torres Strait Islander people compared with 0.27 for non-Indigenous Australians. For Indigenous Australians, this ratio has fallen from 0.63 in 2006—a statistically significant decrease. For non-Indigenous Australians the ratio was 0.28 in 2006.

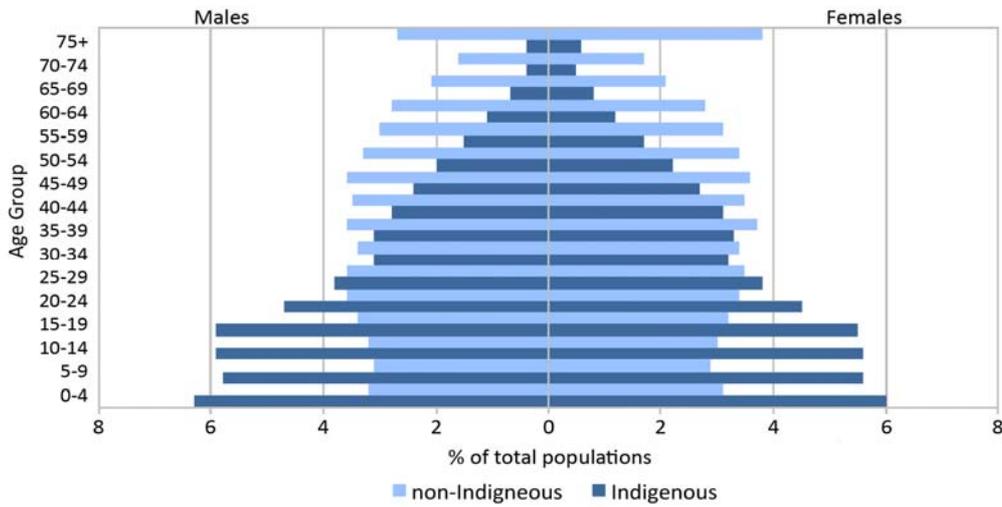
In 2010, the aged dependency ratio was estimated to be 0.05 for Aboriginal and Torres Strait Islander people, the same as in 2006. For non-Indigenous Australians the aged dependency ratio was estimated to be 0.21 in 2010, increasing from 0.20 in 2006.

For the Indigenous Australian population, both the overall dependency ratio and the youth dependency ratio were higher in inner and outer regional areas than in either major cities or remote/very remote areas. There was little difference between the Indigenous aged dependency ratios across remoteness categories.

**IMPLICATIONS:** The high youth dependency ratios in the Aboriginal and Torres Strait Islander population impact on the socioeconomic circumstances of Indigenous families and households, however, the youth dependency ratio is declining over time.

Health and other services for children and young people need to be adequately resourced and delivered in culturally sensitive ways due to the younger age profile of the Aboriginal and Torres Strait Islander population. The younger age structure represents an opportunity to implement strategies that could lead to a sustainable improvement in the health of Aboriginal and Torres Strait Islander peoples as the large cohort of children and young people ages into the future. With well designed and delivered antenatal care and early childhood programs, along with effective interventions helping young adults to adopt healthy behaviours, there is a tremendous opportunity to temper the emergence of chronic illnesses in younger people.

Figure 96 – Population profile by Indigenous status, age and sex, 2010



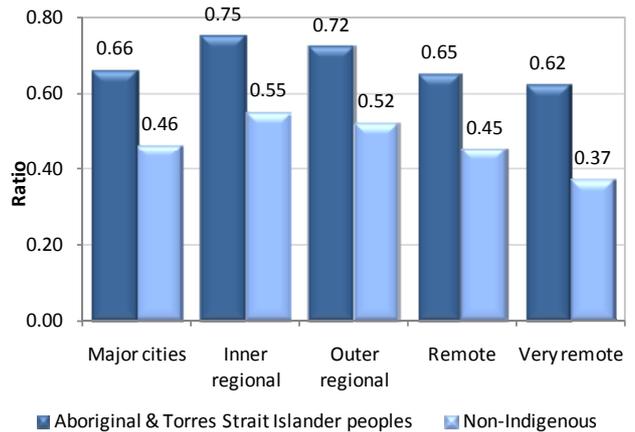
Source: AIHW analysis of ABS population estimates based on 2006 Census of Population and Housing

Table 46 – Total and Youth and Aged Dependency Ratios, by remoteness and Indigenous status, 2006

	Major cities	Inner regional	Outer regional	Remote	Very remote
<b>Indigenous</b>					
Dependency ratio	0.66	0.75	0.72	0.65	0.62
Youth dependency ratio	0.62	0.70	0.66	0.60	0.56
Aged dependency ratio	0.05	0.05	0.05	0.05	0.06
<b>Non-Indigenous</b>					
Dependency ratio	0.46	0.55	0.52	0.45	0.37
Youth dependency ratio	0.27	0.31	0.31	0.30	0.26
Aged dependency ratio	0.18	0.24	0.21	0.15	0.11

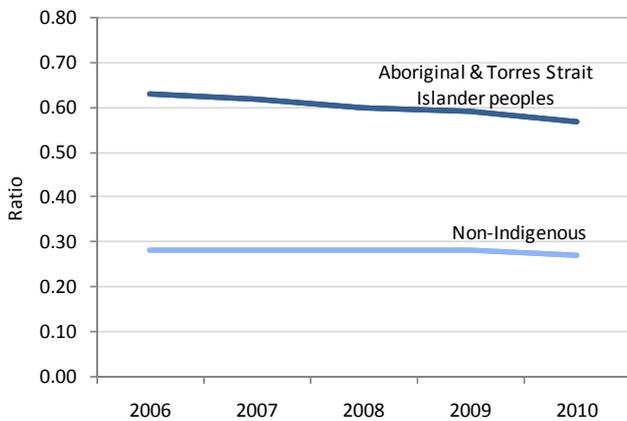
Source: AIHW analysis derived from ABS population estimates based on the 2006 Census of Population and Housing

Figure 97 – Total Dependency Ratios, by remoteness and Indigenous status, 2006



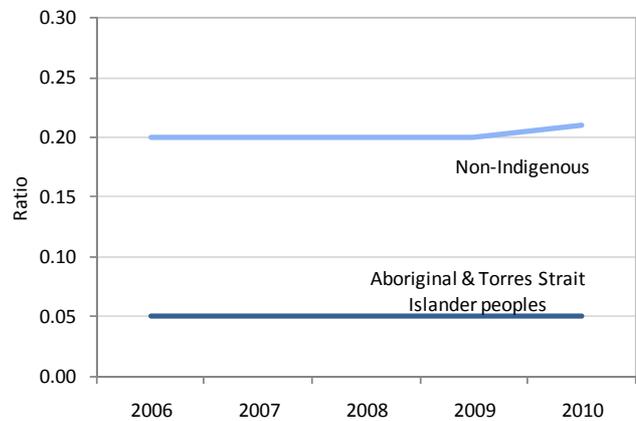
Source: AIHW analysis derived from ABS population estimates based on the 2006 Census of Population and Housing

Figure 98 – Youth Dependency Ratio, by Indigenous status, 2006–2010



Source: AIHW analysis derived from ABS population estimates based on the 2006 Census of Population and Housing

Figure 99 – Aged Dependency Ratio, by Indigenous status, 2006–2010



## 2.12 Single-parent families

**WHY IS IT IMPORTANT?:** Being a child in a single-parent family is one of the risk factors for wellbeing, and health tends to be associated with others, such as low socioeconomic status, low educational attainment, and lack of social support and social networks.

Aboriginal and Torres Strait Islander children are twice as likely to live in single-parent families as non-Indigenous children, although there are several considerations which need to be taken into account when discussing Aboriginal and Torres Strait Islander single-parent families. While the term 'sole parent' might describe parental status, it does not adequately describe residential or domestic arrangements in Indigenous Australian families. Senior Indigenous Australian women, who have often been sole parents themselves, play an influential role in household structures and economies. Sole parents are not necessarily isolated from family support and assistance and, perhaps more importantly, their extended kin networks act as an important reservoir of support and care for their children (Daly & Smith 1999; Daly & Smith 2005). Aboriginal and Torres Strait Islander single-parent families may arise in different ways from non-Indigenous single-parent families, have different characteristics, and result in different outcomes for children (Daly & Smith 1998; Taylor & Bell 1999; Hunter & Smith 2000).

**FINDINGS:** In 2006, approximately 46,050 Indigenous families were one-parent families with dependent children. This was 32% of all of Indigenous families and 47% of Indigenous families with dependent children. Almost half of the 178,000 dependent children living in Indigenous families (45%) lived in one-parent families. In comparison, 20% of dependent children living in non-Indigenous families lived in one-parent families.

Approximately 15% of Indigenous households of Aboriginal and Torres Strait Islander people with dependent children had 4 or more children usually resident, compared with 5% of other households.

In 2008, when compared with other Indigenous Australians, a higher proportion of Indigenous single

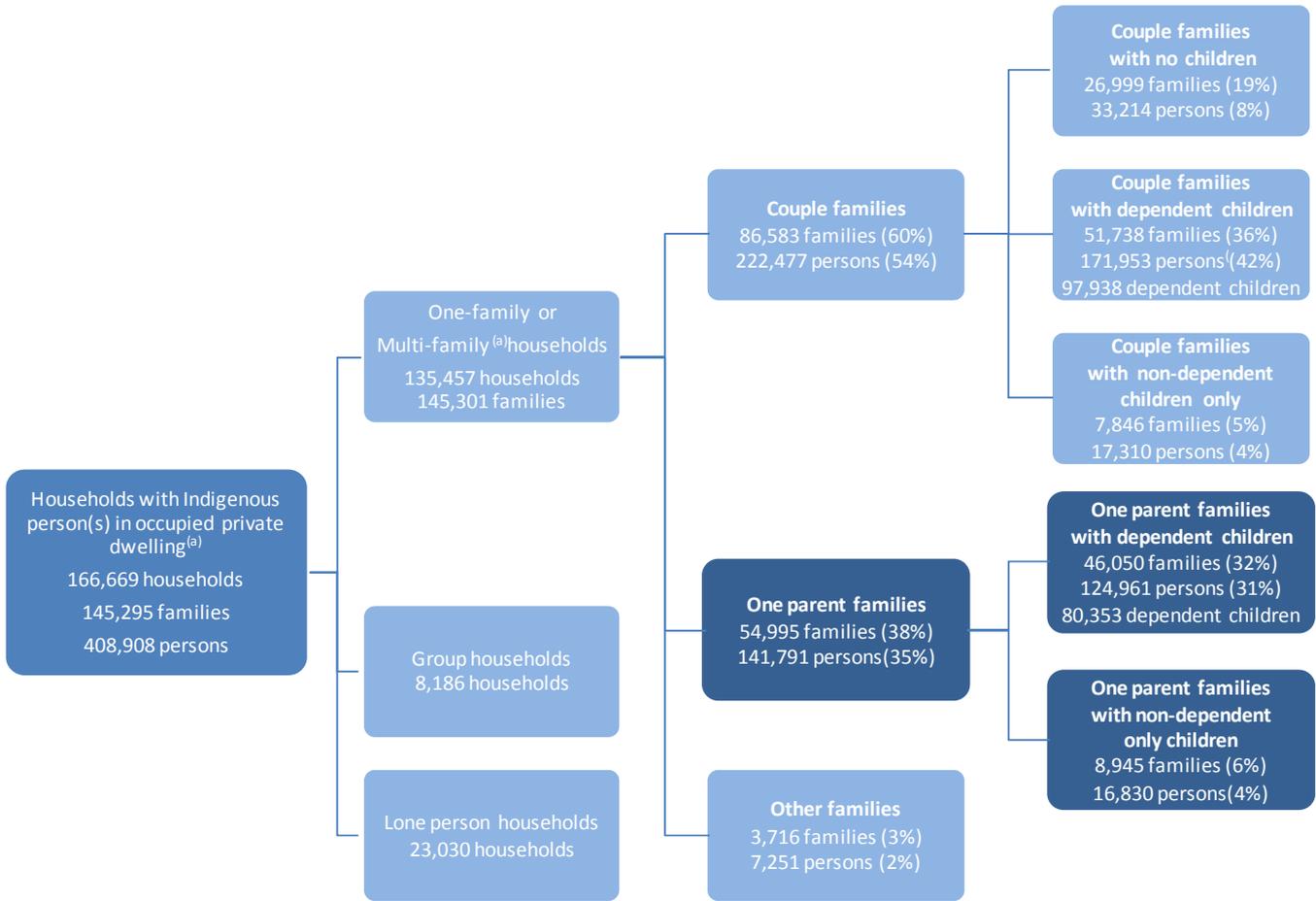
parents reported: fair/poor health status (27% compared with 21%); that they had left school prior to Year 12 (83% compared with 79%); that they were not in the labour force (55% compared with 35%); renting (86% compared with 66%); and being unable to raise \$2000 within a week (69% compared with 48%). Approximately 66% of Indigenous single parents had experienced one or more stressors in the previous 12 months compared with 56% of other Indigenous persons aged 15 years and over.

In 2006, of the 166,669 Indigenous households, 126,693 (76%) were one family households, 23,030 (14%) were lone person households, 8,186 (5%) were group households and 8,764 (5%) were multifamily households. The corresponding proportions for the total population were 70%, 24%, 3% and 1% respectively.

Research also suggests that Indigenous Australian children are more likely to experience parental incarceration than non-Indigenous children (Quilty et al. 2004). Findings from measure 2.14 should be considered in the context of the broader societal consequences of exposure to the criminal justice system and the way this impacts on the health and wellbeing of families.

**IMPLICATIONS:** Functional and resilient families and communities are generally seen as being fundamental to the physical and mental health of adults and children. Characteristics of such families and communities may include: a caring, protective and supportive environment; positive health outcomes; and cultural awareness (SCRGSP 2007). The members of single-parent families can face a range of disadvantages. However, this measure needs to be interpreted carefully in the context of different family composition in Aboriginal and Torres Strait Islander society. Available data may not adequately reflect the extent to which family arrangements provide an environment that is conducive to positive health outcomes. This measure should be considered in conjunction with other measures of community capacity, such as the community functioning measure (measure 1.14).

Figure 100 – Household and family composition, Indigenous population, 2006



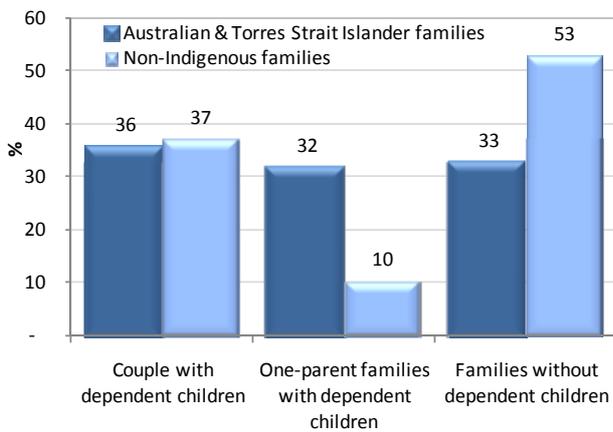
(a) Households occupied by usual residents, where household could be classified

(b) Households with 2 or more families

Dependent children are defined as children under 15 years of age, or those aged 15–24 years who were full-time students

Source: ABS and AIHW analysis of 2006 Census of population and housing

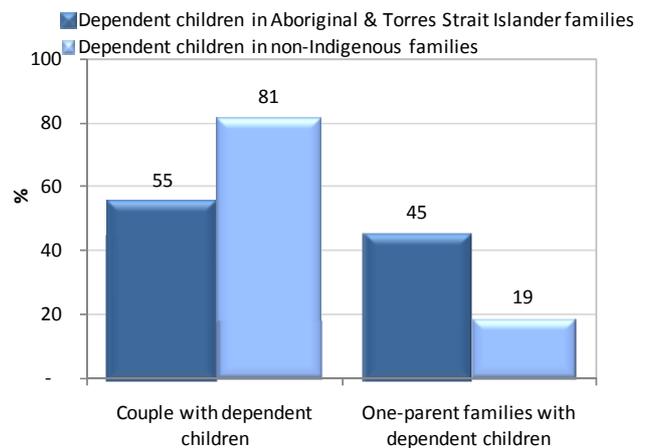
Figure 101 – Selected family types as a proportion of all families, by Indigenous family<sup>(a)</sup> status, 2006



(a) Aboriginal & Torres Strait Islander families are families where a parent and/or child(ren) is Aboriginal or Torres Strait Islander

Source: ABS and AIHW analysis of 2006 Census of population and housing

Figure 102 – Proportion of dependent children living in Aboriginal & Torres Strait Islander<sup>(a)</sup> and non-Indigenous families by family type, 2006



(a) Families where a parent and/or child(ren) are Aboriginal & Torres Strait Islander

Source: ABS and AIHW analysis of 2006 Census of population and housing

## 2.13 Community safety

**WHY IS IT IMPORTANT?:** Experiencing threatened violence, or being in an environment where personal safety is at risk, or in a social setting where violence is common, has negative health effects. These effects have been noted amongst Indigenous peoples in Australia (Willis 2010).

Wilkinson (1999) discusses the relationship between income inequality and violence and also notes the link between experience of discrimination and racism and high levels of family violence found in marginalised and oppressed groups. The level of violence in Indigenous societies must be seen in the context of colonisation, post-colonial history and discrimination, and subsequent markers of disadvantage such as low income, unemployment, lack of access to traditional lands, and substance use. Krug et al. (2002) notes that 'violence is the result of the complex interplay of individual, relationship, social, cultural and environmental factors'.

The Burden of Disease and Injury study (Vos et al. 2007) ranked homicide and violence as the tenth largest contributor to total burden for Indigenous Australians. As a health risk factor, intimate partner violence was responsible for 5.4% of the burden for Indigenous females, having its impact not only through homicide and violence but also anxiety and depression, heart disease, suicide and other diseases.

**FINDINGS:** In 2008, 24% of Aboriginal and Torres Strait Islander people aged 18 years and over reported they were a victim of physical or threatened violence in the last 12 months. The proportion declined with age, from 33% of those aged 18–24 years to 8% of those aged 55 years and over. After adjusting for differences in age structure, Indigenous Australians aged 18 years and over were twice as likely to report being victims of physical or threatened violence in the last 12 months as non-Indigenous Australians.

Indigenous adults who had been arrested in the last five years were more likely to be a victim of physical or threatened violence (32%) (see measure 2.14) than those who had not. Those aged 15 years and over living in remote areas were slightly less likely than those in non-remote areas to report being a victim of physical or threatened violence in the last 12 months (22% compared with 25%) but they were more likely to report assault as a community problem (37% compared with 19%). After adjusting for age structure between the two populations, Indigenous males were 1.6 times as likely as non-Indigenous males to report having been a victim of physical or threatened violence. Similarly, Indigenous females were two and a half times as likely as non-Indigenous females to report having been victimised.

The rate of males and females hospitalised for the principal diagnosis of assault during the period July 2006 to June 2008 were similar (11 per 1,000). After adjusting for differences in the age structure between the Indigenous and non-Indigenous populations, Indigenous males were 7 times as likely to have been hospitalised

for assault than were other males, and Indigenous females were 36 times as likely to have been hospitalised than other females. (See also measure 1.03.)

In Qld, WA, SA and the NT combined, Indigenous age-standardised hospitalisation rates for the principal diagnosis of assault declined by 11% for males and by 4% for females over the period 2001–02 to 2007–08. This decline has seen a narrowing of the gap between Indigenous and other Australians for this measure.

In the period July 2006 to June 2008, hospitalisation rates for assault were highest for Indigenous Australians aged 25–44 years. In these age groups, rates for Indigenous Australians are 13 to 18 times higher than for non-Indigenous people.

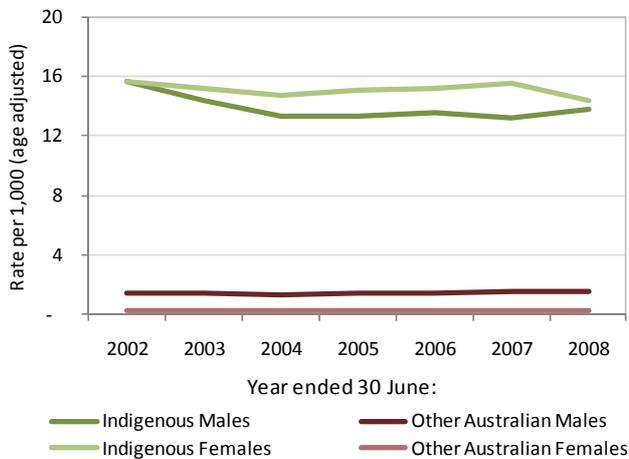
A similar pattern is evident in deaths related to assault. There were 139 Indigenous deaths in 2004–08 due to assault. The mortality rate for assault for Indigenous Australians was around 9 times the rate of other Australians in this period. Mortality rates for assault were highest among those aged 25–44 years in both the Indigenous and non-Indigenous populations. However, Indigenous Australians in this age range died from assault at 12 to 13 times the rate of non-Indigenous Australians in the same age groups.

**IMPLICATIONS:** Aboriginal and Torres Strait Islander peoples are much more likely to be a victim of violence and to be hospitalised for injuries arising from assault. Women and men experience these problems at a similar level. Compared with other women, Indigenous women experience vastly higher rates of violence. Poor community safety is a major contributor to the burden of disease for Aboriginal and Torres Strait Islander peoples.

The *Family Violence Prevention Legal Services Program* provides assistance to Indigenous victim-survivors of family violence and sexual assault through the provision of legal assistance, court support, casework and counselling.

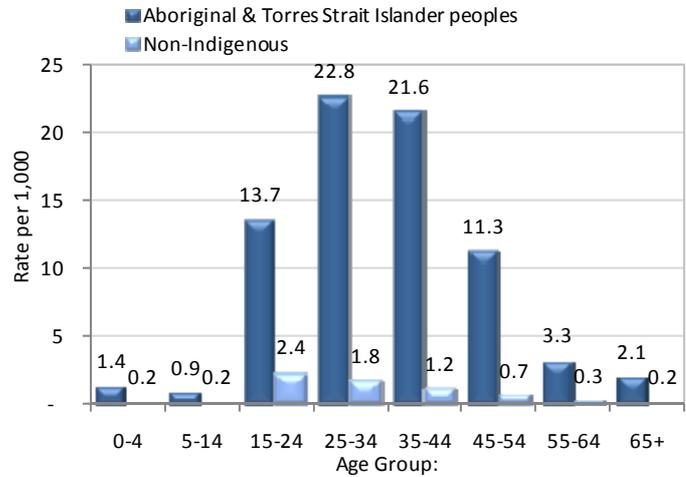
All governments have committed to the development of the *National Plan to Reduce Violence Against Women and Children*, which will include a significant focus on Indigenous family violence (FaHCSIA 2010). The Commonwealth government is making available \$64.4 million to fund Indigenous family safety community initiatives focused on the *Indigenous Family Safety Agenda* priority action areas. These areas include addressing alcohol problems; more effective police protection; working with local community leaders to strengthen social norms against violence; and coordinating support services to aid the recovery of people who have experienced violence. Case studies in the Northern Territory found that many people in remote Indigenous communities felt that a permanent police presence is critical to reducing the incidence of alcohol fuelled crime (Pilkington 2009). A review of NT policing (Allen Consulting Group 2010) suggested that where there is no police presence, a community will have low levels of reported offences and recorded police activity. As a consequence communities with high policing needs are not always receiving an adequate permanent police presence.

**Figure 103 – Age-standardised hospitalisation rates for principal diagnosis of assault by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08**



Source: AIHW analysis of AIHW National Hospital Morbidity database

**Figure 104 – Hospitalisation rates for principal diagnosis of assault, by Indigenous status and age, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of AIHW National Mortality Database

**Table 47 – Issues of community safety, percentage of persons aged 18 years and over, by Indigenous status, 2008 (Indigenous), 2006 (non-Indigenous)**

	Male		Female		Persons	
	Indig.	Non-Indig.	Indig.	Non-Indig.	Indig.	Non-Indig.
<b>Experienced by individual, family members and/or close friends in last 12 months:</b>						
Abuse or violent crime	6.7	1.9	8.4	2.8	7.6	2.3
Witness to violence	8.4	2.1	9.5	2.3	9.0	2.2
Trouble with the police	16.6	2.8	12.9	2.5	14.7	2.6
Member of family or friend spent time in jail	12.7	..	12.8	..	12.8	..

Source: ABS analysis of 2008 NATSISS. Non-Indigenous comparison from 2006 General Social Survey

**Table 48 – Issues of community safety, percentage of Indigenous persons aged 18 years and over, by remoteness, 2008**

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote	Total
<b>Victim of physical or threatened violence in last 12 months:</b>						
	26.1	24.4	24.3	24.1	19.4	24.1
<b>Experienced by individual, family members and/or close friends in last 12 months:</b>						
Abuse or violent crime	9.2	6.7	7.2	8.3	5.7	7.6
Witness to violence	10.3	7.7	8.1	11.9	7.4	9.0
Trouble with the police	15.1	15.0	14.2	17.3	12.6	14.7
Member of family or friend spent time in jail	12.9	12.9	12.3	14.5	12.0	12.8

Source: ABS analysis of 2008 NATSISS.

## 2.14 Contact with the criminal justice system

**WHY IS IT IMPORTANT?:** Aboriginal and Torres Strait Islander peoples have historically experienced higher rates of arrest and incarceration than other sections of the population (Royal Commission into Aboriginal Deaths in Custody 1991). Prisons have a significant over-representation of people with mental health problems, substance abuse problems, learning difficulties and a history of physical and sexual abuse (Butler & Milner 2003; Levy 2005). Among both Indigenous and non-Indigenous prisoners, rates of chronic conditions such as asthma, cardiovascular disease, diabetes, mental health conditions and communicable diseases are higher than in the general population. Indigenous prisoners have higher levels of diabetes and communicable diseases than their non-Indigenous counterparts, but report lower levels of mental health issues and are less likely to take a prescribed medication (AIHW 2010). Indigenous prisoners suffer greater rates of ill-health and injury compared with the Indigenous population generally (Hobbs et al. 2006). Hospital admissions for mental disorders and injury and poisoning were approximately twice as high among Aboriginal and Torres Strait Islander male prisoners, and 3 times as high for female prisoners.

The effects of prison custody persist after release. A study in Western Australia (Stewart et al. 2004) found that released prisoners have an increased risk of death compared with the general population, and this risk is greater for Aboriginal people, with female Aboriginal prisoners at particularly high relative risk.

The social and health effects of imprisonment on Indigenous peoples include: mental and other health problems for children who have a parent in prison custody—20% of Indigenous children have a parent in custody at some stage (Levy 2005); adverse employment and financial consequences (Woodward 2003); lack of positive male role-models in Indigenous society (Woodward 2003); and prisoners taking health problems and problematic behaviours out into the community (Butler et al. 1997; Butler & Milner 2003; Woodward 2003; van der Poorten et al. 2008). Stressors related to having a family member or friend incarcerated, are reported in measure 2.13.

**FINDINGS:** As at 30 June 2009, there were 7,386 Aboriginal and Torres Strait Islander prisoners recorded in the National Prison Census. This was an 11% increase in numbers since June 2007—a trend that has continued since the last version of this report. Indigenous prisoners represent 26% of the total prisoner population, up from 24% in 2007. After adjusting for differences in age structure, Indigenous persons were 14 times as likely as non-Indigenous persons to be in prison at 30 June 2009.

In 2009, the median age of Indigenous prisoners was 31 years compared with 35 years for non-Indigenous prisoners. Ninety-two per cent of Indigenous prisoners were male. Indigenous women were also over-

represented in the prison population (29% of women prisoners).

The highest rates of Indigenous imprisonment were reported in Western Australia, New South Wales and South Australia. After adjusting for differences in the age structure between the two populations, Indigenous Australians are 20 times as likely to be imprisoned in Western Australia compared with non-Indigenous Australians, 16 times as likely in South Australia and 13 times as likely in New South Wales.

The median sentence length for Indigenous sentenced prisoners as at 30 June 2009 was 24 months—the same as in 2005—but less than the 42-month median length of sentence of non-Indigenous persons in prison.

Aboriginal and Torres Strait Islander people are more likely to be in prison with a charge related to acts intended to cause injury (32%) than other prisoners (15%). They are less likely to be in prison for illicit drug offences (2%) compared with other prisoners (14%) and homicide (6%) compared with other prisoners (10%).

Aboriginal and Torres Strait Islander people are also over-represented in police custody.

Over the longer term, rates of deaths in custody have been declining for both Indigenous and non-Indigenous people. In 2008 there were 1.34 deaths per 1,000 Indigenous Australians in custody compared with 2.67 per 1,000 in 1998. However, these need to be considered in the context of very high rates of custody. Data from 2008 indicate that there were 13 deaths of Aboriginal and Torres Strait Islander people in custody. Four deaths occurred in police custody and 9 in prison.

In 2007–08, an average of 182 Indigenous youth aged 10–18 years were on remand each day, compared with 134 non-Indigenous youth. On average there were 46 children aged 10–13 years on remand, and 72% of these were Indigenous. Research has found that significant proportions of young Aboriginal people in juvenile justice have a history of a parent in prison (Krieg 2006).

The *Health of Australia's Prisoners, 2009* (AIHW 2010) reported against the first set of national indicators for prisoners' health in Australia. In 2009, this cross-sectional survey found that 43% of Indigenous prison entrants tested positive for hepatitis C antibody compared with 33% for non-Indigenous entrants and 42% of Indigenous prisoners tested positive for hepatitis B core antibody compared with 17% of non-Indigenous prisoners. The prevalence of diabetes among Indigenous prison entrants was 5% compared with 3% for non-Indigenous prisoners. The prevalence of asthma and cardiovascular diseases was similar for both groups. Self-reported consumption of alcohol at risky levels in the last 12 months was higher for Indigenous entrants (65% compared with 47%). Consultation rates with a medical professional in the community in the last 12 months were lower for Indigenous prison entrants (62%) compared with non-Indigenous prison entrants (76%). However, consultation rates with a medical professional in prison in the 12 months were higher for Indigenous prisoners (38%) than non-Indigenous prisoners (26%).

**IMPLICATIONS:** Incarceration of persons whose behaviour is dangerous or disruptive may be beneficial to the community from which they have been removed. However, the high rate of imprisonment of Aboriginal and Torres Strait Islander people signals problems well beyond those which prisons are designed to resolve. Consultations for this report identified issues such as levels of self-esteem, opportunities for employment, substance abuse and availability of mental health services as factors behind the high rates of incarceration of Aboriginal and Torres Strait Islander peoples. These issues highlight important overlaps between health and other aspects of life such as those highlighted in the *Cultural Respect Framework* (SCATSIH 2004) and reemphasises the need for inter-sectoral responses.

Incarceration and release makes continuity of care difficult, e.g. for coordination of hepatitis C treatment (Krieg 2006). Some Aboriginal health organisations

have developed their own health programs for prisoners and their families (Commission on Social Determinants of Health 2007; Winnunga Nimmityjah Aboriginal Health Service 2007). There are few programs nationally aimed at helping former prisoners make the transition to life outside prison (Borzycki & Baldry 2003).

The Australian Government provides funding through the *Indigenous Justice Program* to help respond to the urgent challenge of the accelerating rate of Indigenous offending and incarceration, and to support the realisation of safer communities (see measure 2.13). The program complements other Indigenous law and justice programs such as the *Indigenous Legal Aid and Policy Reform Program* and the *Family Violence Prevention Legal Services Program*. Ongoing assessment of the effectiveness of these programs is vital, particularly given the continued and dramatic increases in the numbers of Indigenous Australians in custody.

**Table 49 – People in Prison Custody by Indigenous status, sex and state/territory 30 June 2009**

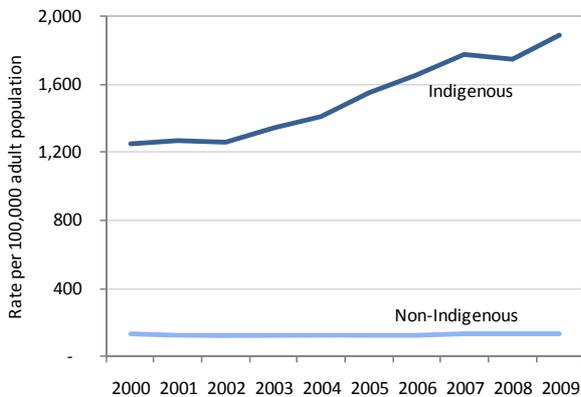
	Indigenous				Non-Indigenous				Rate ratio
	Number <sup>(a)</sup>			Age standardised rate <sup>(b)</sup>	Number <sup>(a)</sup>			Age standardised rate <sup>(b)</sup>	
	Males	Females	Persons		Males	Females	Persons		
NSW	2,138	236	2,374	2,153	7,789	587	8,376	164	13.1
Vic.	221	20	241	968	3,847	262	4,109	101	9.6
Qld	1,460	116	1,576	1,427	3,791	300	4,091	129	11.1
WA	1,633	157	1,790	3,329	2,445	184	2,629	163	20.4
SA	420	29	449	2,072	1,419	92	1,511	133	15.5
Tas.	61	5	66	471	431	38	469	146	3.2
ACT	23	3	26	760	157	20	177	63	12.0
NT	827	37	864	1,700	184	10	192	153	11.1
<b>Aust</b>	<b>6,783</b>	<b>603</b>	<b>7,386</b>	<b>1,891</b>	<b>20,063</b>	<b>1,493</b>	<b>21,554</b>	<b>136</b>	<b>13.9</b>

(a) Number per 100,000 adult population

(b) Number per 100,000 adult population directly age-standardised to 2001 Australian standard population

Source: Source: ABS 2009b

**Figure 105 – Age-standardised rate of persons in prison, by Indigenous status 2000 to 2009**



Source: ABS 2009b

**Figure 106 – Crude rate of deaths of Aboriginal and Torres Strait Islander persons in prison custody, 1998 to 2008**



Source: AIHW analysis of AIC Deaths in Custody in Australia data

## 2.15 Child protection

**WHY IS IT IMPORTANT?:** Child protection services ‘receive and assess allegations of child abuse and neglect, and/or harm to children and young people; provide and refer clients to family support and other relevant services; and intervene to protect children’ (SCRGSP 2005; AIHW 2010b). Child protection functions are undertaken at the state and territory level of government. Each jurisdiction has its own legislation, policies and practices in relation to child protection although the processes are broadly similar (Bromfield & Holzer 2008). Child protection services are often located in agencies that are also responsible for providing or funding alternative care arrangement such as foster care, where the care of the child in their original family is not an option.

Indigenous Australians’ experience of child welfare policies has historically been traumatic, with misguided policies leading to the forcible removal of children now known as the Stolen Generations (HREOC 1997). The consequences of these removal policies have long-term resonance, including social, physical and psychological devastation for the Aboriginal and Torres Strait Islander people directly involved, as well as their families and communities, and the repeated removal of children over generations (Raphael et al. 1998; Yehuda et al. 2001).

Child protection issues continue to be very significant for Indigenous communities, reflecting this history of trauma and stressors that have impacted on parents and communities.

In responding to situations in which Indigenous children are at risk, all states and territories have adopted the Aboriginal Child Placement Principle which requires that where Aboriginal and Torres Strait Islander children are removed from their family, the following order of preference for their placement should be followed: the child’s extended family; the child’s Indigenous community; other Indigenous people.

**FINDINGS** In 2008–09, the rate of substantiated child protection notifications per 1,000 children aged 0–16 years was 38 for Aboriginal and Torres Strait Islander children—close to 8 times the rate for non-Indigenous children (5 per 1,000). This was an increase from 32 per 1,000 in 2006–07. Rates of children who were the subject of substantiations of notifications vary across jurisdictions, reflecting different legislation and practices and rates also vary from year to year within jurisdictions. While comparisons between jurisdictions should be made with care, rates of Indigenous children who were the subject of substantiations were higher than for non-Indigenous children within each jurisdiction (AIHW 2010b). Compared with other children, the reason for substantiated child protection notification for Aboriginal and Torres Strait Islander children is more likely to be for neglect rather than sexual or physical abuse.

As at 30 June 2009 there were 10,271 Aboriginal and Torres Strait Islander children on care and protection orders, an increase of 258% since June 1998. There was an 85% increase for other children over the same period.

Whilst there are some data issues that impact comparability over time, the general trends evident in the data are very significant. The increase in children on care and protection orders may be attributed to a greater awareness of child abuse and neglect but also to the cumulative effect of the growing number of children who enter the child protection system at a young age and remain on orders until they are 18 years of age (AIHW 2010b).

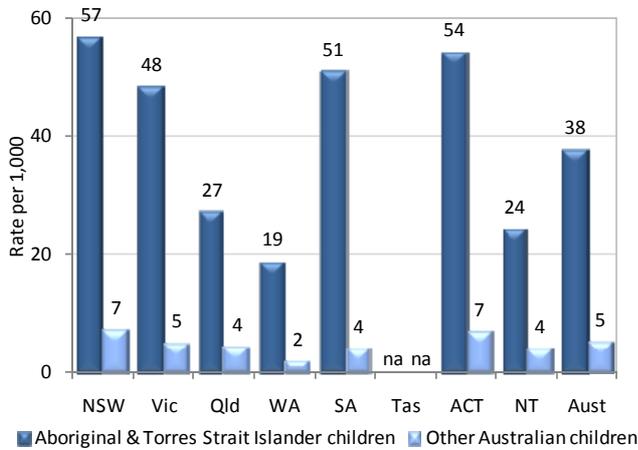
As at 30 June 2009, there were 10,512 Indigenous children in out-of-home care, equivalent to 4.5% of all Indigenous children. This compares with 0.5% of non-Indigenous children. Across Australia, 73% of Indigenous children in out-of-home care are placed with either an Indigenous carer or a relative/kin or in other Indigenous care. Placements with an Indigenous carer or relative/kin were highest in New South Wales (84%) and lowest in Tasmania (28%). Reasons for placements outside the Indigenous community include the unavailability of carers within the community, the impact of trauma and disadvantage on previous generations, the unwillingness of some Indigenous people to be associated with the welfare system, and the high number of Indigenous children requiring care (Berlyn & Bromfield 2009).

**IMPLICATIONS:** Aboriginal and Torres Strait Islander children continue to be subject to higher rates of child protection substantiations, mainly for neglect. COAG has two major commitments in the area of child protection: The *National Framework for Protecting Australia’s Children 2009–2020* (COAG 2009) and the *National Plan for Australia to Reduce Violence Against Women and their Children 2009–2021*. These commitments recognise that everyone has a right to be safe from family violence and abuse and that preventing family violence and child abuse is best achieved by families, communities, community organisations and governments working as partners to build strong and resilient families.

The National Framework acknowledges a need ‘to move from seeing ‘protecting children’ as a response to abuse and neglect to one of promoting the safety and wellbeing of children’ (COAG 2009, p7). The Framework applies a public health model approach to child protection issues in order to achieve better outcomes for children, young people and their families. With a public health model, the emphasis shifts to establishing universal supports for all families (e.g. in health and education), with more intensive (secondary) prevention interventions available for families that need additional assistance with a focus on early intervention. Tertiary child protection services are used as a last resort.

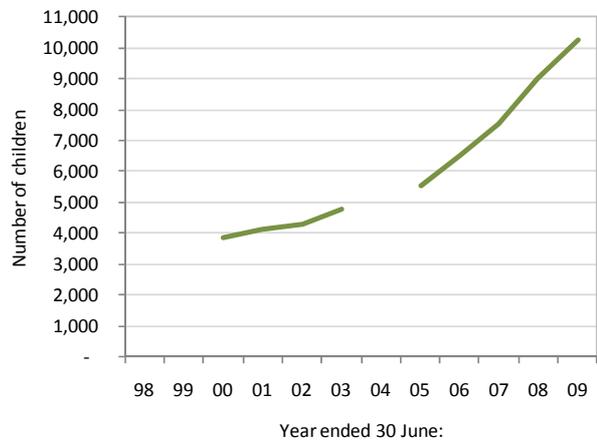
A priority is to support Indigenous community-building activities strengthening families and communities in targeted areas that put children at-risk, and speaking up about abuse. The National Plan will coordinate a national violence prevention agenda across all States and Territories. A key role for health portfolios is to strengthen child and maternal health services which can play an important role in prevention and early intervention.

**Figure 107 – Children aged 0–16 years who were the subject of a substantiation: rate per 1,000 children, by Indigenous status and jurisdiction, 2008–09**



Source: AIHW 2010b

**Figure 108 – Number of Indigenous children aged 0–17 years on care and protection orders as at 30 June 1998 to 20 June 2009**



Source: AIHW 2008c and previous years

**Table 50 – Children (0–17 years) in out-of-home care by Indigenous status and state and territory, at 30 June 2009**

	NSW	Vic.	Qld	WA	SA <sup>(a)</sup>	Tas. <sup>(b)</sup>	ACT	NT	Aust.
<b>Number of Children:</b>									
Indigenous	4,991	734	2,481	1,197	521	130	100	358	10,512
Non-Indigenous	10,207	4,452	4,547	1,485	1,495	676	391	121	23,374
Total	15,211	5,283	7,093	2,682	2,016	808	494	482	34,069
<b>Rate per 1,000 children</b>									
Indigenous	71.3	48.7	36.0	38.8	41.7	15.8	52.4	13.2	44.8
Non-Indigenous	6.6	3.7	4.6	3.0	4.4	6.1	5.1	3.4	4.9
Total	9.4	4.3	6.7	5.1	5.7	6.8	6.3	7.7	6.7
<b>Rate ratio</b>									
	10.9	13.2	7.9	13.0	9.5	2.6	10.3	3.9	9.2

(a) South Australia can only provide the number of children in out-of-home care where the Department is making a financial contribution to the care of a child. (b) Tasmania is not able to include children in care where a financial payment has been offered but has been declined by the carer. However, the number of carers declining a financial payment is likely to be very low.

Source: AIHW 2010b

**Table 51 – Aboriginal and Torres Strait Islander children in out-of-home care: Indigenous status and relationship of carer to child, by state and territory, at 30 June 2009**

Relationship	NSW	Vic. <sup>(a)</sup>	Qld	WA <sup>(a)</sup>	SA <sup>(b)</sup>	Tas. <sup>(c)</sup>	ACT	NT <sup>(d)</sup>	Aust.
Per cent									
Indigenous relative/kin	55.6	25.0	23.8	50.9	39.5	10.0	40.0	32.8	43.1
Other Indigenous caregiver	17.0	10.4	22.8	14.2	21.7	2.3	9.0	14.7	17.5
Other relative/kin	11.0	22.4	10.7	8.1	11.8	15.4	6.0	—	11.0
Indigenous residential care	0.5	1.8	1.0	2.2	3.5	—	3.0	—	1.0
Other caregiver	14.9	32.2	37.3	18.5	16.8	68.5	29.0	52.5	24.0
Other residential care	1.1	8.3	4.5	6.1	6.8	3.8	13.0	—	3.3
<b>Total*</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Total placed with relatives/kin or other Indigenous caregivers	84.0	59.5	58.2	75.3	76.4	27.7	58.0	47.5	72.7
Total not placed with relatives/kin or other Indigenous caregivers	16.0	40.5	41.8	24.7	23.6	72.3	42.0	52.5	27.3

— Nil or rounded to zero. (a) A small number of children are placed with externally arranged foster carers who are also their relatives and have been recorded in the foster care category. (b) South Australia can only provide the number of children in out-of-home care where the Department is making a financial contribution to the care of a child. (c) Tasmania is not able to adhere to the AIHW definition of OOHc for 2008–09 to include children in care where a financial payment has been offered but has been declined by the carer. However, the number of carers declining a financial payment is likely to be very low. (d) In the Northern Territory, children placed with family members have all been included in the 'Indigenous relative/kin' category. \*Total includes children whose Indigenous status was unknown.

Source: AIHW 2010b

## 2.16 Transport

**WHY IS IT IMPORTANT?:** Transport can have a beneficial impact on health by enabling access to goods and services and achieving and maintaining social networks. It is an enabling resource that communities require to achieve desired outcomes, including safety and health. Research into the social determinants of health has found that 'lack of access to transport is experienced disproportionately by women, children, disabled people, people from minority ethnic groups, older people and people with low socioeconomic status—especially those living in remote rural areas' (Acheson 1998, Part 2 Section 5; Marmot 2010). The negative impacts of transport include reduced physical activity and accidents.

Aboriginal and Torres Strait Islander communities face various challenges related to transport. These challenges have a broader impact on social and economic circumstances, and specific impacts on access to health services. Limited or no public transport options significantly impact on the capacity to access health care, especially specialist services. Problems with access are particularly significant for patients with chronic illnesses where frequent attendance at specialist clinics may be required. Schemes to assist patients with travel and associated accommodation operate in the various jurisdictions. Other approaches have also been adopted such as support for specialist services flying into remote localities.

**FINDINGS:** In 2008, households in non-remote areas with Aboriginal and Torres Strait Islander persons were significantly less likely than other households to have access to a working motor vehicle (50% vs 15% respectively). In remote areas 43% of households with Aboriginal and Torres Strait Islander persons had no access to motor vehicles.

In the 2008 NATSISS, an estimated 26% of Aboriginal and Torres Strait Islander adults had used public transport in the previous two weeks. Of the 215,400 adults who had not used public transport in the previous two weeks, 43% lived in an area in which there was no local public transport available. Use of public transport by Indigenous adults is lower in remote areas (13% in the last two weeks) than in non-remote areas (30%). One of the key contributing factors is the lack of availability of public transport in remote locations. Of the 65,000 Indigenous adults in remote areas who had not used public transport in the previous two weeks, 83% lived in an area where there was no public transport available.

In 2008, an estimated 8% of Indigenous people aged 18 years and over living in non-remote areas could not, or often had difficulty, getting to places needed, compared with 4% of non-Indigenous Australians in 2006. The proportion of Indigenous adults reporting these difficulties was higher in remote areas (18%) than in non-remote areas (8%).

The proportion of Aboriginal and Torres Strait Islander adults with access to a working motor vehicle was 78% overall, ranging from 70% of those aged 18–24 years to 85% of those aged 35–44 years. The rates between

Aboriginal and Torres Strait Islander and other Australians were significantly different for each age group, with Aboriginal and Torres Strait Islander peoples having lower access in each instance. In 2008, a higher proportion of Aboriginal and Torres Strait Islander males than females reported having access to a motor vehicle whenever they needed it (74% compared with 69%).

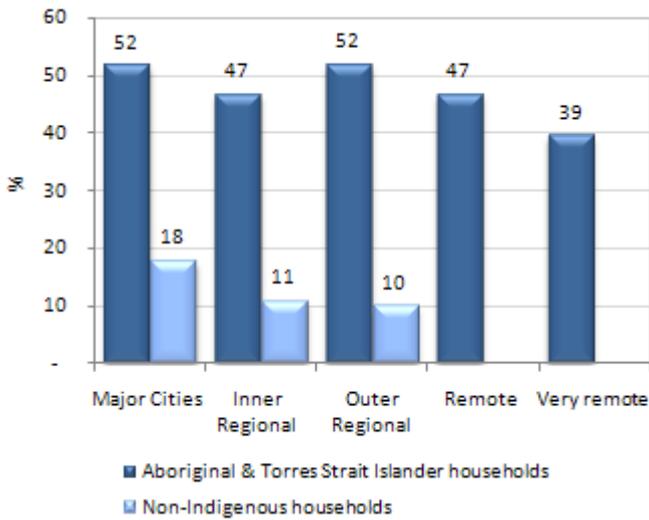
In the 2008 National Aboriginal and Torres Strait Islander Health Survey, 10% of Aboriginal and Torres Strait Islander people aged 15 years and over reported transport/distance as the reason they did not access a health care service when they needed to. Transport/distance was a bigger issue for those living in remote areas (19%) than those living in non-remote areas (7%).

**IMPLICATIONS:** While public transportation may compensate for the lack of private transport in non-remote areas, a higher proportion of Indigenous Australians in both remote and non-remote areas report having difficulty getting to places they need to go compared with other Australians.

The NSFATSIH's Key Result Area Six identifies wider strategies that impact on health. Actions related to transport include reviewing the effectiveness, eligibility criteria and payment levels of patient-assisted travel schemes to improve equitable access to services by Aboriginal and Torres Strait Islander peoples across Australia. The *National Healthcare Agreement* (November 2008) commits states and territories to provide and fund patient assistance travel schemes and ensure that public patients are aware of how to access the schemes. Australian governments are currently working on the development of key policy principles and models for a nationally consistent scheme.

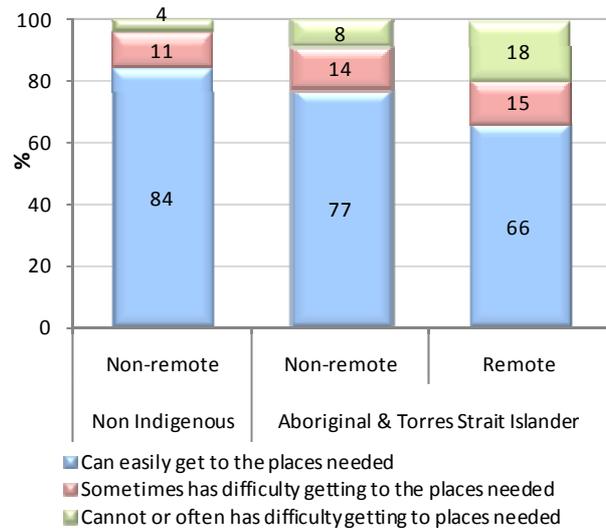
Patient transport services particularly designed to assist patients with chronic illnesses to access health services on a regular basis are an important aspect of health service delivery. This is particularly the case for Indigenous households where private and public transport options are often restricted. Patient transport services are provided by a broad range of services including voluntary groups, Aboriginal controlled health services, hospitals and ambulance services. However, the provision of these services varies significantly across Australia and access is not always assured.

**Figure 109 – Proportion of households without access to a working motor vehicle, by Indigenous status and remoteness, 2008 (Indigenous) and 2006 (non-Indigenous)**



Source: ABS analysis of 2008 NATSISS. Non-Indigenous data are from the 2006 General Social Survey

**Figure 110 – Difficulty with transport, by Indigenous status, and remoteness, persons aged 18 years and over, 2008 (Indigenous) and 2006 (non-Indigenous)**



Source: ABS analysis of 2008 NATSISS. Non-Indigenous data from the 2006 General Social Survey

**Table 52 – Use of public transport, by remoteness, Indigenous persons aged 18 years and over, 2008**

	Non-remote	Remote	Total
Used public transport in last 2 weeks	30.0	12.7	25.5
Used transport but not public transport in last 2 weeks	68.8	79.4	71.5
Did not use any transport in last 2 weeks	0.9	7.0	2.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Main reason did not use public transport<sup>(a)</sup></b>			
Prefer to use own transport or walk	57.9	12.7	44.2
Costs too much/takes too long	3.3	1.0*	2.6
No suitable services	7.4	2.3*	5.8
Personal reasons	2.6	0.3*	1.9
Other	3.1	0.9*	2.4
<i>Total with access to public transport in local area</i>	<i>74.2</i>	<i>17.1</i>	<i>56.9</i>
No public transport available in local area	25.8	82.9	43.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

(a) Proportion calculation excludes 'used public transport in last 2 weeks'

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

Source: ABS analysis of 2008 NATSISS.

## 2.17 Indigenous people with access to their traditional lands

**WHY IS IT IMPORTANT?:** Loss of traditional land has been associated with trauma, illness and poor social outcomes experienced by Aboriginal and Torres Strait Australians today (Royal Commission into Aboriginal Deaths in Custody 1991; Northern Land Council & Central Land Council 1994). Ongoing access to traditional land is also seen as a determinant of health status, particularly where bush tucker can be accessed, physical exercise is part of daily life, and alcohol/drug use is low (Aboriginal and Torres Strait Islander Social Justice Commissioner 2005).

Some quantitative evidence exists to support such views. Several studies demonstrate that where Aboriginal peoples have returned even temporarily to their land and adopted a semi-traditional hunter-gatherer lifestyle, there is a marked improvement in Type 2 diabetes and a reduction in the major risk factors for coronary heart disease. These changes can occur over a relatively short period of time (O'Dea 1984).

One aspect of this may be a reduction in harm caused by excessive alcohol consumption; e.g. the 97 'dry' areas in the Northern Territory, where possession of alcohol is illegal, are all situated on Aboriginal-owned land (Northern Territory Licensing Commission 2008).

Contrasting with this positive view of the health implications of living on traditional lands, however, are data showing that children living in 'rural communities with an Aboriginal local council' in the Northern Territory had increased prevalence of infectious diseases and were shorter and lighter than urban Aboriginal children (Mackerras et al. 2003). The relative lack of medical services outside cities and regional centres can impact negatively on health status for those living on country (McLaren 1996).

An important difference is between the larger centralised communities and the decentralised smaller homeland communities/outstations. Both types of communities can be officially classified as 'remote', but the smaller homeland communities are distinguished by the closeness of family/kinship ties and the fact that they are situated on land to which all members have a direct cultural connection. The social makeup of the larger centralised communities, on the other hand, reflects their origins as missions, cattle stations or government settlements where many different groups were mixed together. In these situations, traditional governance structures have been confused and the relationship of residents to land has become indirect and diluted.

A study comparing the health of Aboriginal people living on homelands/outstations in Central Australia with that of Aboriginal people living at the surrounding, larger centralised communities showed homeland residents had significantly lower prevalence levels of Type 2 diabetes, hypertension and obesity, significantly lower mortality rates, and were significantly less likely to be hospitalised for any cause including infections and

injury (particularly injury involving alcohol). They were also likely to live, on average, 10 years longer than residents of the centralised communities. The positive association with health was more marked among younger adults (McDermott et al. 1998).

It has been argued that the distinctly Aboriginal form of social capital exemplified in traditional kinship structures plays a much more prominent role at small homelands/outstations than at the larger centralised communities (where such structures have been damaged and distorted in the colonisation process) (Christie & Greatorex 2004). This Aboriginal, traditional aspect of governance contributes to the greater social cohesion, availability of social support and psychological wellbeing often associated with homelands/outstations (Morphy 2005). Greater social cohesion has long been associated with improved health outcomes in non-Aboriginal and Torres Strait Islander communities (Stansfield 2006).

A recent long-term study has found that health outcomes are better at Utopia, a remote Aboriginal community, relative to the Northern Territory average for Indigenous populations. Features of this community include: people living a traditional lifestyle, including hunting, on outstations away from the community store, which has led to better diet and exercise; the community-controlled health service providing regular health care services to outstations; and the community having mastery and control over life circumstances. Residents are in control of community services and connected to culture, family and land, with the community holding freehold title to their land (Rowley et al. 2008).

**FINDINGS:** In 2008, approximately 72% of Aboriginal and Torres Strait Islander Australians aged 15 years and over reported that they recognised their homeland or traditional country. Approximately 25% reported they lived on their homelands, 45% were allowed to visit their homelands, and less than one per cent were not allowed to visit their homeland/traditional country.

Those who lived in remote areas (44%) were more likely than those in non-remote areas (19%), to live on homelands/traditional country. The majority of Indigenous Australians who recognised, but did not live on homelands, were allowed to visit (41% of those in remote areas and 46% of those in non-remote areas).

As in 2002, results from the 2008 NATSISS provide inconclusive evidence about the impact of access to traditional homelands on self-reported health, risk factors and social cohesion.

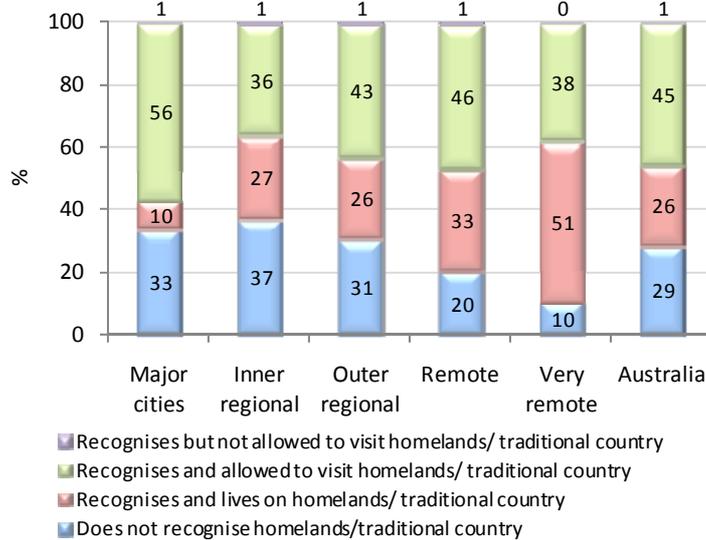
**IMPLICATIONS:** While evidence from research studies lends support to Aboriginal and Torres Strait Islander Australians to return to live on their traditional country, for many people this is no longer an option, particularly in south-eastern Australia. In this situation, occasional and infrequent visits may be the only realistic possibility. An emerging body of literature is improving knowledge about how relationships with Country are maintained by Aboriginal and Torres Strait Islander peoples living in urban and metropolitan centres, and the effects of these relationships on health, wellbeing,

cultural expression, heritage and education (AIATSIS 2009).

The NSFATSIH's Key Result Area Four: Emotional and Social Wellbeing has as one of its objectives 'reduced impact of grief, loss and trauma resulting from the historical impacts of past policies and practices, social

disadvantage, racism and stigma'. The Commonwealth Government provides funding to 11 Link Up organisations to facilitate family reunions and return to country for members of the Stolen Generations and their descendants (see also measure 1.16).

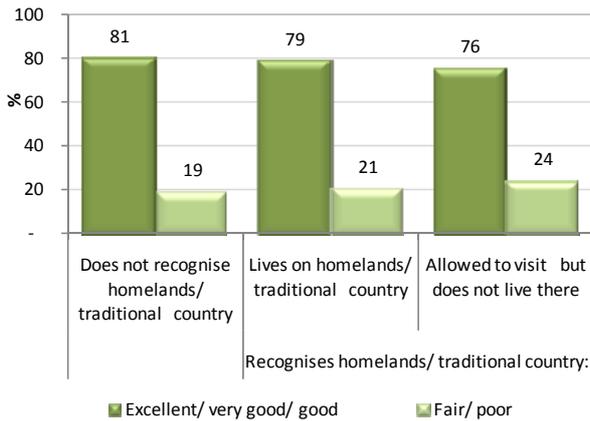
**Figure 111 – Access to homelands/traditional country, by remoteness area, Indigenous Australians aged 15 years and over\*, 2008**



\* Excludes 'Not known' responses

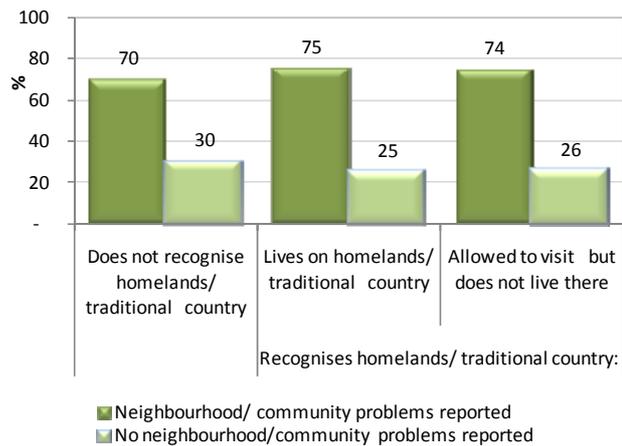
Source: AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Figure 112 – Self-assessed health status by whether Aboriginal and Torres Strait Islander persons recognised/did not recognise homelands/traditional country, Australia, 2008**



Source: AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

**Figure 113 – Presence of neighbourhood/community problems by whether Aboriginal and Torres Strait Islander persons recognised/ did not recognise homelands/ traditional country, Australia, 2008**



Source: AIHW analysis of 2008 National Aboriginal and Torres Strait Islander Social Survey

## 2.18 Tobacco use

**WHY IS IT IMPORTANT?:** Estimates of the burden of disease and injury in Aboriginal and Torres Strait Islander peoples attribute 12% of the total burden to tobacco smoking. Smoking was identified as one of the key risk factors contributing to the burden of disease for Indigenous Australians (Vos et al. 2007). In the Australian population as a whole, the same study estimated 8% of the burden of disease as attributable to tobacco smoking, consistent with national estimates previously reported (AIHW 2006a).

The health impact of smoking is evident in the incidence of a number of diseases, including chronic lung disease, cardiovascular disease and many forms of cancer. It is estimated that smoking is responsible for 35% of the burden of disease from cancers and 33% of the burden from cardiovascular disease for Aboriginal and Torres Strait Islander Australians (Vos et al. 2007). Environmental tobacco smoke has adverse health effects for others who are in close proximity to a smoker, including asthma in children, lower respiratory tract infections, lung cancer, and coronary heart disease (AIHW 2002a).

Given the adverse impact on the health of the Australian population as a whole, tobacco use is a significant risk factor for the health of Aboriginal and Torres Strait Islander peoples, amongst whom smoking is more prevalent. In relation to the health of Indigenous Australians, the *National Tobacco Strategy 2004–2009* noted that ‘encouraging and finding ways to support smokers to quit successfully is probably the single most effective thing that could be done to improve child and maternal health, to reduce chronic diseases and some communicable diseases and to reduce financial stress’.

**FINDINGS:** In 2008, 47% of Indigenous Australians aged 15 years and over reported that they were current smokers, a reduction from an estimated 51% in 2002 and 52% in 1994. In 2008, current smokers comprised 45% of daily smokers and 2% who did not smoke daily. After accounting for differences in the age profile of the populations, Indigenous Australians are 2.2 times more likely to be smokers than other Australians.

An estimated 49% of Aboriginal and Torres Strait Islander males and 45% of Aboriginal and Torres Strait Islander females aged 15 years and over were current smokers in 2008. Aboriginal and Torres Strait Islander smoking rates were highest in the 25–34 year age group (56%) and lowest in the 55 years and over age group (32%). Compared to other age groups, smoking rates were relatively low among older Indigenous Australians (32% of those aged 55 years and over) and young Indigenous Australians aged 15–17 years (22%).

There is strong evidence that smoking status is associated with socioeconomic factors and that smoking rates are highest for Indigenous Australians in the most socially disadvantaged circumstances (Thomas et al. 2008). In 2008, Indigenous Australians aged 18 years and over were more likely to report being a non-smoker if they were in the highest household income quintiles,

were in the most advantaged SEIFA quintiles, were employed, had non-school qualifications and if the highest year of schooling completed was Year 12. Being a non-smoker was also associated with better self-assessed health status. Social and family factors also play important roles (Johnston & Thomas 2008). People reporting having been removed from one’s natural family or not having support in a time of crisis, were more likely to be smokers.

**IMPLICATIONS:** Tobacco smoking is influenced by social and economic factors. The relative influence of these factors varies across the different community settings and social environments in which Aboriginal and Torres Strait Islander peoples live (Johnston & Thomas 2008). Consequently, it is important that strategies to reduce Indigenous smoking rates are ‘culturally valid, responsive to local needs and controlled by the community’ (Ministerial Council on Drug Strategy 2004). Community empowerment and consultation is vital to successful health promotion strategies in Indigenous communities. Locally or regionally focused programs that are well coordinated and targeted to groups within local communities work best (DoHA 2001).

In May 2008, the Australian Government announced \$14.5 million over 4 years from 2008–09 until 2011–12 for the *Indigenous Tobacco Control Initiative* to identify innovative approaches to addressing the high rates of tobacco smoking in the Indigenous population.

Under the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c), Governments have agreed to address high Indigenous smoking rates. The Australian Government is investing \$100.6 million between 2009–10 and 2012–13 to:

- Recruit and train a new Tackling Smoking Workforce, to work alongside a newly created Healthy Lifestyle Workforce across 57 regions nationally.
- Work with communities to design and deliver locally relevant social marketing tackling smoking campaigns and activities.
- Implement a training program for health workers and community educators (with up to 1,000 workers trained).
- Enhance Quitlines to provide a more culturally sensitive service for Aboriginal and Torres Strait Islander people.

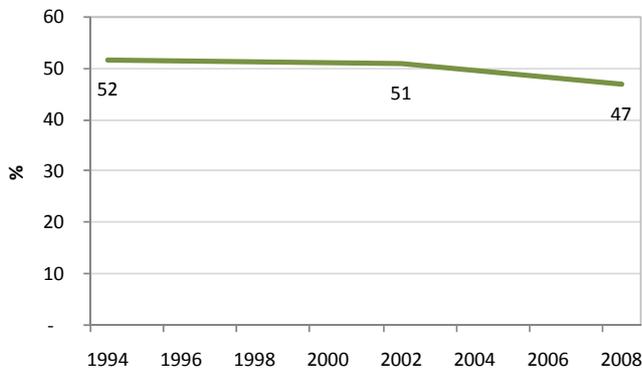
*National Health Reform* includes \$27.8 million over four years from 2010 aimed at reducing the high smoking rates among people in high-need and highly disadvantaged groups who are hard to reach through mainstream advertising, including Aboriginal and Torres Strait Islander peoples.

Legislation to implement a 25 per cent increase in tobacco excise received Royal Assent on 28 June 2010. This is expected to cut the number of smokers by 2 to 3 per cent, or around 87,000 Australians.

The Government will develop legislation to specify plain packaging requirements for tobacco products, designed

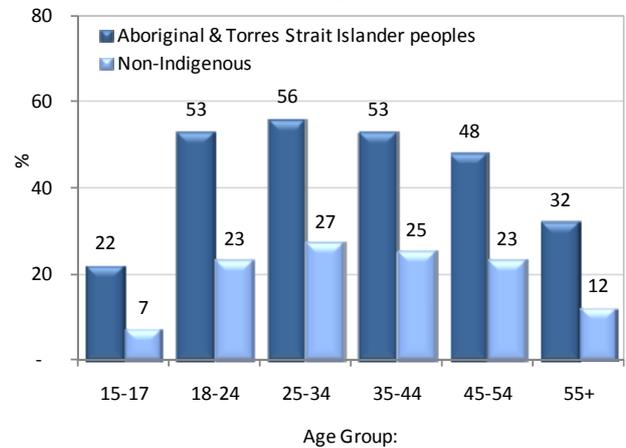
to reduce the attractiveness and appeal of the product, particularly to young people. The legislation will be gazetted on 1 January 2012 for implementation by 1 July 2012.

**Figure 114 – Proportion of Aboriginal and Torres Strait Islander people aged 15 years and over reporting they are a current smoker, 1994, 2002 and 2008**



Source: ABS and AIHW analysis of the 1994 NATSIS, 2002 and 2008 NATSIS

**Figure 115 –Proportion of population aged 15 years and over reporting they are a current smoker by Indigenous status and age, 2008**



Source: ABS and AIHW analysis of the 2008 NATSIS and the 2007–08 NHS

**Table 53 –Estimated proportion of Aboriginal and Torres Strait Islander peoples that are current smokers by sex, age, remoteness area and jurisdiction, 2004–05 and 2008**

	2004-05	2008
<b>Sex (18 years and over)</b>		
Male	53	53
Female	51	47
Persons	51	50
<b>Age</b>		
15-17	na	22
18-24	52	53
25-34	56	56
35-44	59	53
45-54	51	48
55+	31	32
<b>Remoteness Area (18 years and over)</b>		
Major Cities	46	45
Inner Regional	47	50
Outer Regional	50	52
Remote	47	52
Very Remote	51	56
<b>State/Territory (18 years and over)</b>		
NSW	53	52
Vic.	52	50
Qld	51	47
WA	48	47
SA	56	51
Tas.	51	49
ACT	44	38
NT	56	55

Source: ABS and AIHW analysis of the 2004–05 NATSIHS and 2008 NATSIS

## 2.19 Tobacco smoking during pregnancy

**WHY IS IT IMPORTANT?:** Smoking is a risk factor for adverse events in pregnancy, and is associated with poor perinatal outcomes such as low birthweight (less than 2,500 grams) (AIHW 2004c), pre-term birth, fetal growth restriction, congenital anomalies and perinatal death. Low birthweight infants are at a greater risk of dying during the first year of life and are prone to ill health in childhood. Smoking during pregnancy is also associated with increased risk of spontaneous abortion and ectopic pregnancy. Obstetric complications such as pre-term labour and ante partum haemorrhage are more common in smoking mothers than non-smoking mothers (Laws & Sullivan 2005). Nicotine, carbon monoxide and other chemicals in tobacco are passed on to the baby through the placenta, which reduces the oxygen supply to the unborn fetus (AMA 1999).

The negative health effects of tobacco smoking on the unborn fetus may continue after childbirth if one or both of the parents smoke. Passive 'environment' smoking of tobacco around a newborn is considered to be one of the major risk factors for sudden infant death syndrome (SIDS or cot death). Exposure to second-hand smoke in the atmosphere also increases an infant's risk of ear infections and developing asthma (AMA 1999). Where the mother smokes, harmful chemicals are passed in the breast milk to newborn babies. This increases the risk of respiratory illness, such as bronchitis or pneumonia, during the first year of life (NSW Multicultural Health Communication Service 2004).

Interventions for smoking during pregnancy are complex due to some mothers having a lack of knowledge about the health impacts of smoking, and the need to maintain good relationships between expectant mothers and health professionals (Wood et al. 2008).

**FINDINGS:** In 2007, approximately half of Aboriginal and Torres Strait Islander mothers smoked during pregnancy. When the effect of different age structures in the two populations was controlled for, the proportion of Aboriginal and Torres Strait Islander mothers who smoked during pregnancy was more than 3 times that of non-Indigenous mothers (51% compared with 15%). South Australia had the highest smoking prevalence at 62% of Indigenous mothers, while New South Wales and Western Australia had around 4 times the smoking rate compared to non-Indigenous mothers. Of Indigenous mothers who reported smoking during pregnancy, 47% smoked up to 10 cigarettes per day, 43% smoked 10 or more cigarettes per day and around 5% did not smoke during the second half of their pregnancy. Survey data from the ABS NATSISS 2008 reveal that 57% of mothers of children aged 0–3 years who had used tobacco during pregnancy used less of it during their pregnancy.

Although differences in reporting methods affect the comparability of these figures, the proportion of Aboriginal and Torres Strait Islander mothers who smoke during their pregnancy (as recorded in the

National Perinatal Data Collection) (51%) appears similar to the prevalence of smoking by Indigenous women overall (47% of Indigenous females aged 18 years and over).

For non-Indigenous mothers, there were large differences in smoking rates by remoteness and age groups (e.g. 38% of the under 20 year age group smoking, compared to around 10% from 30 years and over). In contrast, the proportion of Indigenous mothers who smoked during pregnancy was similar across geographic areas and all age groups, that is, not just high among younger mothers.

In 2007, smoking during pregnancy for both Indigenous and non-Indigenous mothers, is associated with around 40% higher prevalence of pre-term birth and an almost 100% higher proportion of low birthweight babies. Smoking by Indigenous mothers is also associated with an almost 20% higher rate of perinatal deaths, which occur at around double the rate for non-Indigenous births (measure 1.20). Pre-term birth, low birthweight and perinatal deaths were higher for babies born to Indigenous mothers than to non-Indigenous mothers, regardless of whether or not the mother was a smoker. These findings indicate that smoking is only one factor associated with these outcomes. Figures reported for 2007 show very little change in overall prevalence of smoking during pregnancy by Indigenous mothers since 2005.

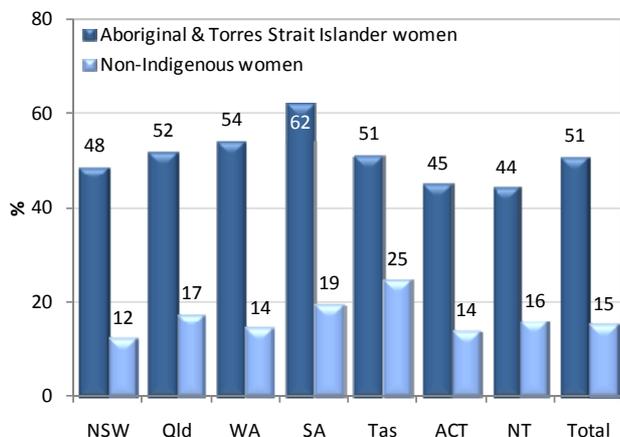
**IMPLICATIONS:** For Aboriginal and Torres Strait Islander women the prevalence of smoking during pregnancy is similar to that reported for the adult Indigenous population overall. This suggests the need for new approaches for culturally appropriate and effective health promotion and primary health care interventions specifically related to smoking during pregnancy. Collecting national data on smoking during pregnancy will be an important element of continued monitoring of progress in this area.

Reducing Indigenous smoking was one of the key priorities under the *National Drug Strategy Aboriginal and Torres Strait Islander Peoples Complementary Action Plan 2003–2009* (Ministerial Council on Drug Strategy 2006). The commitment to reducing smoking has now been significantly extended through the *Indigenous Tobacco Control Initiative* (2008) and the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (see measure 2.18).

The *Indigenous Early Childhood Development National Partnership*, the *New Directions Mothers and Babies Services*, the *Australian Nurse Family Partnership Program* and the *Healthy for Life* programs all have a focus on improving healthy behaviours during pregnancy including the reduction of tobacco smoking.

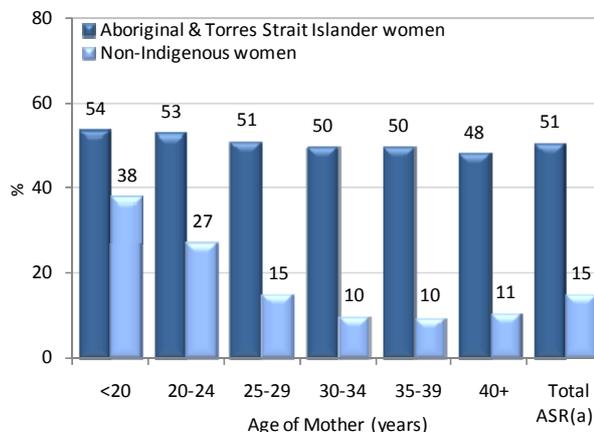
In addition, the issues discussed under measure 3.01 Antenatal care are relevant to implementing smoking cessation strategies for pregnant mothers. The *National Evidence-Based Antenatal Care Guidelines*, currently under development, will include culturally appropriate guidance and recommendations regarding smoking during pregnancy.

**Figure 116 – Proportion of mothers who smoked during pregnancy, by Indigenous status and selected jurisdictions, 2007**



Source: AIHW analysis of National Perinatal Statistics Unit National Perinatal Data Collection

**Figure 117 – Proportion of mothers who smoked during pregnancy, by Indigenous status and age of mother, 2007**



(a) Age-standardised data based on directly age-standardised proportions using the population of women aged 15–44 years who gave birth in all states as the standard.

Source: AIHW analysis of National Perinatal Statistics Unit National Perinatal Data Collection

**Table 54 – Smoking during pregnancy by Indigenous status and baby outcomes, NSW, Qld, WA, SA, Tas., ACT and NT, 2007**

Outcome:	Indigenous women		Non-Indigenous women		Ratio <sup>(a)</sup>
	Smoked	Did Not Smoke	Smoked	Did Not Smoke	
<b>Percentage of babies:</b>					
Pre-term birth	15.4	11.1	10.4	7.2	1.5*
Low birthweight	16.0	8.2	10.0	5.0	1.6*
<b>Apgar score:</b>					
0-3	0.6	0.7	0.4	0.3	1.6*
4-6	1.7	1.6	1.2	1.0	1.5*
7+	97.2	97.5	98.1	98.6	1.0
<b>Rate per 1,000 births:</b>					
Perinatal deaths	20.8	17.5	11.6	8.0	1.8*

\*Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons at the p<.05 level.

(a) Rate ratio: proportion for Indigenous women who smoked during pregnancy divided by proportion for non-Indigenous women who smoked during pregnancy.

Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection

## 2.20 Risky and high risk alcohol consumption

**WHY IS IT IMPORTANT?:** Excessive consumption of alcohol is associated with health and social problems in all populations. It is a major risk factor for conditions such as liver disease, pancreatitis, diabetes and some types of cancer. Alcohol is also a frequent contributor to motor vehicle accidents, falls, burns, and suicide. It has the potential to evoke anti-social behaviour, domestic violence and family breakdown. Babies may be born with Fetal Alcohol Spectrum Disorders (FASD) where mothers have consumed alcohol during pregnancy. Estimates of the burden of disease and injury for Indigenous Australians attribute 5.4% of the total burden to the net effects of alcohol consumption. For Aboriginal and Torres Strait Islander males aged 15–34 years, alcohol was responsible for the greatest burden of disease and injury among the 11 risk factors considered (Vos et al. 2007) and is a serious public health issue facing Indigenous Australians (Calabria et al. 2010). Reducing alcohol and other substance misuse can significantly reduce levels of assaults and homicides and disability, while improving the overall health and wellbeing of the population (SCRGSP 2009).

**FINDINGS:** The 2004–05 NATSIHS collected data on alcohol consumption based on levels of risk associated with short-term (drinking over one day) and long-term risk levels (based on daily consumption over one week) (NHMRC 2001). In 2004–05, 24% of Indigenous Australians aged 18 years and over had abstained from alcohol consumption in the last 12 months and after adjusting for age this was twice the non-Indigenous rate. However, a greater proportion of those who did drink consumed alcohol at levels that posed risks for their health. In 2004–05, 17% of Indigenous Australian adults reported drinking at long-term risky/high risk levels. This was similar to the non-Indigenous rate. An estimated 55% of Indigenous Australians drank at short-term risky/high risk levels at least once in the last 12 months and 19% at least once a week over the 12 month reporting period. After adjusting for the difference in age structure between the two populations, rates of binge drinking among Indigenous adults were twice the non-Indigenous rates. Males were more likely to report drinking at both short-term and long-term risky/high risk levels than females.

The 2008 NATSISS also included a set of questions on chronic alcohol consumption (amount consumed on a usual drinking day in previous 12 months) and binge drinking (largest quantity of alcohol consumed in a single day during the fortnight). Note that these are not the same questions that were asked in the 2004–05 NATSIHS survey and therefore results are not comparable. In 2008, 17% of Indigenous Australians aged 15 years and over reported drinking at chronic risky/high risk levels in the past 12 months, representing no significant change since 2002 (15%). A further 46% of Indigenous Australians were low risk drinkers and 35% had abstained from drinking alcohol in the last 12 months. Indigenous males were more likely than

Indigenous females to drink at chronic risky/high risk levels (20% compared with 14%), and this pattern was evident across age groups. Approximately 80% of Indigenous women did not drink during pregnancy.

Chronic risky/high risk drinking was highest among those aged 35–44 years (22%) and lowest among those aged 55 years and over (10%). Rates of risky/high risk drinking ranged from 14% in major cities to 20% in outer regional areas. However, those Indigenous Australians in remote areas were more likely than those in non-remote areas to be abstainers (46% compared with 31%).

In 2008, 37% of Indigenous people aged 15 years and over reported drinking at acute risky/high risk levels (binge drinking) in the two weeks prior to interview. Binge drinking was more common among Indigenous males (46%) than Indigenous females (28%) across age all groups, with men aged 25–44 years reporting the highest rates. Rates of binge drinking were higher in non-remote than remote areas (38% compared with 33%). Alcohol was perceived as a neighbourhood/community problem by 41% of respondents of the 2008 NATSISS (aged 15 years and over).

Over the period 2004–08, Aboriginal and Torres Strait Islander males died from alcohol-related causes at 6 times the rate of non-Indigenous males. Females died from causes related to alcohol use at 9 times the rate of non-Indigenous females. Most deaths (274 out of 395 deaths) were due to alcoholic liver disease. Indigenous Australians died from mental and behavioural disorders due to alcohol use at 7 times the rate of non-Indigenous Australians; alcoholic liver disease at 6 times the rate of non-Indigenous Australians; and poisoning by alcohol at 6 times the rate.

Over the period July 2006 to June 2008, there were 7,354 hospitalisations of Indigenous Australians (excluding Tasmania and the ACT) that had a principal diagnosis related to alcohol use, representing 2.4% of all hospitalisations of Indigenous Australians. Indigenous males were hospitalised for diagnoses related to alcohol use at 5 times the rate of other males, and Indigenous females at 3 times the rate of other females. Eighty-two per cent of all hospital episodes of Indigenous Australians related to alcohol use had a principal diagnosis of mental and behavioural disorders due to alcohol use, including acute intoxication, withdrawal state and psychotic disorder. Indigenous Australians were hospitalised for alcoholic liver disease at 5 times the rate of other Australians.

**IMPLICATIONS:** The health effects of risky/high risk alcohol consumption are evident in both mortality and morbidity statistics. Alcohol misuse is closely related to social and emotional wellbeing, mental health and other drug and alcohol co-morbidities. The *National Alcohol Strategy 2006–2011: Towards Safer Drinking Cultures* aims to prevent and minimise alcohol-related harm to individuals, families and communities through the development of a safer drinking culture in Australia. Various local, regional and national strategies have been implemented with the aim of reducing risky and high

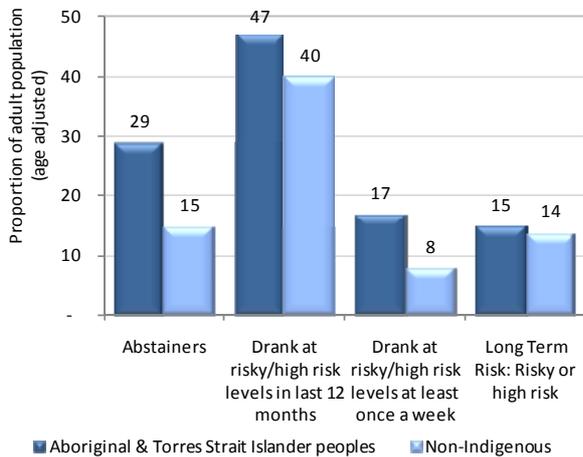
risk alcohol consumption, including some which restrict supply. The *National Drug Strategy 2010–2015* is currently being developed, including a review of the *Aboriginal and Torres Strait Islander Peoples Complementary Action Plan* to address the use of alcohol, tobacco and other drugs to promote health and wellbeing.

In 2009–10, more than 130 organisations across Australia were funded by OATSIH to provide, or support, alcohol and other drug treatment and rehabilitation services. Services provide a variety of treatment models including rehabilitation in a residential setting and drug and alcohol workers in Indigenous primary care services. At COAG in July 2006 and again in December 2007, the Australian Government announced additional funding for drug and alcohol treatment and rehabilitation services in regional and remote areas. In 2009–10, the Australian Government

continued to support successful elements of the drug and alcohol services component of the *Northern Territory Emergency Response* by increasing alcohol and other drug (AOD) workers across remote NT communities, and investing in AOD treatment and rehabilitation organisations to provide increased service delivery.

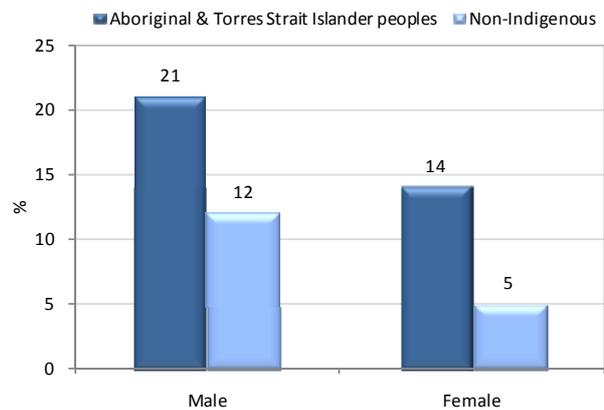
Alcohol Treatment Guidelines for Indigenous Australians have been developed to provide an evidence-based, user-friendly resource to assist health professionals understand and manage alcohol-related issues experienced by their Indigenous clients. Community involvement in local actions to alleviate the problems of alcohol misuse is vital. In the Fitzroy Valley, Western Australia, a community-driven project is underway to determine the prevalence of FASD in the area and to support the community through education, diagnosis and support.

**Figure 118 – Alcohol risk levels by Indigenous status, persons aged 18 years and over, age-standardised, Australia 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 119 – Persons aged 18 years and over who drank at short-term risky/high risk levels at least once a week, age-standardised, 2004–05**



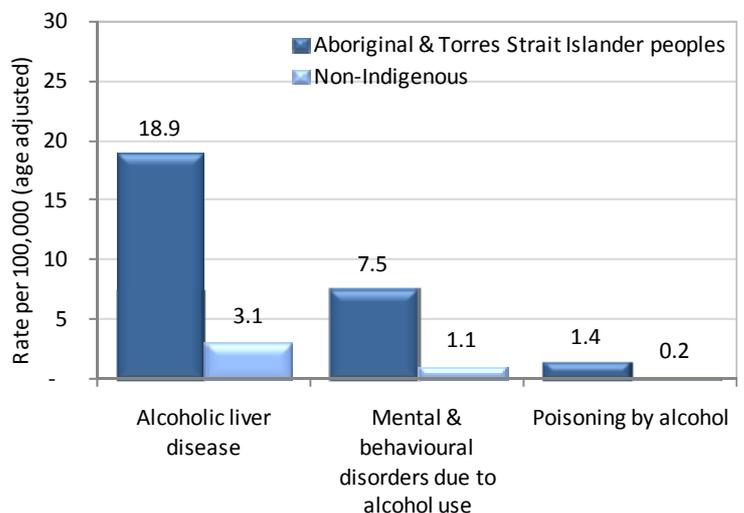
Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 120 – Aboriginal and Torres Strait Islander adults who drank at short-term risky/high risk levels at least once a week, by jurisdiction, 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

**Figure 121 – Age-standardised rates for deaths related to alcohol use, NSW, Qld, WA, SA and NT, 2004–2008**



Source: AIHW analysis of National Mortality Database

## 2.21 Drug and other substance use including inhalants

**WHY IS IT IMPORTANT?:** Substance misuse is a contributing factor to illness and disease, accident and injury, violence and crime, family and social disruption and workplace problems (SCRGSP 2007). Estimates of the burden of disease and injury in Aboriginal and Torres Strait Islander peoples attribute 3.4% of the total burden to illicit drug use (Vos et al. 2007).

The use of drugs or other substances including inhalants is linked to various medical conditions. Injecting drug users for example, have an increased risk of blood borne viruses such as hepatitis or HIV (ABS & AIHW 2008). For communities, there is increased potential for social disruption, such as that caused by domestic violence, crime and assaults. Community-based research has identified issues arising from alcohol, drug and substance use including loss of control and abusive behaviour ranging from physical to emotional violence (Franks 2006). Reducing drug-related harm will improve health, social and economic outcomes at both the individual and community level.

Drugs or other substance consumption plays a significant role in Aboriginal and Torres Strait Islander peoples' involvement in the criminal justice system. According to the Office of the Status of Women there is a correlation between domestic violence, and drug and alcohol use in Aboriginal and Torres Strait Islander communities, with 70% to 90% of assaults being committed under the influence of alcohol and other drugs (SCRGSP 2007). These issues are of significance for the Aboriginal and Torres Strait Islander population, whose adult members are almost twice as likely to report being a recent user as non-Indigenous Australians (AIHW 2006b).

Inhalant use, in the form of glue sniffing, petrol sniffing, inhalant abuse, or solvent abuse, is difficult to control because the active substances are found in so many common products that have legitimate uses. People that use these substances as inhalants risk long-term health problems, or sudden death. Continued use can also lead to the social alienation of sniffers, violence and reduced self-esteem (SCRGSP 2007).

There is concern about an apparent recent increase in marijuana use in some Aboriginal communities (Lee et al. 2008; Senior & Chenhall 2008).

**FINDINGS:** In the 2008 NATSISS an estimated 22% of Aboriginal and Torres Strait Islander people aged 15 years or over living in non-remote areas reported illicit substance use in the last 12 months and a further 20% reported having used an illicit substance at least once in their lifetime. These proportions are similar to the rates reported in 2002 (23% and 16%, respectively). In 2008, substance use was more prevalent among Indigenous males, of whom 51% had tried drugs (compared with 36% of females) and 28% of whom had used at least one substance in the last 12 months (compared with 17% of females). Cannabis was the most common illicit

substance used in the last 12 months for Aboriginal and Torres Strait Islander peoples (17%) followed by analgesics or sedatives for non-medical use (5%) and amphetamines/speed (4%). Approximately 16% of Indigenous Australians reported having used one substance in the last 12 months and 6% two or more substances. The study of Burden of Disease in Aboriginal and Torres Strait Islander Peoples estimated that heroin or polydrug dependence was responsible for 37% of the burden due to illicit drugs (Vos et al. 2007).

In 2007, 47% of Indigenous Australians had never used drugs or other substances including inhalants compared with 62% of non-Indigenous Australians (AIHW 2008a). Indigenous Australians were almost twice as likely to report being a recent user as non-Indigenous Australians (24% and 13% respectively) (AIHW 2008a). When cannabis is excluded, a different picture emerges. Of Indigenous Australians, 12% were recent users of a drug or other substance other than cannabis, compared with 8% of other Australians (AIHW 2008a).

In 2008, a higher proportion of Indigenous Australians aged 15 years and over who were recent substance users reported they were currently daily smokers (68%) and drank at risky/high risk levels (9%) than Indigenous persons who had never used illicit substances (35% and 3% respectively). Approximately 5% of mothers with a child aged 0–3 years reported having used substances during pregnancy.

The 2008 report *Evaluation of the Impact of Opal Fuel* undertook data collection on the prevalence of petrol sniffing in a sample of 20 Indigenous communities which have access to Opal fuel and where baseline data had previously been collected. The study showed that the prevalence of petrol sniffing declined in 17 of the 20 communities. Across the sample there was a decrease of 431 (70%) in the number of people sniffing between baseline and follow-up. The rate of sniffing decreased across all frequency levels including a 60% reduction in the number of people sniffing at occasional levels, an 85% reduction in the number of people sniffing at regular light levels, and a 90% reduction in the number of people sniffing at regular heavy levels (d'Abbs & Shaw 2008).

For the period July 2006 to June 2008, there were 4,333 hospitalisations of Indigenous Australians related to substance use. Indigenous Australians were hospitalised for conditions related to substance use at more than twice the rate of other Australians.

The AIC Drug Use Monitoring in Australia survey reports on drug use among police detainees at 9 police stations in metropolitan areas in South Australia, New South Wales, Queensland, Western Australia the Northern Territory and Victoria. In 2008, at least two thirds of Indigenous detainees tested positive to drugs and, other than in Darwin, the proportion was higher than for non-Indigenous detainees in all police stations surveyed.

**IMPLICATIONS:** In 2008, almost one quarter of Aboriginal and Torres Strait Islander Australians aged 15 years and over had used substances in the last 12

months. Higher rates of drug use are related to poorer health status and higher levels of psychological distress. The *National Drug Strategy Aboriginal and Torres Strait Islander Peoples' Complementary Action Plan 2003–2009* (the CAP) was developed to help provide a nationally coordinated and integrated approach to reducing drug-related harm amongst Aboriginal and Torres Strait Islander peoples. A recent evaluation of the CAP found it to be an effective policy framework which has guided approaches to policy and program delivery in relation to licit and illicit substances. Future iterations of the CAP will be considered in the context of the *National Drug Strategy 2010–2015*.

Australian governments are implementing programs under the COAG drug and alcohol initiatives and the *National Action Plan on Mental Health 2006–2011*. For example, the Australian Government is funding 7

Indigenous-specific projects under the COAG *Improved Services for People with Drug and Alcohol Problems and Mental Illness* initiative which aims to build the capacity of non-government drug and alcohol treatment services to identify and respond to people with coinciding mental illness and substance abuse issues.

Australian governments are working with relevant non-government organisations to address petrol sniffing in regional and remote communities through the *Petrol Sniffing Strategy*. This Strategy includes the following components: the roll out of low aromatic Opal fuel; consistent legislation; appropriate levels of policing; alternative activities for young people; treatment and respite facilities; communication and education strategies; strengthening and supporting communities and evaluation.

**Table 55 – Aboriginal and Torres Strait Islander peoples aged 15 years and over in non-remote areas: Substance use by sex, 2002 and 2008**

Substance use	2002			2008		
	Males	Females	Persons	Males	Females	Persons
<b>Used substances</b>	%	%	%	%	%	%
Used substances in last 12 months						
Marijuana, Hashish or Cannabis Resin <sup>(c)</sup>	23.3	14.8	18.9	23.1	11.6	17.1
Analgesics and sedatives for non-medical use <sup>(d) (e)</sup>	3.8	5.3	4.6	5.7	4.9	5.3
Amphetamines or speed	4.0	3.6	3.8	5.4	2.7	4.0
Kava <sup>(a)</sup>	1.4	1.2	1.3	1.7	0.7	1.2
<i>Total used substances in last 12 months</i> <sup>(f) (g)</sup>	27.5	19.7	23.4	28.2	17.3	22.4
Used substances but not in last 12 months <sup>(c) (e) (h)</sup>	16.7	15.0	15.8	22.3	18.6	20.4
<b>Total</b> <sup>(a) (h) (i)</sup>	<b>44.3</b>	<b>34.9</b>	<b>39.4</b>	<b>50.6</b>	<b>36.0</b>	<b>42.9</b>
Never used substances	55.2	64.8	60.2	49.2	63.2	56.6
Not stated <sup>(a) (i)</sup>	-	0.3	0.4	0.3	0.8	0.5
<b>Total</b> <sup>(k) (l)</sup>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Persons who accepted form ('000)	127	136	263	141	157	297
Persons 15 years and over ('000)	135	147	282	156	171	327

- Estimate with a relative standard error greater than 50%. Considered too unreliable for general use.
- (a) Estimate with a relative standard error of 25 per cent to 50 per cent. Should be used with caution.
- (b) The substance use questions in the 2008 NATSISS are comparable to those used in the 2002 NATSISS. However, when comparing between 2002 and 2008 it should be noted that there were changes in the proportion of people who did not accept the substance use form (6 per cent non-response in the 2002 NATSISS compared with 9 per cent for the 2008 NATSISS).
- (c) Difference between female rate in 2002 and 2008 is statistically significant.
- (d) Includes pain killers, tranquilisers and sleeping pills.
- (e) Difference between male rate in 2002 and 2008 is statistically significant.
- (f) Includes heroin, cocaine, petrol, LSD/synthetic hallucinogens, naturally occurring hallucinogens, ecstasy/designer drugs, and other inhalants. Includes methadone in 2008.
- (g) Sum of components may be more than total as persons may have reported more than one type of substance used.
- (h) Difference between person rate in 2002 and 2008 is statistically significant.
- (i) Includes 'whether used in last 12 months' not known.
- (j) This category comprises people who accepted the substance use form but did not state if they had ever used substances.
- (k) People who accepted the substance use form.
- (l) Difference between 2008 male rate and female rate is statistically significant.

Source: AIHW analysis of 2002 and 2008 NATSISS.

## 2.22 Level of physical activity

**WHY IS IT IMPORTANT?:** Physical inactivity is an important modifiable risk factor associated with several potentially preventable chronic diseases that are prevalent in the Aboriginal and Torres Strait Islander population. These include cardiovascular disease, hypertension and diabetes. Physical activity can also be beneficial in the treatment/management of depression, anxiety and stress. Physical inactivity is also related to overweight and obesity, another important risk factor for multiple diseases. Most recent Australian estimates attribute 6.7% of the Australian burden of disease to physical inactivity, with similar impact for both males and females.

The Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples 2003 (Vos et al. 2007) attributed 8% of the total burden of disease in the Aboriginal and Torres Strait Islander population to physical inactivity. Physical inactivity is the third leading risk factor, after tobacco and high body mass. Its effect is manifested through a range of diseases, most notably ischaemic heart disease (55% of the burden attributed to physical inactivity) and diabetes (33%). If Aboriginal and Torres Strait Islander people had the same activity levels as the total Australian population, the total Indigenous excess burden of disease (or health gap) could be reduced by up to 7% (Vos et al. 2007).

Studies of the relationship between physical activity and the presence of disease have confirmed the risk reduction that it provides for heart disease (Stephenson et al. 2000; Bull et al. 2004), essential hypertension (Kokkinos et al. 2001), diabetes and the symptoms of depression, anxiety and stress (WHO 2008). In the case of diabetes, large scale trials in China, Finland and the United States have shown that a combination of modest weight loss, diet and moderate physical activity can reduce the risk of developing Type 2 diabetes by 50–60% in those at high risk (Bull et al. 2004).

**FINDINGS:** There was a noticeable shift towards lower levels of physical activity between 2001 and 2004–05 among Aboriginal and Torres Strait Islander Australians in non-remote areas. The proportion of sedentary Aboriginal and Torres Strait Islander people aged 15 years and over increased between those years from 37% to 47%. The proportion reporting a high level of physical activity remained unchanged over this period at 7%.

After adjusting for differences in age structure, Aboriginal and Torres Strait Islander peoples in non-remote areas were one and a half times as likely as other Australians to be classified as sedentary in 2004–05. A higher proportion of Indigenous females than Indigenous males were sedentary (51% compared with 42%).

The proportion of Indigenous Australians who were sedentary ranged from 37% in Tasmania and the Australian Capital Territory to 51% in New South Wales.

Proportions of Aboriginal and Torres Strait Islander peoples with sedentary or low levels of physical activity

were highest among those aged 45 years and over, while moderate or high levels of physical activity were highest among those aged 15–24 and 25–34 years (32% and 27% respectively).

Over three-quarters (78%) of Indigenous people aged 15 years and over who were overweight or obese reported exercising at low or sedentary levels. Most Indigenous current smokers (83%) reported low or sedentary exercise levels.

There is a positive association between level of physical activity and self-assessed health status. For Aboriginal and Torres Strait Islander people in non-remote areas the proportion reporting excellent, very good or good health status rises from 71% for those whose physical activity levels are sedentary to 94% of those engaging in high levels of physical activity.

**IMPLICATIONS:** Improving physical activity levels presents a significant opportunity for closing the gap in Indigenous disadvantage, particularly in terms of a reduction in deaths from ischaemic heart disease and diabetes.

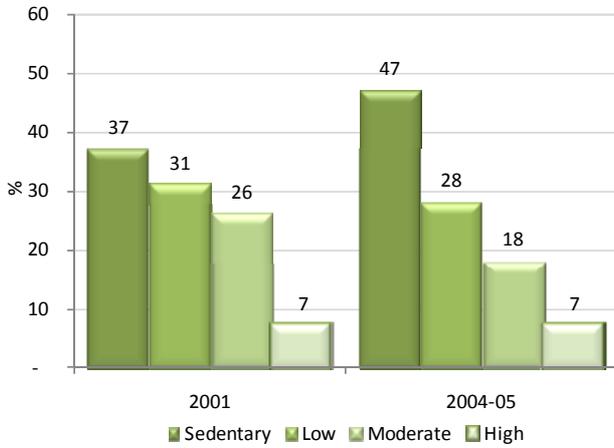
Individual health behaviours should be interpreted with an understanding of the socioeconomic and structural factors that incline the population to risk (OATSIH 2004). In relation to physical activity, the *Cultural Respect Framework for Aboriginal and Torres Strait Islander Health* (AHMAC 2004) identifies the need for cultural competence standards, action planning and cultural protocols in population health programs at the corporate, organisational and care delivery levels.

A priority of the NSFATSIH is to address the predeterminants of chronic disease with a particular focus on nutrition and physical activity. Action areas include partnerships with governments, local councils, private sponsors, and sports and recreation organisations to encourage the involvement of Aboriginal and Torres Strait Islander peoples in sport and recreational activities.

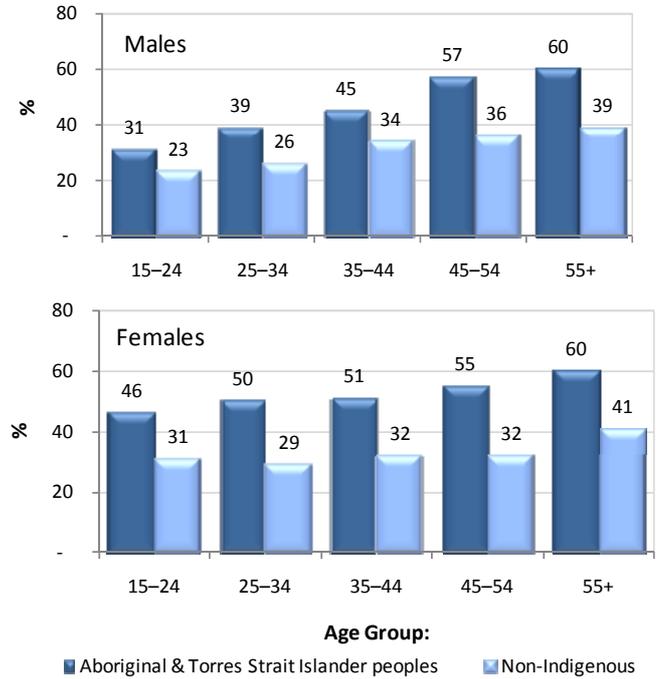
To encourage opportunities for physical activity, funding agreements are in place to provide access to a range of sport and physical recreation activities across Australia. These agreements include weekly sports competitions, sports carnivals, small sporting grants, sports equipment, sport and recreation officers and access to sport-specific accreditation (e.g. sports administration, umpiring, coaching). Community-based health promotion initiatives incorporating traditional games are also being analysed for holistic benefits including cultural connectedness and improved wellbeing (Parker et al. 2006).

Preventative health is also a key priority area of the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*. Under the Agreement, governments are introducing initiatives to help reduce the lifestyle risk factors that contribute to preventable chronic disease, including a network of healthy lifestyle worker teams to promote improved physical activity.

**Figure 122 – Indigenous persons aged 15 years and over, level of physical activity, non-remote areas, 2001 and 2004–05**



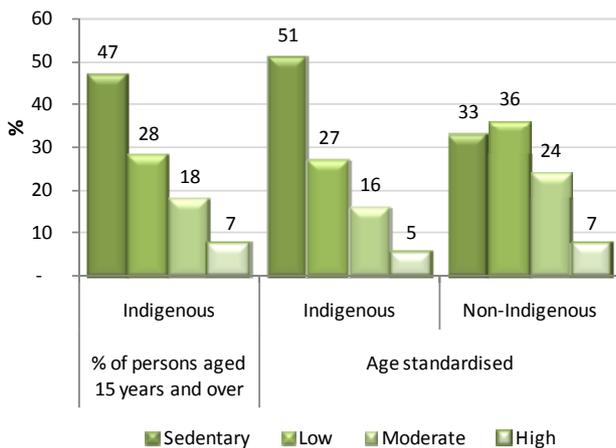
**Figure 123 – Persons aged 15 years and over reporting a sedentary level of physical activity, by Indigenous status, sex and age group, non-remote areas, 2004–05**



Source: ABS & AIHW analysis of 2001 National Health Survey (Indigenous supplement) and 2004–05 National Aboriginal and Torres Strait Islander Health Survey

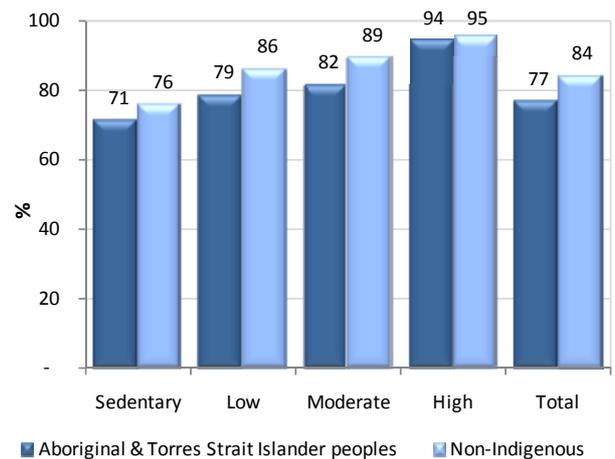
Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 124 – Persons aged 15 years and over, level of physical activity, by Indigenous status, non-remote areas, 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Figure 125 – Persons aged 15 years and over reporting excellent, very good or good health status by Indigenous status and level of physical activity, non-remote areas, age-standardised, 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

## 2.23 Dietary behaviours

**WHY IS IT IMPORTANT?:** Many of the principal causes of ill-health among Aboriginal and Torres Strait Islander peoples are nutrition-related diseases, such as heart disease, Type 2 diabetes and renal disease. While a diet high in saturated fats and refined carbohydrates increases the likelihood of developing these diseases, regular exercise and intake of fibre-rich foods, such as fruit and vegetables, can have a protective effect against disease. The National Health and Medical Research Council's Australian Dietary Guidelines recommend that adults eat a minimum of five serves of vegetables and two serves of fruit per day (ABS 2006a; ABS & AIHW 2008).

The Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples 2003 (Vos et al. 2007) attributed 3.5% of the total burden of disease in the Aboriginal and Torres Strait Islander population to low fruit and vegetable consumption. Its impact is largely as a risk factor for ischaemic heart disease (Vos et al. 2007). Diet-related diseases are caused by combinations and interactions of environmental, behavioural, biological, social and hereditary factors. There is a substantial quantity of evidence that associates dietary excesses and imbalances with chronic disease. Of particular relevance in Indigenous communities are factors such as socioeconomic status and other risk factors including insulin resistance, glucose intolerance, obesity (especially central fat deposition), hypertension, high blood triglycerides, prenatal and postnatal nutrition and childhood nutrition (NHMRC 2000; Longstreet et al. 2008). Good maternal nutrition and healthy infant and childhood growth are fundamental to the achievement and maintenance of health throughout the life cycle. A mother's nutritional status is one factor that has been associated with low birthweight in babies. Growth retardation among Indigenous infants after the age of 4 to 6 months has consistently been noted. Relatively poor growth has also been shown to persist in older children, although overweight and obesity are also increasing (NHMRC 2003).

**FINDINGS:** In 2004–05, in non-remote areas, 42% of Aboriginal and Torres Strait Islander people were eating the recommended daily intake of fruit (2 or more serves) and 10% the recommended daily intake of vegetables (5 or more serves). The majority of Indigenous Australians aged 12 years and over reported eating vegetables (95%) and/or fruit (86%) daily. However, 24% of those in non-remote areas reported a low usual daily vegetable intake (does not eat vegetables or eats 1 or less serves per day). This proportion had increased since it was measured at 18% in 2001 (ABS 2002). A higher proportion (58%) of Indigenous Australians aged 12 years and over in non-remote areas reported a low usual daily fruit intake (does not eat fruit or eats 1 or less serves per day) in 2004–05, up from 56% in 2001.

Fruit and vegetables may be less accessible to Indigenous Australians in remote areas. In remote areas, 20% of Indigenous Australians aged 12 years and over reported no usual daily fruit intake compared with 12%

in non-remote areas. The disparity was even greater for vegetables, where 15% of Indigenous Australians in remote areas reported no usual daily intake compared with 2% in non-remote areas.

After adjusting for differences in age structure, Indigenous Australians aged 12 years and over were twice as likely as non-Indigenous Australians, to report no usual daily fruit intake and 7 times as likely to report no daily vegetable intake (ABS 2006a).

The 2004–05 National Aboriginal and Torres Strait Islander Health Survey found an association between dietary behaviour and income, educational attainment and self-assessed health status. For example, Indigenous Australians aged 15 years and over in the lowest quintile of income were much more likely than Indigenous Australians in the two highest quintiles of household income to report no usual daily fruit intake (17% compared with 8%) and no usual daily vegetable intake (8% compared with 0.8%). Low fruit and vegetable intake was also associated with smoking and risky/high risk alcohol consumption.

**IMPLICATIONS:** Evidence suggests that people living in poverty tend to maximise calories per dollar spent on food. Energy-dense foods rich in fats, refined starches and sugars represent the lowest cost options, while healthy diets based on lean meats, whole grains and fresh vegetables and fruits are more costly (Drewnowski & Specter 2004).

Key Results Area Six of the NSFATSIH outlines action plans for partnerships between the media, the health sector, schools, and Indigenous Australian communities, to encourage understanding of nutrition and healthy eating for children and parents and to promote healthy food choices. In Queensland the 'Healthy Jarjums' school-based nutrition program was designed by a local Indigenous teacher in consultation with nutritionists and the community. Its evaluation concluded that it could be successfully implemented in other disadvantaged areas with a high Indigenous population.

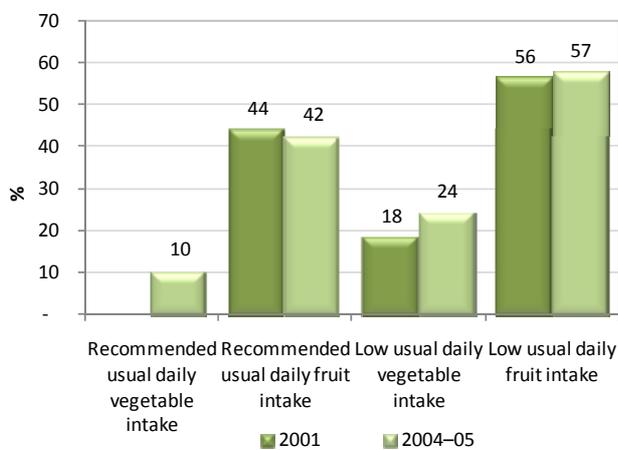
A major achievement of the *National Aboriginal and Torres Strait Islander Nutrition Strategy and Action plan 2000–2010*, a component of *Eat Well Australia*, was the Remote Indigenous Stores and Takeaways project that aimed to improve access to good quality, affordable healthy food in remote Aboriginal and Torres Strait Islander communities. Guidelines and resources were developed to assist store and takeaway managers and health/nutrition stakeholders to improve freight, stocking, promotion and monitoring of healthy food sold in remote communities.

The *Get Up and Grow: Healthy Eating and Physical Activity for Early Childhood* resources were launched in October 2009, providing evidence-based practical information to support healthy behaviours in children attending early childhood education and care services. The resources are currently being translated into nine non-English languages and there are plans to produce an adapted version of the resources for Indigenous communities.

Under the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*, the Commonwealth, States and Territories have committed to preventive health as a key priority area. For example, the Commonwealth's Indigenous Chronic Disease Package, includes funding for community education activities to reduce risk factors through a new Healthy Lifestyle workforce to promote improved nutrition.

A person's access to a healthy diet can be influenced by a range of socioeconomic, geographical, environmental factors. Food security, food access and food supply

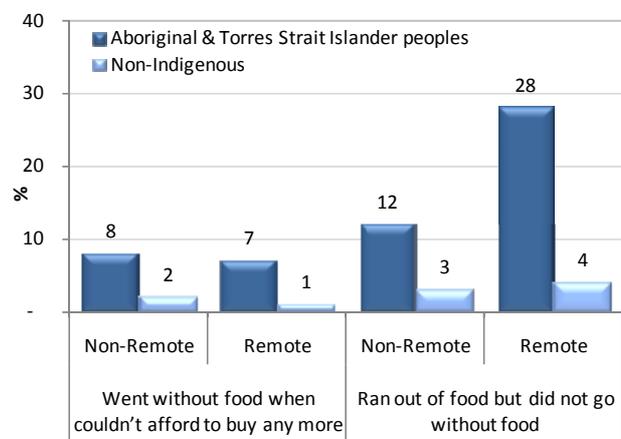
**Figure 126 – Percentage of Indigenous Australians aged 12 years and over, by usual daily intake of vegetables and fruit, non-remote areas, 2001 and 2004–05**



Source: AIHW analysis of 2001 National Health Survey (Indigenous supplement) and 2004–05 National Aboriginal and Torres Strait Islander Health Survey

issues are of particular importance in rural and remote areas. Remote stores often have a limited range of foods, particularly perishable foods such as fresh fruit, vegetables and dairy foods, and purchase prices are usually higher. Low income combined with high food costs result in many Indigenous Australians spending a large percentage of their income on food and contributes to concerns among Indigenous Australians of going without food (Brimblecombe & O'Dea 2009). An estimated 30% of Aboriginal adults worry at least occasionally about going without food (Strategic Inter-Governmental Nutrition Alliance 2001).

**Figure 127 – Age-standardised proportion of persons aged 15 years and over who ran out of food and couldn't afford to buy more at some time over the last year, 2004–05**



Source: AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

**Table 56 – Selected dietary habits, by remoteness, Indigenous persons aged 12 years and over, Australia, 2004–05**

Dietary behaviours:	Non-remote	Remote	Total
	%	%	%
<b>Vegetable intake</b>			
Eats vegetables daily	98	84	95
<b>Fruit intake</b>			
Eats fruit daily	88	80	86
<b>Usual type of milk consumed</b>			
Whole	76	87	79
Low/reduced fat	14	4	11
Skim	5	2	5
Total drinks milk	97	95	96
Does not drink milk	3	5	4
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>
<b>Salt added after cooking</b>			
Never/rarely	35	16	30
Sometimes	23	30	25
Usually	43	53	46
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>

Source: ABS 2006a

## 2.24 Breastfeeding practices

**WHY IS IT IMPORTANT?:** Breastfeeding is one of the most important health behaviours for promoting the survival, growth, development and health of infants and young children. Current guidelines recommend exclusive breastfeeding for the first 6 months of life and that breastfeeding be continued until 12 months of age and even beyond (NHMRC 2003).

Babies born to Aboriginal and Torres Strait Islander mothers have higher rates of infant mortality (see measure 1.19). Breastfeeding offers protection against many conditions, including sudden infant death syndrome (SIDS), diarrhoea, respiratory infections, middle ear infections, and the development of diabetes in later life.

Aboriginal and Torres Strait Islander babies are also more likely to experience poorer physical development and a disproportionately high prevalence of illness and conditions such as poor dental health. The NHMRC guidelines recognise the protection that breastfeeding can provide against poor health outcomes in early childhood.

**FINDINGS:** In 2004–05 breastfeeding rates for Indigenous children aged 0–3 years were lower (79%) than for non-Indigenous children aged 0–3 years (88%) in non-remote areas.

In the 2008 NATSISS breastfeeding status varied by remoteness, with a higher proportion of Aboriginal and Torres Strait Islander children aged under 12 months being breastfed in remote areas (70%) than in non-remote areas (55%). A smaller proportion of children

aged 0–3 years in remote areas had never been breastfed compared with children in non-remote areas (14% and 25% respectively).

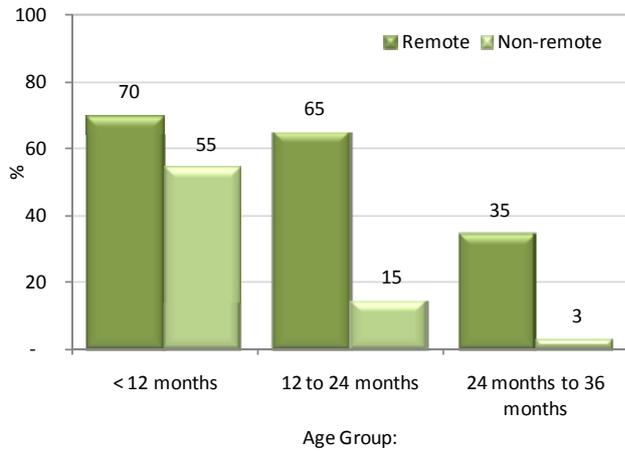
In 2004–05 a higher proportion of Aboriginal and Torres Strait Islander infants (18%) than others (10%) were first given solid food within their first 3 months. By the time they reached 9 months, similar proportions of both groups had been given solid food regularly. In 2008 the proportion of Indigenous children first given solid food regularly within the first three months category dropped to 5% but rose to 43% in the 3–6 month category.

**IMPLICATIONS:** The NSFATSIH recognises that child and maternal health should be addressed both by health system interventions and through partnerships with other sectors. There are opportunities for the promotion of breastfeeding in educational settings and within the health sector, particularly in antenatal and post-natal care.

The *Australian National Breastfeeding Strategy 2010–2015* was endorsed by Health Ministers on 13 November 2009. The Strategy aims to promote, protect and support breastfeeding in Australia, and recognises the importance of breastfeeding support for priority groups. The implementation plan for the Breastfeeding Strategy includes an initiative to ‘promote breastfeeding within Indigenous Australian communities as a preventative health measure’.

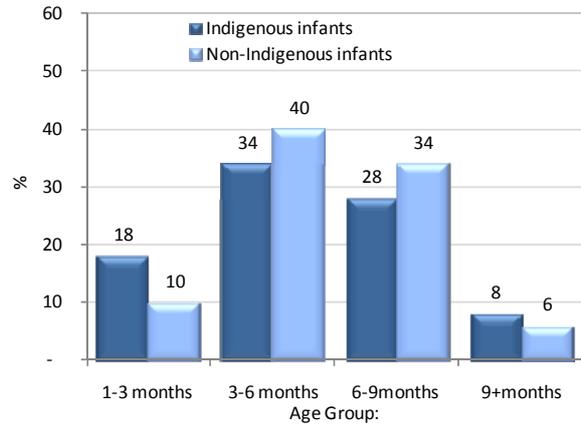
Monitoring of breastfeeding practices should be undertaken in conjunction with measures 1.08 Diabetes, 1.12 Children’s hearing loss, 1.19 Infant mortality rate, 1.20 Perinatal mortality, 1.21 Sudden infant death syndrome and 3.01 Antenatal care.

**Figure 128 – Aboriginal and Torres Strait Islander children aged less than 3 years and currently breastfeeding, by age and remoteness, 2008**



Source: Source: ABS analysis of the 2008 NATSISS

**Figure 129 – Children in non-remote areas aged less than 3 years: age at which first given solid food regularly, by Indigenous status 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Table 57 – Aboriginal and Torres Strait Islander children aged 0–3 years: Breastfeeding status by State/Territory, 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Breastfeeding age range: Per cent									
0 to <6 months	39	39	36	28	37	35	44	13	34
6 months or more	16	24	26	26	17	32	23*	21	22
Currently breastfeeding	13	14	18	31	16*	7*	13*	51	21
Ever breastfed	68	80	80	85	70	74	80	88	77
Never breastfed	32	20	20	15	30	27*	20#	12*	23
<b>Total</b>	<b>100</b>								
Number									
Total children 0-3 years	15,704	3,322	16,385	6,623	2,759	1,818	430	5,608	52,648

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

# estimates with a relative standard error greater than 50% are considered too unreliable for general use.

Source: ABS analysis of the 2008 NATSISS

## 2.25 Unsafe sexual practices

**WHY IS IT IMPORTANT?:** Unsafe sexual practices involve the failure to take precautions during sex, which may result in sexually transmitted infections (STIs), reproductive tract infections and a range of adverse reproductive health consequences such as unintended pregnancy, abortion, infertility and cancer resulting from STIs, sexual dysfunction and certain aspects of mental health (WHO 2006). The consequences of unsafe sexual practices can be high and the impact on individuals, families and communities can continue long after the unsafe sexual practices have ceased. STIs are more prevalent among Indigenous Australians than for other Australians (see measure 1.11). Bacterial STIs can have serious long-term consequences, such as chronic abdominal pain or infertility in women caused by chlamydia and gonorrhoea, genital damage due to donovanosis, and heart and brain damage caused by syphilis. Unsafe sexual practices can in some cases result in sexual dysfunction.

Currently, 1 in 5 Indigenous births are to mothers under the age of 20 (ABS 2007a). Pregnancy at a young age is generally associated with higher rates of complications during pregnancy and delivery. Teenage births are associated with lower annual income, educational attainment and employment prospects for the mother (Women's Health Queensland Wide Inc. 2008).

It should be recognised that teenage pregnancy is only a proxy measure of unsafe sexual practices. Not all unsafe sexual practices result in teenage pregnancy and not all teenage pregnancies are unplanned.

The burden of disease study (Vos et al. 2007), attributed 1.2% of the total burden of disease in the Aboriginal and Torres Strait Islander population to unsafe sex, primarily cervical cancer, chlamydia and HIV/AIDS.

**FINDINGS:** For the period 2006–08 notification rates for Aboriginal and Torres Strait Islander peoples were 4 times higher for chlamydia, 38 times higher for gonorrhoea and 18 times higher for syphilis compared with non-Indigenous Australians (see also measure 1.11). Over the period 1994–96 to 2006–08, notification rates for chlamydia and gonorrhoea have increased significantly for Indigenous people (199% and 61% respectively), but have fallen for syphilis (by 14%).

In the period 2005–07, there were 6,396 mothers aged less than 20 years who identified as Aboriginal or Torres Strait Islander. This represented 22% of all Indigenous mothers and a rate of 47 per 1,000 women. Non-Indigenous mothers were less likely to be aged less than 20 years, with a rate of 9 per 1,000 women. A higher proportion of Indigenous women giving birth in very remote areas were aged less than 20 years (25%) compared with those living in remote areas, outer

regional, inner regional areas and major cities (21%, 20%, 20% and 18% respectively).

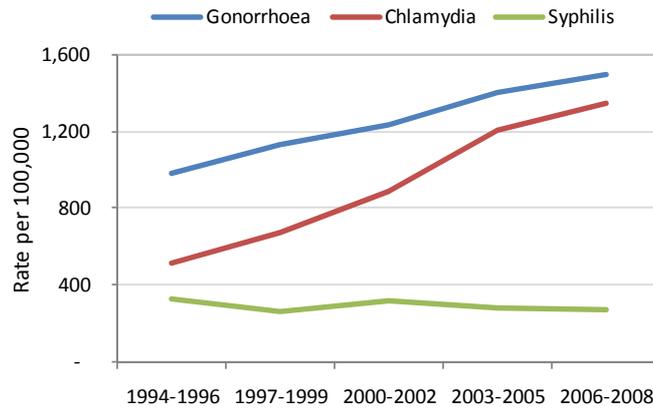
In the period 2005–07, approximately 13% of Indigenous teenage mothers had births that were preterm and the same proportion gave birth to low birthweight babies. The low birthweight rate for young Indigenous mothers was the same as the overall Indigenous rate while for non-Indigenous mothers low birthweight was higher for young mothers (8%) compared with an overall rate of 6%. Around 10% of non-Indigenous teenage mothers had pre-term births.

**IMPLICATIONS:** Very little data are available on unsafe sexual practices for Aboriginal and Torres Strait Islander Australians. National surveys on this topic do not have sufficient sample sizes to produce reliable estimates for Indigenous Australians. The two proxy measures that are available show high notification rates for STIs and high rates of teenage pregnancy for Aboriginal and Torres Strait Islander peoples. They suggest that there are significant issues with unsafe sexual practices within the population. Several national strategies have specifically addressed the issue of STIs among Indigenous Australians. These strategies recognise the need for integrated solutions that address both individual sexual behaviour and education. In relation to health behaviours, key strategies focus on improved surveillance and increasing access to health services. In the education domain, entry points include improved education for young people about safe sexual practices; risks of unplanned pregnancies and STIs; increasing the number of Indigenous health workers trained in sexual health; and community-based awareness programs that target out-of-school people who are particularly vulnerable.

The goal of the *Third National Aboriginal and Torres Strait Islander Blood Borne Viruses and Sexually Transmissible Infections Strategy 2010–2013* is to reduce the transmission of, and morbidity and mortality caused by, STIs and blood borne viruses and to minimise the personal and social impact of these infections. Having identified the priority populations within Indigenous communities, priority action areas have been recommended to achieve this goal. An important element of the strategy is to ensure that unsafe sexual practices are reduced.

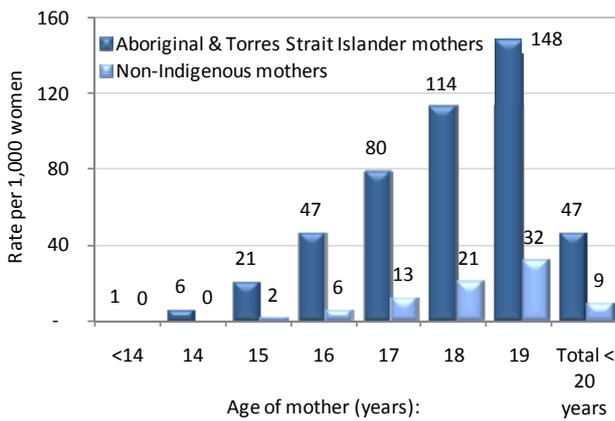
In October 2008, COAG signed the *Indigenous Early Childhood Development National Partnership Agreement* to improve the developmental outcomes of Indigenous children. The Partnership seeks to provide young Indigenous children with the best start to life by implementing strategies to improve access to pre-pregnancy, teenage reproductive health and sexual health services to support good sexual health, healthy reproductive decision making, and healthy pregnancies that give rise to healthy children.

**Figure 130 – Notification rate for gonorrhoea, chlamydia and syphilis, Aboriginal and Torres Strait Islander peoples, WA, SA and NT, 1994–1996 to 2006–2008**



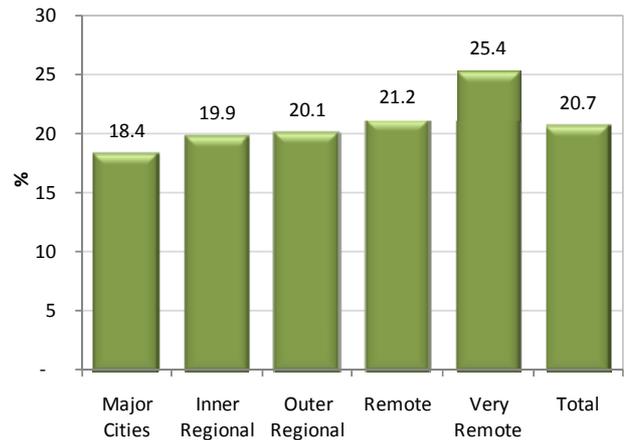
Source: AIHW analysis of National Notifiable Diseases Surveillance System

**Figure 131 – Rate per 1000 women aged less than 20 years who gave birth, by Indigenous status, 2005–2007**



Source: AIHW analysis of National Perinatal Statistics Unit National Perinatal Data Collection

**Figure 132 – Aboriginal and Torres Strait Islander women aged less than 20 years who gave birth as a proportion of total women who gave birth, by remoteness, 2005–2007**



Source: AIHW analysis of National Perinatal Statistics Unit National Perinatal Data Collection

## 2.26 Prevalence of overweight and obesity

**WHY IS IT IMPORTANT?:** Overweight and obesity is a global health problem. Being overweight or obese is a risk factor linked to various chronic diseases. The Australian Burden of Disease study found that overweight accounted for approximately 4% of the total burden of disease (Mathers et al. 1999). The Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples 2003 (Vos et al. 2007), attributed 11% of the total burden of disease in the Aboriginal and Torres Strait Islander population to high body mass.

Obesity is closely associated with risk factors for the main causes of morbidity and mortality amongst Aboriginal and Torres Strait Islander peoples (NHMRC 2000). Obesity is associated with a higher risk of developing Type 2 diabetes and cardiovascular disease. It is the second leading cause of burden among the 11 risk factors examined. Its impact is largely through diabetes, which is responsible for 49% of the burden attributed to high body mass, and ischaemic heart disease (40%). Obesity is estimated to contribute 16% of the health gap between Aboriginal and Torres Strait Islander peoples and the total Australian population (Vos et al. 2007).

**FINDINGS:** The proportion of Aboriginal and Torres Strait Islander people aged 18 years and over and living in non-remote areas who were overweight or obese increased steadily from 51% in 1995 to 60% in 2004–05. There was little change between 2001 and 2004–05 in remote areas and for the total Indigenous population (59% and 60% respectively). Obesity levels steadily increased with age. A higher proportion of Indigenous males were overweight (34%) compared with Indigenous females (24%), however, Indigenous females were more likely to be obese than Indigenous males (34% compared with 28%).

After adjusting for differences in the age structure of the two populations Indigenous Australian adults were twice as likely to be obese as non-Indigenous Australian adults.

There are no current data on the prevalence of overweight and obesity among Aboriginal and Torres Strait Islander children.

Results from the 2004–05 NATSIHS show higher proportions of Torres Strait Islanders in the overweight or obese categories than in the Aboriginal population (61% versus 56%) (ABS 2006a).

**IMPLICATIONS:** Given the health risks associated with being obese or overweight, the situation for Aboriginal and Torres Strait Islander peoples requires

urgent attention. It is second only to tobacco consumption in terms of contribution of modifiable risk factors to the health gap experienced by Aboriginal and Torres Strait Islander peoples.

In the first instance, arresting the increase in proportions of people who are overweight or obese is a reasonable target. As Australia is ranked as one of the 'fattest developed nations' (DoHA 2008a), this is one measure where it may be unwise to benchmark targets against the non-Indigenous population for the longer term.

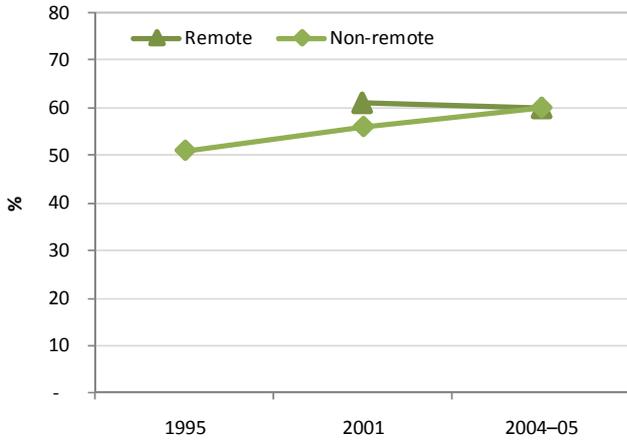
While genetic factors account for a proportion of overweight and obesity within the Australian population, poor eating patterns and lack of physical activity are regarded as the main causes (AMA 2005). Nutrition and physical activity are therefore the areas on which policies should focus. The NSFATSIH proposes partnerships with (a) food wholesalers, retailers and Aboriginal and Torres Strait Islander communities to ensure accessibility and affordability of healthy food choices; (b) media, health and education sectors to encourage understanding of nutrition and healthy food choices; and (c) state and territory governments, local councils, private sponsors and sports and recreation bodies to encourage the involvement of Aboriginal and Torres Strait Islander peoples in sport and recreational activities.

A specific focus is also needed for Torres Strait Islander peoples, particularly those living in the Torres Strait Island area.

*Taking Preventative Action*, the Australian Government's response to the 2009 National Preventative Health Strategy, committed to ensuring that actions taken to address Australia's obesity problem include specific initiatives to address obesity in the Aboriginal and Torres Strait Islander population. Actions will include whole of community education and social marketing and communication strategies for nutrition. Monitoring of this measure should be in conjunction with measures 2.22 Level of physical activity and 2.23 Dietary behaviours.

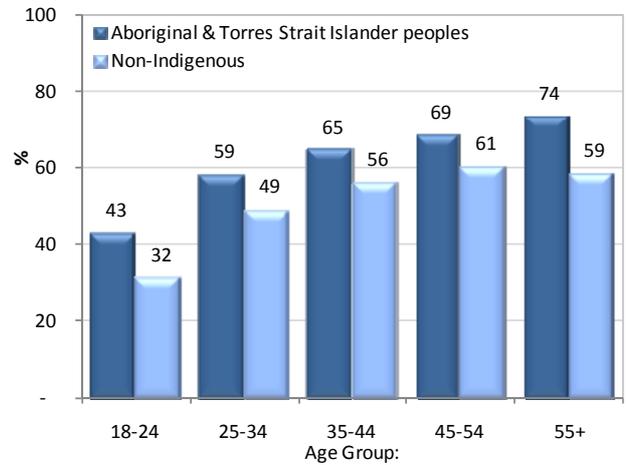
The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* comprises a package of health reforms that include a focus on preventive health and primary health care. For example, this package of work includes community education activities to address chronic disease risk factors, such as poor nutrition and lack of exercise. Other examples include initiatives that will improve specialist care for Indigenous Australians with chronic diseases, new programs which support primary care providers to better coordinate chronic disease management and increased access to specialist and multidisciplinary team care (see Tier 3).

**Figure 133 – Proportion of Aboriginal and Torres Strait Islander adults who were overweight or obese, 1995, 2001 and 2004–05**



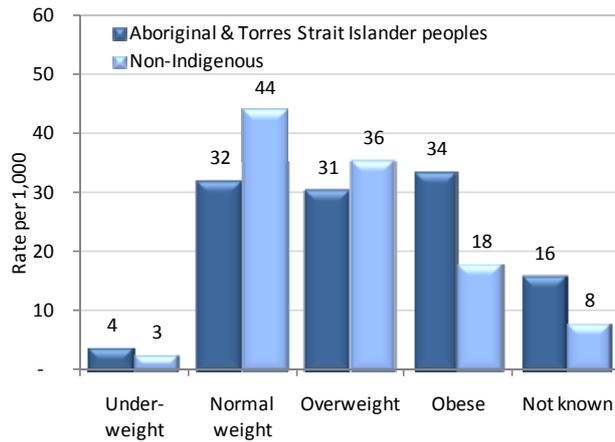
Source: ABS and AIHW analysis 1995 and 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2001 National Health Survey (Indigenous supplement)

**Figure 134 – Proportion of adults who were overweight or obese, by Indigenous status and age, 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

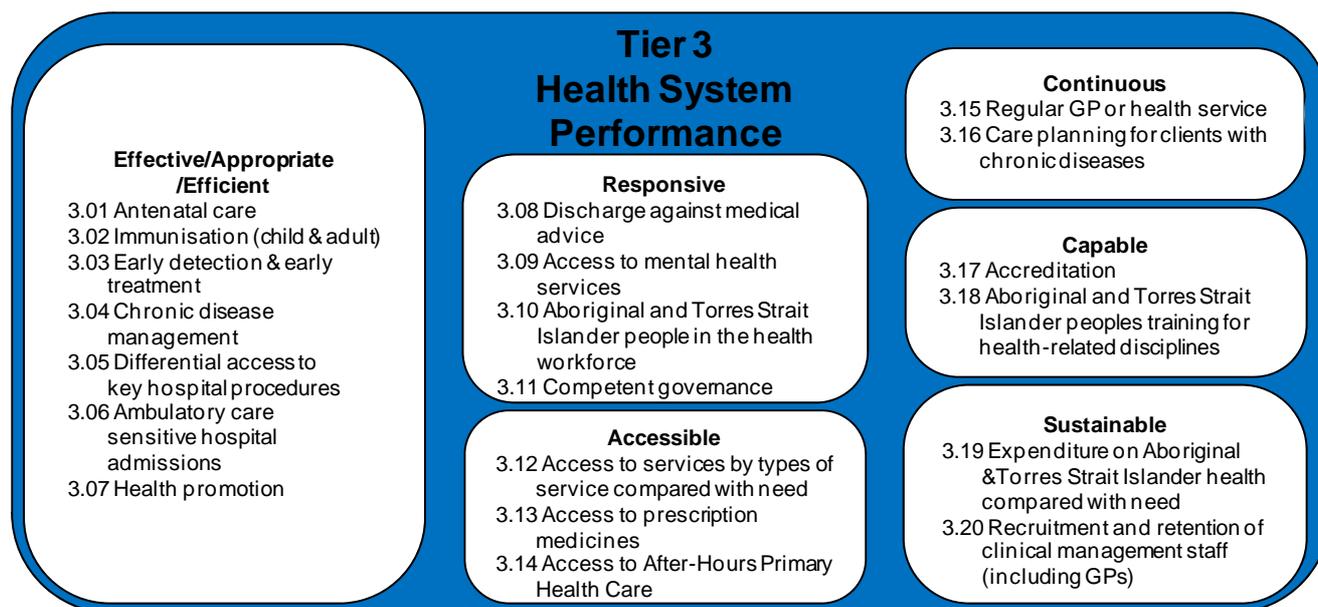
**Figure 135 – Proportion of adults (age-standardised) by weight characteristics and Indigenous status, 2004–05**



Source: ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

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## Tier 3: Health System Performance



Tier 3, Health System Performance, includes measures that address effectiveness, appropriateness, efficiency, responsiveness, accessibility, continuity, capability and sustainability of the health system. The HPF also recognises that safety is a measure of health system performance, but this is reported by alternative frameworks (ACSQHC 2009). Effectiveness, appropriateness and efficiency are measures which show progress towards achieving outcomes within established standards and meeting cultural requirements. These measures link efficiency with effectiveness to show how gaps are being addressed through continuity, coordination and adequate resources. Measures of responsiveness show the degree of client orientation within the system, and are analysed in terms of how the health system attends to values held by Aboriginal and Torres Strait Islander peoples, as articulated in the *Cultural Respect Framework* (SCATSIH 2004). Accessibility shows measures of whether people have been able to access health care as needed. Continuity looks at choices in accessing care and pathways and barriers along the patient journey. The skills and knowledge of the people who work in the health system are described, as well as the infrastructure which enables the system to deliver. The measures in Tier 3 incorporate population health, primary health care and secondary/tertiary care services. The measures deal with a range of programs and service types including child and maternal health, health promotion, early detection and chronic disease management, continuous care, access to care, the health workforce and adequacy of resources.

All of the Tiers in the HPF are inter-related and readers are encouraged to consider how measures interact. For example, measure 3.01 *Antenatal care* is enhanced by considering it as a protective factor as well as an outcome. Antenatal care provides mothers with information and support which can reduce health risk behaviours such as tobacco use during pregnancy (measure 2.19) which in turn, is related to low birthweight (measure 1.01).

Similarly, measure 3.19 *Expenditure on Aboriginal and Torres Strait Islander health compared to need* is enhanced through awareness of issues outlined in measure 3.12 *Access to services by types of service compared to need*, and all of the measures outlined in Tier 1 which demonstrate the equity issues which underpin measures of effectiveness. Health workforce development hinges upon measures in Tier 2 such as educational attainment (measures 2.04, 2.05 and 2.06).

Future directions for Tier 3 include further research and analysis to effectively measure the cultural competency of the health system. This issue connects the ability of the system to deliver appropriate care, a patient's perspective of the health system and whether patient experiences have involved barriers to effectiveness. Stakeholder feedback on the development of the 2010 report demonstrated keen interest in the issues of the capability of the health workforce (both clinical and non-clinical) to deliver culturally safe care. Research and analysis is being undertaken to better understand differential access to key hospital procedures and discharge against medical advice.

### 3.01 Antenatal care

**WHY IS IT IMPORTANT?:** Antenatal care involves “recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary” (WHO 2007). Antenatal care for pregnant women commenced in the early 1900s with the aim of detecting, and thereby preventing, both maternal and neonatal adverse events (Dodd et al. 2002). “Good access to primary health care can make a difference to the health of women of childbearing ages and women during pregnancy, as well as the fetus during growth and development and the infant and young child” (Eades 2004). Antenatal care may be especially important for Aboriginal and Torres Strait Islander women, as they are at higher risk of giving birth to low birthweight babies and other factors such as anaemia, poor nutritional status, hypertension, diabetes or glucose intolerance, genital and urinary tract infections and smoking (de Costa & Wenitong 2009). Two studies of women attending tertiary referral hospitals for obstetric care found poorer birth outcomes associated with late antenatal bookings for pregnant Indigenous women (Eades 2004).

*National Evidence-Based Antenatal Care Guidelines* are currently under development. Existing guidelines for antenatal care vary and are not always consistent with national policies or research evidence (Hunt & Lumley 2002). Most guidelines recommend that antenatal care should commence during the first trimester, as it is at this early stage that risk factors can best be assessed (Mercy Hospital for Women et al. 2001). The schedule of antenatal visits most commonly followed in Australia is monthly visits up until 28 weeks of pregnancy, fortnightly visits until 36 weeks and weekly visits thereafter. Research has found that the frequency of visits could safely be reduced to between 7 and 10 visits for low risk women (Mercy Hospital for Women et al. 2001; Wallace & Oats 2002).

The closure of rural obstetric services due to safety and workforce issues has created issues for some women requiring antenatal care in that they lose local supports and need to transfer to regional centres for parts of their pregnancy (Arnold et al. 2009). Other factors apart from geography preventing Indigenous women presenting early for antenatal care include socioeconomic, educational and family factors, transport, the frequency (or absence) of local clinics, and cultural accessibility of the services (de Costa & Wenitong 2009).

**FINDINGS:** In the four jurisdictions that recorded information on antenatal care in 2007 (NSW, Qld, SA and the NT), 97% of Aboriginal and Torres Strait Islander mothers accessed antenatal care services at least once during their pregnancy. This compares with 98% for non-Indigenous mothers. There have been significant increases in access to antenatal care in South Australia and New South Wales between 1998 and 2007 for Indigenous mothers. Despite this, access to antenatal

care appears to be lower in South Australia (91%) compared with other states.

In 2007 in the four jurisdictions for which data was available, there was little difference in the proportion of Indigenous mothers who attended at least one antenatal care session by remoteness (around 96% in major cities, 97% in regional areas and 96%–97% in remote areas). However, there were pronounced differences in those accessing antenatal care in the first trimester of the pregnancy (45% in remote areas compared with 58% in non remote areas).

In 2007, Aboriginal and Torres Strait Islander mothers accessed services later in the pregnancy and had significantly fewer antenatal care sessions. In the four jurisdictions, 54% of mothers had their first antenatal session in the first trimester of the pregnancy, compared with 72% for other mothers. On average, 75% of Indigenous mothers had 5 or more antenatal sessions compared with 93% of non-Indigenous mothers.

As the number of antenatal visits increase, there is a decreased likelihood of low birthweight babies. Indigenous mothers attending 5 or more sessions have much lower rates of low birthweight babies (9%), compared with those have 2–4 sessions (23%), 1 session (27%) or no antenatal care (36%). Similar patterns are evident with pre-term births and perinatal mortality. These relationships are also evident for non-Indigenous mothers, although the rates of low birthweight pre-term births and perinatal mortality are generally lower for non-Indigenous mothers.

In 2008–09, 54 Indigenous primary health care services participating in the *Healthy for Life Program* provided data on antenatal care. Of the 1,704 Indigenous mothers who gave birth to an Indigenous baby who were regular clients of these services, 48% attended their first antenatal visit in the first trimester of pregnancy.

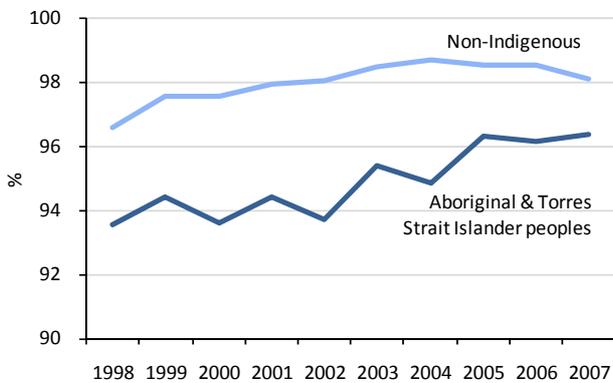
**IMPLICATIONS:** Around 97% of Aboriginal and Torres Strait Islander mothers access antenatal services at least once during their pregnancy. However, Indigenous mothers are accessing these services later in their pregnancy and less frequently than other mothers. Little is known about the factors contributing to lower levels of access, how the pregnancies for Indigenous women with higher risks are managed and whether they have adequate access to specialist obstetric care.

Targeted programs suggest improved antenatal visiting can be achieved and these can translate into improvements in health outcomes such as increased birthweight and reduced premature birth (Eades 2004; Herceg 2005; Panaretto et al. 2007). Studies have demonstrated how sustained access to community-based, integrated, shared antenatal services improve perinatal outcomes for Indigenous women (NSW Health 2006; Panaretto et al. 2007). Programs that have been reviewed are mostly based in Aboriginal and Torres Strait Islander health services or tertiary maternity services. Little is known about the factors likely to impact on antenatal care for mothers seeking care through private GPs.

There are a number of policies and programs that seek to increase access to antenatal care. In October 2008, COAG signed the *Indigenous Early Childhood Development National Partnership Agreement* with joint funding of around \$564 million over 6 years to address the needs of Indigenous children in their early years. One of the key objectives of this Partnership is to increase access to antenatal care. The *New Directions: Mothers and Babies Services* provide Aboriginal and Torres Strait Islander children and their mothers with access to antenatal care; standard information about baby care; practical advice and assistance with parenting; monitoring of developmental milestones by a

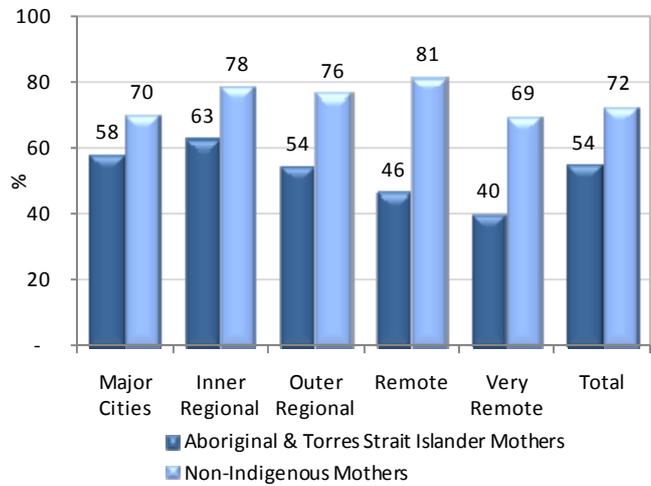
primary health care service; and health checks for children. In addition, the *Healthy for Life* program also aims to improve access to antenatal, postnatal and child health care. This program aims to improve pregnancy, birth and child health outcomes and reduce the incidence of illness for Indigenous babies and children. The *Australian Nurse Family Partnership Program* provides sustained home visiting to selected Indigenous communities across Australia and aims to improve pregnancy outcomes and childhood development including improving birthweights, and effect positive life course decisions.

**Figure 136 – Proportion of mothers who attended at least one antenatal care session, by Indigenous status NSW, Qld, SA, 1998–2007**



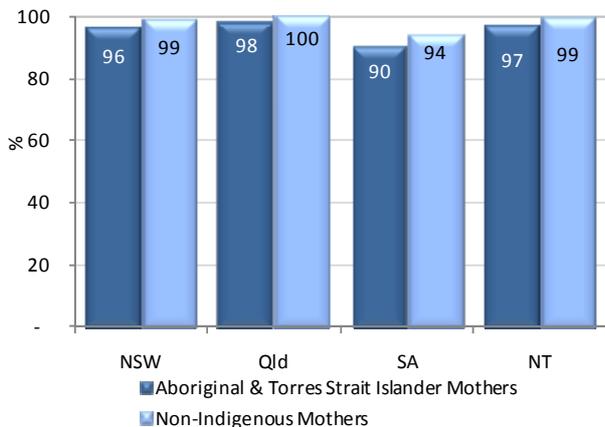
Source: AIHW analyses state/territory Perinatal Collections

**Figure 137 – Proportion of mothers whose first antenatal care session occurred in the first trimester, by Indigenous status and remoteness, NSW and NT, 2007**



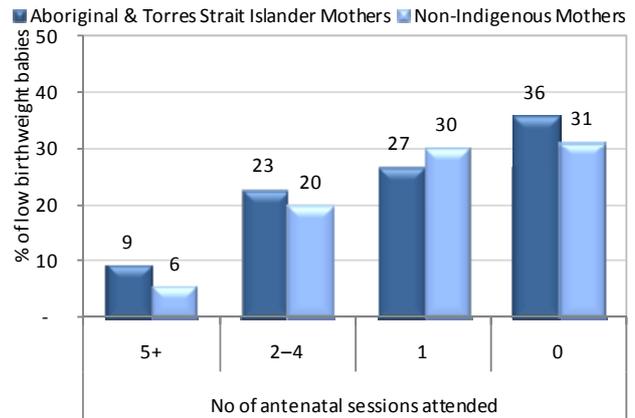
Source: AIHW analyses state/territory Perinatal Collections

**Figure 138 – Proportion of mothers who attended at least one antenatal care session, by Indigenous status, by jurisdiction, NSW, Qld, SA and NT, 2007**



Source: AIHW analyses state/territory Perinatal Collections

**Figure 139 – Relationship between antenatal care sessions attended and proportion of low birthweight babies, by Indigenous status, Qld, SA and NT, 2007**



Source: AIHW analyses state/territory Perinatal Collections

### 3.02 Immunisation (child and adult)

**WHY IS IT IMPORTANT?:** Immunisation is highly effective in reducing morbidity and mortality caused by vaccine-preventable diseases. Childhood vaccination for diphtheria was introduced in Australia in 1932 and use of vaccines to prevent tetanus, pertussis (whooping cough), and poliomyelitis became widespread in the 1950s, followed by measles, mumps and rubella in the 1960s. In more recent years, vaccines have been included for hepatitis B, Haemophilus influenza type b (Hib), pneumococcal disease, meningococcal C, varicella (chicken pox) and rotavirus. The *National Immunisation Program Schedule* provides free childhood vaccines for Australian children aged 0–7 years. Aboriginal and Torres Strait Islander children living in some states and territories also have access to a hepatitis A vaccine. Since the introduction of childhood vaccination, deaths from vaccine-preventable diseases have fallen for the general population by 99%. Vaccinations are estimated to have saved some 78,000 lives (Burgess 2003), and are effective in reducing the disease disparities between Indigenous and non-Indigenous populations, despite socioeconomic circumstances (Menzies & Singleton 2009). Vaccination rates are estimated from data recorded in the Australian Immunisation Register (ACIR). A study in 2001 found the ACIR underestimated overall Australian immunisation coverage by 2.7% at 1 year of age, and 5% at 24 months (Hull et al. 2002). Variations in Indigenous identification in the immunisation records and Medicare enrolments used in the denominator affect data accuracy.

The *National Indigenous Pneumococcal and Influenza Immunisation Program* provides free pneumococcal and influenza vaccines for all Indigenous people aged over 50 years and those medically at risk in the 15–49 years age group. For the general population, free vaccinations are available for people aged 65 years and older. Influenza and its consequences, together with pneumonia, account for many deaths in the elderly population and place significant burden on the health system. Vaccination has been demonstrated to reduce deaths (Nichol et al. 1994; Gross et al. 1995).

**FINDINGS:** In December 2009, vaccination coverage for Aboriginal and Torres Strait Islander children at 1 year of age was around 8 percentage points lower than for other children (84% compared with 92%). Some of this is due to delayed vaccination in Aboriginal and Torres Strait Islander children. By 2 years of age, the difference is around 4 percentage points (87% of Indigenous children compared with 91% for other children). At 5 years of age, the gap narrows to around 5 percentage points (78% of Indigenous children were fully vaccinated compared with 83% of other children). Coverage rates for children aged 1 year are highest in Tas, NSW and Qld. For children aged 5 years, coverage rates are highest in the NT, Tas and Vic.

Since 2001 there have been some changes in the definitions used to determine whether a child is considered to be fully immunised. In addition, the

measure used for assessing older children has switched from 6 years to 5 years of age. As a result some trends should be interpreted cautiously. Between 2001 and 2009 there has been no significant change in the proportion of Aboriginal and Torres Strait Islander and other children who were fully immunised at 1 year of age. There was a non-significant increase in Indigenous children fully immunised at 2 years of age between 2001 and 2006 but since then rates have declined for this age cohort. There was a significant increase for children aged 6 years from 83% in 2002 to 85% in 2007. This trend for older children appears to be continuing with an increase between 2008 and 2009 in children aged 5 years who are fully immunised.

In 2004–05, an estimated 60% of Aboriginal and Torres Strait Islander people aged 50 years and over reported they had been vaccinated against influenza in the last 12 months, which is an increase from an estimated 51% for 2001. Coverage in the target group for non-Indigenous Australians aged 65 years and over was 73% in 2004–05. In the same year, approximately 34% of Indigenous people aged 50 years and over had been vaccinated against invasive pneumococcal disease in the last 5 years, an increase from an estimated 25% in 2001. Coverage in the target group for non-Indigenous Australians aged 65 years and over was 43% in 2004–05. A higher proportion of Indigenous people aged 50 years and over, living in remote areas have been vaccinated against influenza in the last 12 months and invasive pneumococcal disease in the last 5 years (80% and 56% respectively) than in non-remote areas (52% and 26% respectively). Adult vaccinations are also targeted at younger Aboriginal and Torres Strait Islander people who have various risk factors. Twenty-three per cent of Indigenous adults aged 18–49 years had an influenza vaccination in the previous year. This was higher for those with at least one risk factor (29%). Twelve per cent of Indigenous adults aged 18–49 years had a pneumococcal vaccination in the previous 5 years. Those with at least one risk factor had only marginally higher rates (13%) (Menzies et al. 2008).

Between July 2007 and June 2009 approximately 10,000 valid Child Health Checks were undertaken in the prescribed areas of the Northern Territory. Overall, 29% of children received a vaccination during their health check.

Indigenous hospitalisation rates for vaccine-preventable diseases have decreased steadily since 2001–02 (see measure 3.06).

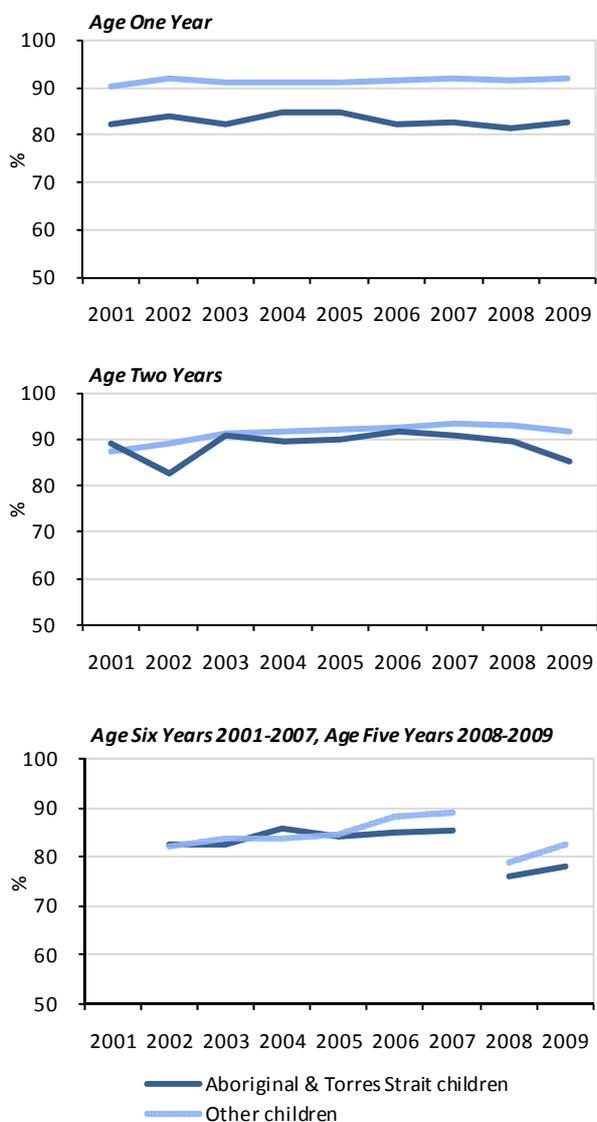
**IMPLICATIONS:** Achieving good immunisation coverage is primarily a reflection of the strength and effectiveness of primary health care. Rates of coverage for Aboriginal and Torres Strait Islander children fall below the rest of the community for children aged 1 year in particular. The gap narrows by age 5, but rates are lower than those reported for other Australian children.

In Queensland the Jabba Jabba Indigenous Immunisation Program improved access to immunisation by providing an interface with mainstream health programs and enhanced understanding of the role of Indigenous Health

Workers by hospital and community health services. Key factors for success included cultural awareness training, home visits and outreach services.

The benefits of improved coverage and new vaccines have been demonstrated for Hepatitis B, measles and pneumococcal disease (Menzies et al. 2008). Periodic epidemics of pertussis continue to be a problem, partly due to delayed vaccination in Indigenous infants and environmental living conditions (Kolos et al. 2007). Benefits are expected from the more recent introduction of vaccines for hepatitis A and chickenpox (Menzies et al. 2008). Coverage for adult vaccination for influenza and invasive pneumococcal disease has increased, but opportunities to improve coverage further exist. Around

**Figure 140 – Proportion of children fully vaccinated at age 1 year, 2 years and 6 years, NSW, Vic., SA, WA and NT combined, by Indigenous status, 2001 to 2009**



Source: AIHW analysis of Australian Childhood Immunisation Register, Medicare Australia

30% of all Indigenous Australians who had never been vaccinated against influenza or invasive pneumococcal disease had visited a doctor in the last 2 weeks.

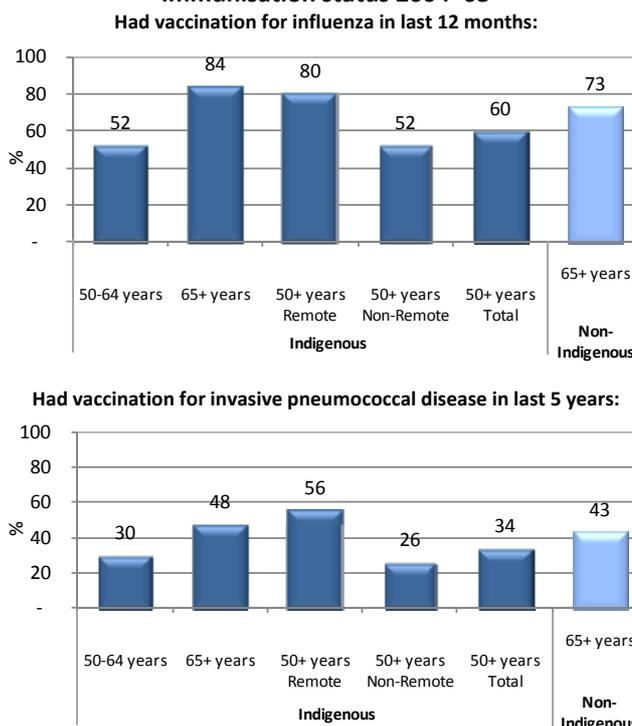
From 2009–10 the Australian Government has provided facilitation incentive payments to state and territory governments through the *National Partnership Agreement on Essential Vaccines* to encourage increases in vaccine coverage for Indigenous Australians. Jurisdictions receive reward payments if targets for Indigenous vaccine coverage are met. In addition, the *Indigenous Early Childhood Development National Partnership Agreement*, includes a focus on improving immunisation rates.

**Table 58 – Proportion of children fully vaccinated at 1 year, 2 years and five years of age, by Indigenous status and state/territory, as at 31 December 2009**

	Age One Year		Age Two Years		Age Five Years	
	Indig.	Other	Indig.	Other	Indig.	Other
NSW	87.0	92.3	88.4	91.8	78.0	80.9
Vic.	84.3	92.0	92.7	91.7	79.1	86.3
Qld	85.8	92.3	89.8	89.5	77.8	82.6
WA	73.7	90.2	73.3	91.2	74.3	81.4
SA	77.1	91.9	83.2	89.7	71.9	80.8
Tas.	91.5	92.6	90.6	92.9	85.1	86.3
ACT	80.0	93.5	95.8	93.1	68.4	85.8
NT	85.4	89.7	91.3	90.2	86.2	77.8
<b>Australia</b>	<b>84.1</b>	<b>92.0</b>	<b>87.1</b>	<b>91.1</b>	<b>78.2</b>	<b>82.8</b>

Source: AIHW analysis of Australian Childhood Immunisation Register, Medicare Australia

**Figure 141 – Proportion of Aboriginal & Torres Strait Islander persons aged 50 years and over and non-Indigenous persons aged 65 years and over: immunisation status 2004–05**



Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey, and 2004–05 National Health Survey

### 3.03 Early detection and early treatment

**WHY IS IT IMPORTANT?:** Early detection is the discovery of a disease or condition at an early stage of its development or onset, usually prior to the development of symptoms. Early detection may occur for individual patients, where clinically indicated, or for all members of a population through screening programs. In Australia, primary health care providers, including Aboriginal and Torres Strait Islander health services, and GPs, are a key element in early detection and early treatment programs. Early detection and treatment programs are most effective when there are systematic approaches to ensuring assessment and screening occurs regularly, at recommended intervals.

Breast, bowel and cervical cancer screening programs are designed to detect cancer early (breast and bowel cancer) or prevent its occurrence in the first place (cervical cancer). National programs for breast and cervical screening were implemented in Australia in the early 1990s, and have been followed by reductions in mortality for these cancers. Cancer mortality rates are higher for Aboriginal and Torres Strait Islander peoples than for other Australians (Condon et al. 2004). For jurisdictions in which data are available, in the period 2004–08, Aboriginal and Torres Strait Islander women were 4 times more likely to die from cervical cancer than other Australian women. For breast cancer, the rates were similar for the two populations. Indigenous Australians in the Northern Territory have lower cancer survival for most cancer sites than other people. Compared with non-Indigenous Australians diagnosed with the same cancer, Indigenous Australians are doubly disadvantaged because they are not only diagnosed later, with more advanced disease, but also have lower survival for every stage at diagnosis (Condon et al. 2005; Cunningham et al. 2008). Indigenous patients were less likely to have had treatment for cancer (surgery, chemotherapy, radiotherapy) and waited longer for surgery than non-Indigenous patients (Valery et al. 2006).

**FINDINGS:** MBS items for health checks for Indigenous children aged 0–14 years were introduced in 2006. During 2008–09 there were 14,160 health assessments undertaken, representing around 7% of children in the target group. This may understate the coverage for Indigenous children. Between July 2007 and June 2009, there were approximately 10,000 Child Health Checks provided or funded as part of the *Northern Territory Emergency Response* which were not captured in the Medicare dataset.

Two-yearly health checks for Indigenous Australians aged 15–54 years were introduced in 2004. In 2008–09, there were 18,370 health checks performed, representing around 6% of the target group. MBS items for health assessments for Indigenous Australians aged 55 years and older were introduced in 1999. In 2008–09, health assessments were undertaken for 5,253 Indigenous Australians aged 55 years and over, around 12% of the

target population. This is half the rate for the equivalent MBS items for annual health checks for the general population aged 75 years and over. Rates of use of the health checks and health assessment items have been increasing since their introduction.

In 2007–08 an estimated 36% of Indigenous women aged 50–69 years participated in mammography screening for breast cancer compared with 55% for other Australian women. Participation was highest in Queensland (47%) and lowest in the Northern Territory (24%). Participation by Indigenous women has increased significantly from 32% in 1999–2000.

In 2004–05, 58% of Aboriginal and Torres Strait Islander women aged 18 years and over reported having a regular Pap smear test. This compares with an estimated 61% of all Australian women aged 20–69 years who were recorded in the national cervical screening register in 2004–05 (AIHW 2008b). Indigenous women living in remote areas were more likely to report having a regular Pap smear test than those in major cities (65% vs 54%).

In 2008, 159,839 Australians participated in the *National Bowel Screening Program*. Of these, 945 identified as Indigenous. The rate of people responding to an invitation to participate in the program was significantly lower for Indigenous Australians (10.6% vs 23.5% for non-Indigenous). Of the people with positive results, follow-up colonoscopies were reported for 50% of the Indigenous group, compared with 64% for the non-Indigenous group.

Most Aboriginal and Torres Strait Islander primary health care services provide early detection and early intervention services. In 2008–09, these services reported providing regular well persons' checks (80%), and screening for cervical cancer (80%), diabetes (78%), sexually transmissible diseases (73%), hearing problems (72%), eye disease (69%), cardiovascular disease (66%) and renal disease (54%).

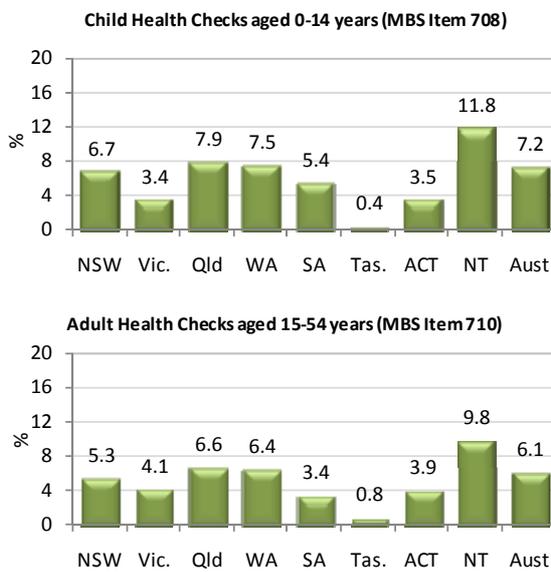
**IMPLICATIONS:** Early detection and early treatment through primary health care has significant benefits for those at risk of disease. Not all primary health care services for Aboriginal and Torres Strait Islander peoples have established systems for screening and early detection, suggesting opportunities to extend systematic approaches. This is a challenge shared with mainstream general practice. The take-up of annual health assessments for Indigenous Australians aged 55 years and over is low but increasing. A number of studies have found that only a minority of mainstream GPs identified which of their patients were Aboriginal and/or Torres Strait Islander (Norris et al. 2004; Riley et al. 2004). Those GPs who do not identify their Indigenous patients are then not in a position to offer any of the Aboriginal and Torres Strait Islander-specific health initiatives, including the additional MBS, PBS and immunisation programs available.

The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008c) aims to improve early detection and management of

chronic diseases. In November 2009, the MBS was amended to allow Practice Nurses and Aboriginal Health Workers to provide additional follow-up care after an Aboriginal and Torres Strait Islander Health Assessment, with an increase from 5 to 10 MBS rebated items per year per person. In May 2010 a new *Practice Incentive Program* was introduced to support health services to provide better health care, including early detection and treatment of chronic disease. Achieving better participation rates in screening programs could have important positive impacts on Indigenous health. There is evidence that population-based programs such

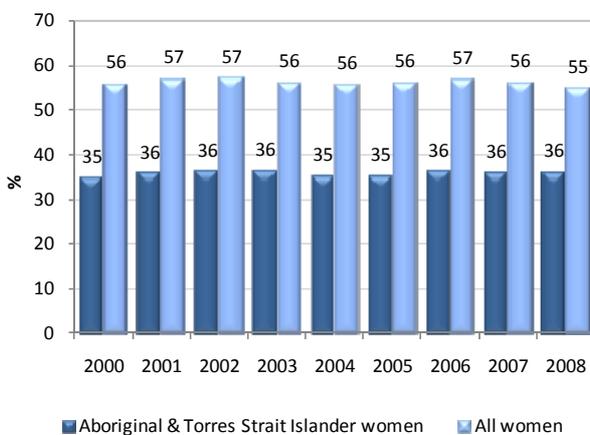
as the *National Bowel Screening Program* need to develop better ways of ensuring vulnerable minorities, particularly Indigenous people, are encouraged to participate (Christou et al. 2010) and that screening occurs more regularly. Up to 90% of the most common form of cervical cancer could be prevented through regular screening. The HPV vaccination provides a new opportunity to reduce the excess in cervical cancer mortality. However, screening through Pap smears will remain vital for many decades, as the current vaccines are not effective against all types of HPV that cause cervical cancer.

**Figure 142 – Rate per 100 persons in target group receiving Medicare Benefits Schedule Health Checks, Aboriginal and Torres Strait Islander people aged 0–14 years and 15–54 years, 2008–09**



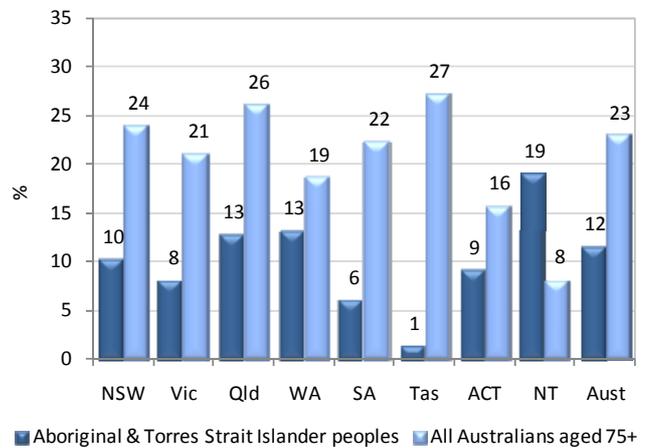
Source: AIHW analysis of Medicare data

**Figure 144 – Participation rates for BreastScreen Australia, Women 50–69 years by Indigenous status, 1999–2000 to 2007–08**



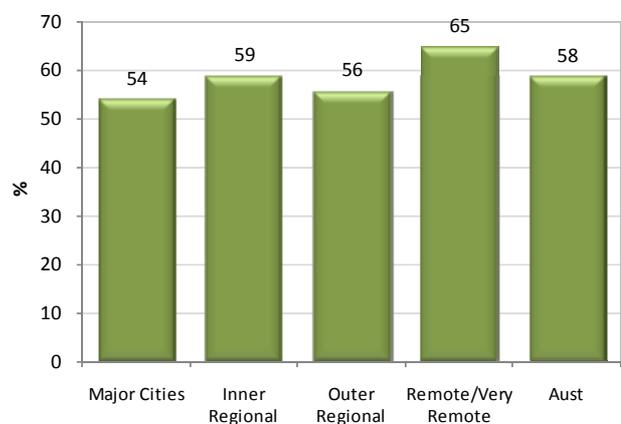
Source: AIHW analysis of BreastScreen Australia data

**Figure 143 – Rate per 100 persons in target group receiving Medicare Benefits Schedule Health Assessments, Aboriginal and Torres Strait Islander people aged 55 years and over, all Australians aged 75 years and over, 2008–09**



Source: AIHW analysis of Medicare data

**Figure 145 – Aboriginal and Torres Strait Islander women aged 18 years and over who had regular pap smear tests by remoteness, 2004–05**



Source: AIHW analysis of the 2004–05 National Aboriginal and Torres Strait Islander Health Survey

### 3.04 Chronic disease management

**WHY IS IT IMPORTANT?:** Chronic diseases such as circulatory disease, diabetes, renal disease, chronic respiratory disease, cancers and chronic mental health conditions are the major causes of morbidity and mortality among Aboriginal and Torres Strait Islander peoples. Better management of these conditions is a key factor in meeting the target of closing the life expectancy gap between Indigenous and non-Indigenous Australians within a generation. Chronic disease is estimated to be responsible for 70% of the health gap (Vos et al. 2007). Effective management of chronic disease can delay the progression of disease, improve quality of life, increase life expectancy, and decrease the need for high-cost interventions. Good quality care for people with chronic disease generally involves multiple health care providers across multiple settings and the engagement of the client and their families in self-management of the condition (NHPAC 2006). Typically, the primary health care provider plays a central role in chronic disease management through systematic or opportunistic screening to identify patients with asymptomatic disease, development of a management plan with the patient and their family, regular assessment of the extent to which the chronic illness is well controlled, regular checks to identify early signs of complications, and referral to specialist care where this is warranted. Chronic disease management requires early access to specialist care where necessary, with primary care providers continuing to play a key role in the management of the disease. To play an effective role in chronic disease management, primary health care services need to take an organised approach reflecting evidence-based guidelines (Wagner et al. 1996; Bodenheimer et al. 2002).

**FINDINGS:** Medicare claims data show that in 2009-10, after adjusting for differences in age structure, Indigenous Australians were more likely to have received a claimed service for Chronic disease management plans than non-Indigenous Australians. These include GP management plans (76 per 1,000 compared to 47 per 1,000) and team care arrangements (60 per 1,000 compared to 37 per 1,000). Chronic disease management plans are designed to provide rebates for GPs to manage chronic or terminal medical conditions by preparing, coordinating, reviewing or contributing to chronic disease management plans. They apply for a patient who suffers from at least one medical condition that has been present (or is likely to be present) for at least six months or is terminal. Indigenous Australians also had a higher rate of nurse/Aboriginal Health Worker consultations claimed than non-Indigenous Australians (578 per 1,000 compared with 327 per 1,000).

Information on Indigenous Australians receiving care from GPs is available through the Divisions of General Practice National Performance Indicators. Based on data reported from 53 (out of 108) Divisions, 58% of Indigenous patients on practice diabetes registers had an HbA1c test in the last 12 months where the results were

recorded on the register, compared with 60% of non-Indigenous Australians. In addition, 56% of Indigenous Australians on the diabetes registers had a cholesterol test, compared with 65% of non-Indigenous Australians (based on 48 of 108 Divisions). These data may be limited by the poor quality of Indigenous identification in the registers.

Information on the management of chronic conditions by Aboriginal and Torres Strait Islander primary health care services is available through OATSIH Services Reporting (OSR) and the *Healthy for Life* collections. Through the OSR for 2008-09, it was estimated that approximately 65% of services employed a doctor and 86% provided management of chronic illness. Services also report on whether they have systems in place which assist with clinic operational practices, particularly for the provision of services to people with chronic disease. In 2008-09 71% of services reported keeping track of clients needing follow-up, 73% reported they maintained health registers (e.g. chronic disease register), 74% used clinical practice guidelines, and 64% reported they used patient information and recall systems (PIRS) that automatically provide reminders for follow-up and health checks. These have all increased in recent years.

A range of quality improvement approaches are being implemented across general practice and Aboriginal and Torres Strait Islander primary health care services in Australia, including the Australian Primary Care Collaboratives, the Audit and *Best Practice for Chronic Disease (ABCD)* program (now under the auspice of One21seventy CQI cycle) and the *Healthy for Life* program. By 2009, 62 health centres were participating in the *ABCD* program. Earlier research under the *ABCD* program demonstrated that the proportion of Indigenous Australians with Type 2 diabetes receiving 6-monthly HbA1c tests could be increased from 41% to 72% in remote locations (Bailie et al. 2007).

The *Healthy for Life* program supports quality improvement processes in 100 services through 57 sites across Australia. In 2009 around 9,960 regular clients of these services had Type 2 diabetes. In the 6 months to December 2009, around 50% had an HbA1c test performed and 59% had their blood pressure assessed. For the services that reported the results of these tests, 70% had HbA1c levels that were higher than the recommended level for people with diabetes (i.e. less than or equal to 7%), and 55% had elevated blood pressure. For Aboriginal and Torres Strait Islander people with coronary heart disease who are regular clients, 64% had their blood pressure assessed in the last 6 months. For the services that reported the results of these tests, 35% of people with coronary heart disease had elevated blood pressure. *Healthy for Life* national chronic disease data reflects the increasing chronic disease burden in the Australian population.

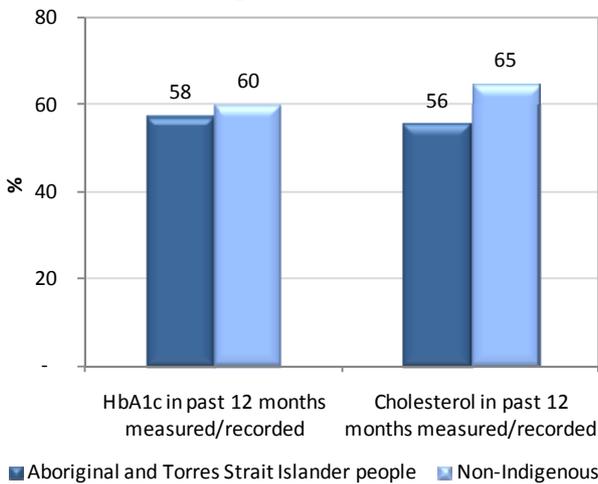
**IMPLICATIONS:** The provision of organised chronic disease management in Aboriginal and Torres Strait Islander primary health care services has been demonstrated to result in improvements in various health outcomes (Hoy et al. 1999; Hoy et al. 2000; Rowley et al. 2000; McDermott et al. 2003; Bailie et al. 2007).

However, there are significant challenges in sustaining improvements in the management of chronic illnesses (Urbis 2009). Strategies recommended to address these challenges include systematic support to buffer the effects of local factors, transparent work-practice systems backed by written disease management guidelines and manuals, delineated roles for practices for all practitioner types, appropriate staffing and training policies, and raising awareness in communities through education and health promotion with strong local participation (Baillie et al. 2004).

Australian governments are supporting various initiatives to improve chronic disease management including support of the Australian Primary Care Collaboratives and the *Healthy for Life* program. The Quality Assurance for Aboriginal and Torres Strait

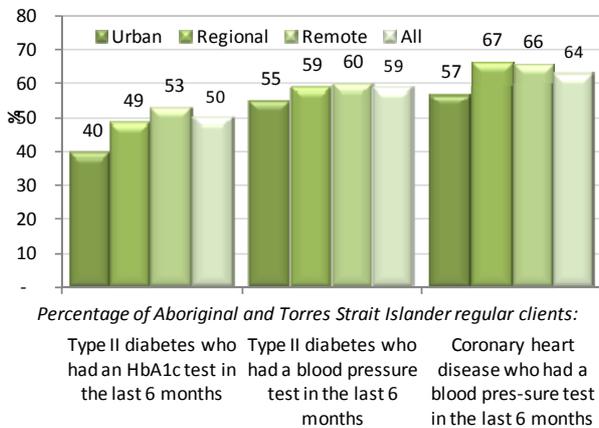
Islander Medical Services (QAAMS) program aims to provide culturally appropriate and clinically effective diabetes management through the use of ‘point of care’ pathology tests. The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* includes health reforms that focus on primary health care. A range of initiatives will improve service quality in both Indigenous and mainstream primary health care settings, including the new *Practice Incentives Program (PIP)*, *Indigenous Health Incentive*, which supports general practices and Indigenous health services to provide better health care for Indigenous Australians, including best practice management of chronic disease. GP Super Clinics will provide multi-disciplinary, integrated, team-based approaches to deliver better prevention and treatment of chronic disease.

**Figure 146 – Percentage of patients on General Practice Diabetes Registers receiving HbA1c and Cholesterol tests in the last 12 months with results recorded on the register, 2007–08**



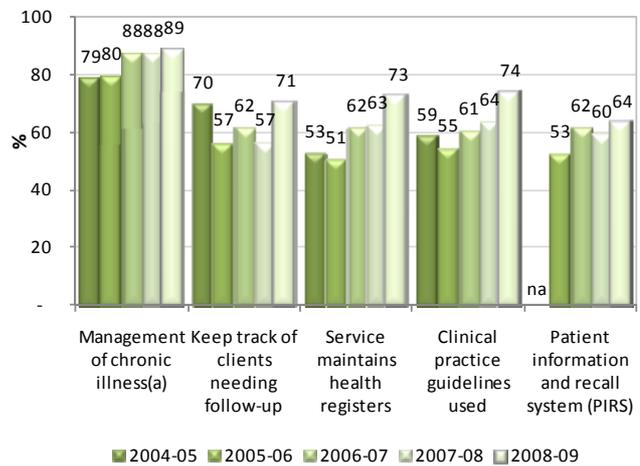
Source: Department of Health and Ageing. National Performance Indicators for Divisions of General Practice.

**Figure 148 – Percentage of Aboriginal and Torres Strait Islander regular clients of Healthy for Life Services receiving recommended care 1 January to 30 June 2009**



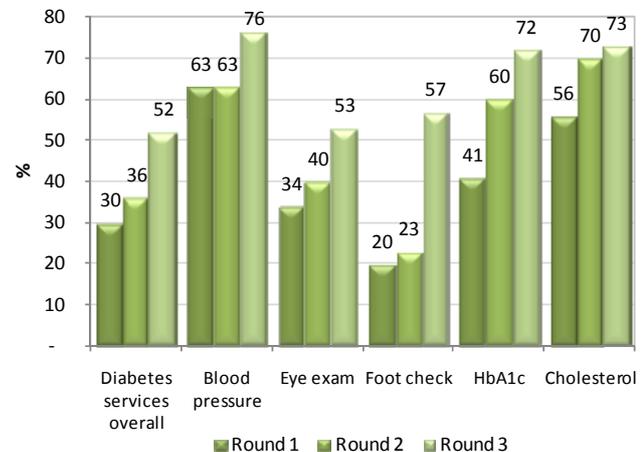
Source: AIHW analysis of Healthy for Life data collection

**Figure 147 – Percentage of respondent Aboriginal and Torres Strait Islander primary health care services that provided management of Chronic Disease, 2004–05 to 2008–09**



Source: Department of Health and Ageing Service Activity Report 2004–05, 2005–06, 2006–07, 2007–08, 2008–09

**Figure 149 – Percentage of Aboriginal and Torres Strait Islander people with diabetes Type 2 receiving recommended care, 12 remote primary care services, Northern Territory, 2003–04 to 2005–06**



Source: Baillie et al. (2007)

### 3.05 Differential access to key hospital procedures

**WHY IS IT IMPORTANT?:** Australians with illnesses that can be effectively treated by hospital-based medical and surgical procedures should have equitable access to these procedures. Studies have shown that while Aboriginal and Torres Strait Islander peoples, are more likely to be hospitalised than other people they are less likely to receive a medical or surgical procedure while in hospital (Cunningham 2002; ABS & AIHW 2005; ABS & AIHW 2008). The disparities are not explained by diagnosis, age, sex or place of residence (Cunningham 2002).

There is some information available on patterns of access for particular conditions. For patients admitted to hospital with coronary heart disease, access to coronary angiography can be important in diagnosis and establishment of a course of treatment. Coronary heart disease may be treated medically (with drugs) or through repairing the heart's blood vessels, either using a medical procedure (percutaneous coronary interventions) or a surgical procedure (coronary artery by-pass grafts). A study of patients admitted to Queensland hospitals for acute myocardial infarction (heart attack) between 1998 and 2002 found that rates of coronary procedures among Indigenous Australian patients were 22% lower than rates for other patients (Coory & Walsh 2005).

Several studies have shown Aboriginal and Torres Strait Islander people have poorer survival for cancer. This is partly explained by the stage of cancer when patients are referred for specialist treatment (Condon et al. 2006; Valery et al. 2006). However, Aboriginal and Torres Strait Islander peoples are less likely to have treatment for cancer (surgery, chemotherapy, radiotherapy) and tend to wait longer for surgery (Hall et al. 2004; Valery et al. 2006). After adjusting for stage at diagnosis, treatment and comorbidities, non-Indigenous Australians had better survival than Indigenous patients.

Aboriginal and Torres Strait Islander people with end stage renal failure have a lower rate of kidney transplants and significantly longer overall median waiting times to receive a transplant (Yeates et al. 2009). These disparities are not explained by age, sex, comorbidities or the cause of renal disease.

**FINDINGS:** In the two years to June 2008, excluding care involving dialysis, 59% of hospital episodes for Aboriginal and Torres Strait Islander people had a procedure recorded, compared with 81% of hospital episodes for other Australians.

For Indigenous Australians, 6% of hospitalisations with a procedure recorded occurred in private hospitals compared with 50% for non-Indigenous Australians. There are many factors associated with the likelihood of receiving a procedure when admitted to hospital. An analysis of the combined impact of a range of factors found that the most significant factors (in order of importance) were:

- whether the hospital was a public or private hospital;
- the number of additional diagnoses recorded for a patient;
- the principal diagnosis for which a person is admitted (with admissions for cancers, diseases of the skin, diseases of the eye, diseases of the genitourinary system, diseases of the blood, pregnancy and childbirth, and diseases of the ear and mastoid process all increasing the likelihood a procedure will occur);
- Indigenous status;
- remoteness of usual residence;
- and jurisdiction of residence.

In all states and territories Indigenous Australians were less likely to receive a procedure. Analysis by remoteness shows a steady decline in procedures as remoteness declines. However, the gap between Indigenous and non-Indigenous remains in each area.

Between July 2006 and June 2008, among those hospitalised with coronary heart disease, Aboriginal and Torres Strait Islander people were half as likely to receive coronary procedures such as coronary angiography and revascularisation procedures.

For hospitalisation related to diseases of the digestive tract, between July 2005 and June 2008, Aboriginal and Torres Strait Islander people were more likely to receive a corresponding procedure when the principal diagnosis was appendicitis, but significantly less likely to receive a corresponding procedure where the principal diagnosis was complicated or uncomplicated hernias, diseases of the extrahepatic biliary tree and non-neoplastic diseases of the anus or rectum. These results were statistically adjusted for age, sex, hospital type, urgency of admission, remoteness of usual residence and several co-morbidities (Moore et al. 2008).

**IMPLICATIONS:** Disparities in access to hospital procedures are likely to reflect a range of factors, including 'systemic practices, not ill-intentioned but still discriminatory, and almost invisible in the patient provider encounter' (Fisher & Weeramanthri 2002). An adequate primary health care system is a prerequisite for effective hospital and specialist services. Aboriginal and Torres Strait Islander patients with chronic disease sometimes present later in the course of these illnesses, which affects treatment options (Valery et al. 2006). Access to non-hospital specialist services for Aboriginal and Torres Strait Islander peoples is known to be well below national averages (Deeble et al. 1998). Other factors that have been suggested include: that the presence of comorbidities limits treatment options (although this does not explain the difference in coronary procedures outlined above); clinical judgments concerning post procedural compliance; communication issues, including difficulties for a patient whose main language is not English; and patient knowledge and attitudes, e.g. fatalistic attitudes towards cancer. Physical, social and cultural distance from health services also play a role, along with financial issues patients and their families face when seeking treatment

in specialist referral services (Shahid et al. 2009; Miller & Knott 2010).

Effective strategies will require a better understanding of the factors leading to the observed disparities. Improvements in the primary care sector will increase early detection, referrals and improve support for patients following discharge. A range of measures have been taken by the Australian Government and jurisdictions to support outreach specialist services for

people living in remote areas. The measures presented here suggest that under-provision of specialist services for Aboriginal and Torres Strait Islander peoples persists, and that further efforts are required to improve access. In addition to governments, clinicians and clinical colleges could also play a role in reviewing decision making processes and relevant data to identify what drives differential access to procedures and develop strategies to address these issues (Fisher & Weeramanthri 2002).

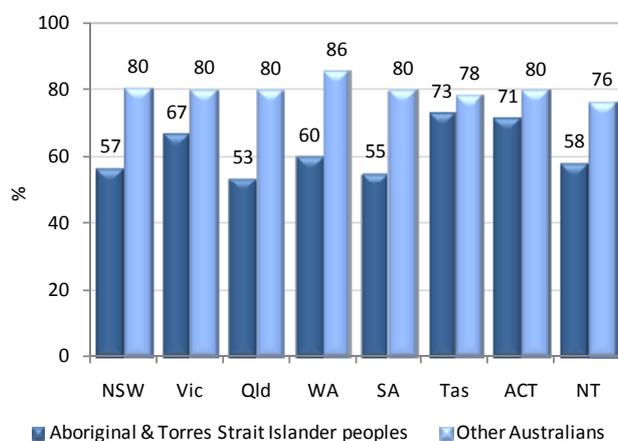
**Table 59 – Proportion of separations with a procedure reported, by principal diagnosis and Indigenous status, Australia, July 2006 to June 2008**

Principal diagnosis chapter	Indigenous	Other
	%	%
Diseases of the eye	93	98
Congenital malfunctions	89	93
Diseases of the blood	88	94
Neoplasms	86	96
Diseases of the ear	77	87
Factors influencing health status(a)	75	92
Certain conditions in perinatal period	74	70
Diseases of the musculoskeletal system	70	92
Diseases of the genitourinary system	64	86
Endocrine, nutritional & metabolic disorders	64	82
Diseases of the digestive system	63	88
Injury, poisoning & external causes	61	73
Pregnancy & child birth	60	77
Diseases of the circulatory system	57	74
Diseases of the skin	56	72
Diseases of the nervous system	52	82
Diseases of the respiratory system	40	61
Mental & behavioural disorders	38	53
Infectious & parasitic diseases	37	40
<b>Total</b>	<b>59</b>	<b>81</b>

(a) Excludes care involving dialysis

Source: AIHW analysis of National Hospital Morbidity Database

**Figure 150 – Proportion of hospitalisations with a procedure performed, by Indigenous status and state/territory (excluding care involving dialysis), July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

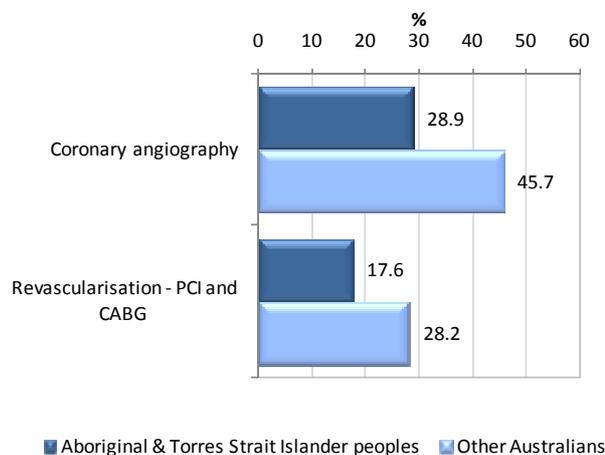
**Table 60 – Proportion of separations with a procedure reported, by type of procedure and Indigenous status, Australia, July 2006 to June 2008**

Procedure type	Indig.	Other
	%	%
Procedure on urinary system	47	8
Haemodialysis	46	6
Non-invasive and cognitive and other interventions, n.e.c.	34	47
Imaging services	6	5
Procedures on digestive system	4	9
Dermatological and plastic procedures	4	4
Procedures on cardiovascular system	4	4
Obstetric procedures	3	3
Dental services	3	4
Procedures on musculoskeletal system	3	5
Procedures on respiratory system	2	1
Gynaecological procedures	1	3
Procedures on eye and adnexa	1	2
Procedures on nervous system	1	1
Procedures on nose and mouth and pharynx	-	1
Procedures on ear and mastoid process	-	-
<b>Total (excluding haemodialysis)</b>	<b>66</b>	<b>94</b>
<b>Total (including haemodialysis)</b>	<b>100</b>	<b>100</b>

- value is less than 0.5

Source: AIHW analysis of National Hospital Morbidity Database

**Figure 151 – Use of coronary procedures for those hospitalised with coronary heart disease, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

### 3.06 Ambulatory care sensitive hospital admissions

**WHY IS IT IMPORTANT?:** Analysis of the conditions for which people are admitted to hospital reveals that in many cases, the hospital admission could have been prevented if more effective non-hospital care were available, either at an earlier stage in the disease progression or as an alternative to hospital care. Conditions that are sensitive to the effectiveness, timeliness and adequacy of non-hospital care are referred to as ambulatory care sensitive conditions (NHPC 2001; Public Health Division 2001; Centre for Epidemiology and Research 2006). Studies of hospitalisation for these conditions suggest that the availability of non-hospital care explains a significant component of the variation between geographic areas in hospitalisation rates for the specified conditions (Weissman et al. 1992; Billings et al. 1993; Bindman et al. 1995; University of California San Francisco and Stanford University Evidence-based Practice Center 2001; Ansari et al. 2006).

Ambulatory care sensitive conditions are usually grouped into three categories:

- vaccine-preventable conditions—including invasive pneumococcal disease, influenza, tetanus, measles, mumps, rubella, pertussis, and polio;
- potentially preventable acute conditions—including dehydration/gastroenteritis, kidney infection, perforated ulcer, cellulitis, pelvic inflammatory disease, dental conditions, and ear, nose and throat infections; and
- potentially preventable chronic conditions—including diabetes, asthma, angina, hypertension, congestive heart failure, and chronic obstructive pulmonary disease.

Systematic differences in the rates for Indigenous and other Australians could indicate gaps in the provision of population health interventions (such as immunisation), primary care services (such as early interventions to detect and treat chronic disease), and continuing care support (e.g. care planning for people with chronic illnesses such as congestive heart failure). There is also a higher prevalence for the underlying diseases, and Indigenous Australians are more likely to live in remote areas where non-hospital alternatives are limited (Gibson & Segal 2009; Li et al. 2009).

**FINDINGS:** In the two-year period from July 2006 to June 2008, admission rates for ambulatory care sensitive conditions were 5 times as high for Aboriginal and Torres Strait Islander peoples compared with other Australians. Ambulatory care sensitive conditions accounted for 39% of all hospital admissions (excluding those for dialysis) for Indigenous Australians. Differences in rates between Indigenous and other Australians are particularly striking for older age groups.

For Indigenous Australians vaccine-preventable conditions account for around 2% of all ambulatory care sensitive hospital admissions, acute conditions for 23% of admissions and chronic conditions for 79% of

admissions. The sum of components may be more than total as hospitalisations may be defined by multiple categories. The majority of these hospitalisations are due to diabetes complications (69%). Other significant conditions include chronic obstructive pulmonary disease, convulsions/epilepsy and pyelonephritis. For children, the most common conditions are ear, nose and throat infections and dental conditions, while for adults, diabetes complications are the most prevalent.

Compared with other Australians, hospitalisation rates for ambulatory care sensitive conditions were around 3 times as high for Aboriginal and Torres Strait Islander peoples living in New South Wales and Victoria, 4 times as high in Queensland, South Australia and Northern Territory and 14 times as high in Western Australia.

Rates for vaccine preventable conditions have been declining steadily between 2001–02 and 2007–08 (at 0.2% per annum). There were no significant trends in the admission rates for acute conditions for Indigenous Australians for the same period. However, there were significant increases in acute conditions for other Australians.

The rates for chronic ambulatory care sensitive conditions have been increasing dramatically. Although rates for other Australians have also increased, these increases have been more moderate. Therefore, the gap between the two groups has increased in both absolute and relative terms.

**IMPLICATIONS:** Declines in rates of vaccine-preventable ambulatory care sensitive conditions mainly reflect improvements in the coverage of childhood and adult immunisation (see measure 3.02). The main challenges are to address gaps in coverage (e.g. in Aboriginal and Torres Strait Islander adults over 40 years receiving influenza and pneumococcal vaccines).

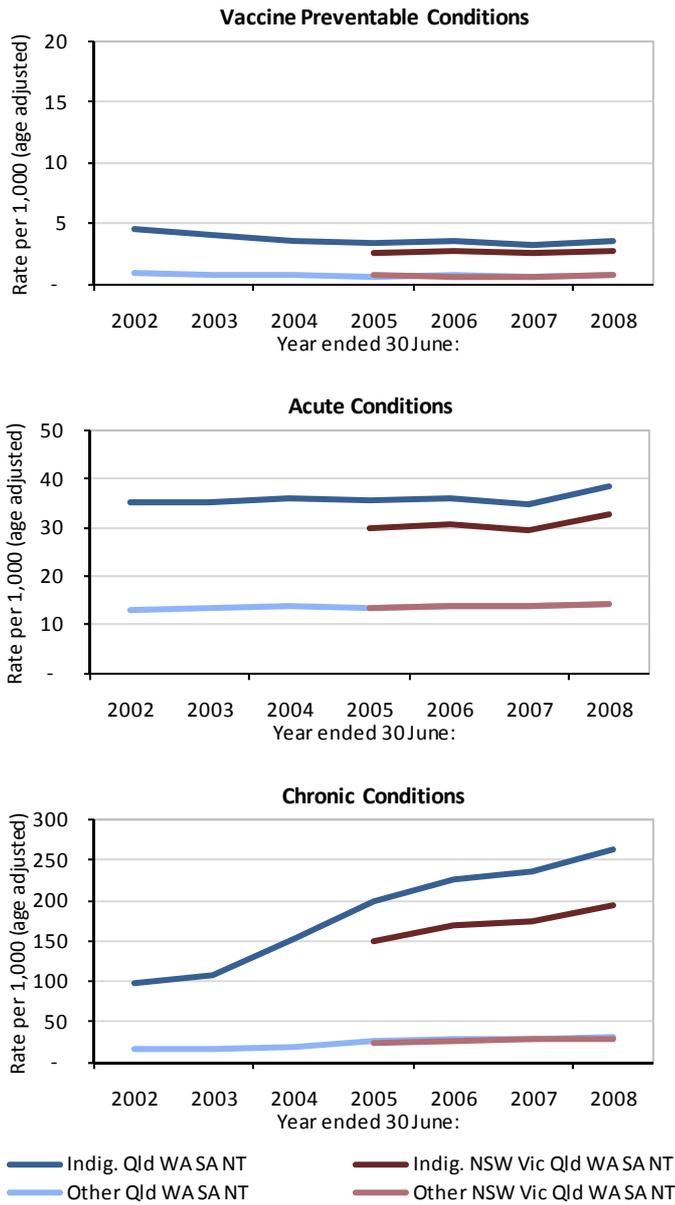
Hospitalisation rates for acute ambulatory care sensitive conditions have remained steady since 2001–02. The most significant conditions included in this group are ear, nose and throat infections and dental conditions. The significant gap between Aboriginal and Torres Strait Islander peoples and other Australians requires attention to address service deficits in the primary health care system, including access to dental health services.

Hospitalisation for chronic ambulatory care sensitive conditions for Indigenous Australians occurs at rates that are between 7 and 9 times as high as for the rest of the population (depending on the jurisdictions included in the totals). These high rates reflect gaps in non-hospital care including primary care, the absence of alternatives to hospital care in the more remote areas of Australia, and the much higher rates of illness among Indigenous Australians. The major conditions within the chronic group—diabetes complications, chronic obstructive pulmonary disease, and heart conditions—all require effective primary care with good links to out-of-hospital specialist/outpatient care. The high rates highlight the need for strengthening services that intervene earlier in the disease process, particularly at the primary care level and addressing barriers Indigenous Australians face in accessing these services. In the medium-term, improved

primary care may result in increased admissions, as patients with established disease are appropriately identified and treated.

Under *National Health Reform*, the Australian Government announced funding of \$477 million over

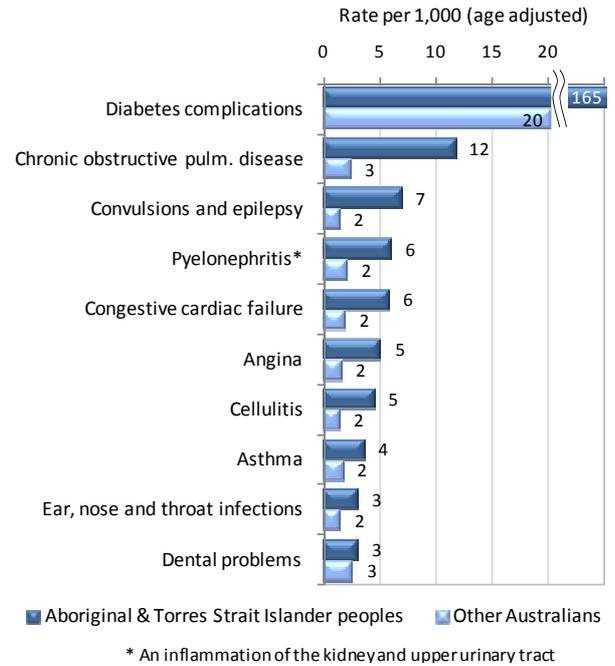
**Figure 152 – Age-standardised hospitalisation rates for ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2001–02 to 2007–08 plus NSW, 2004–05 to 2007–08**



Source: AIHW Analysis of National Hospital Morbidity Database

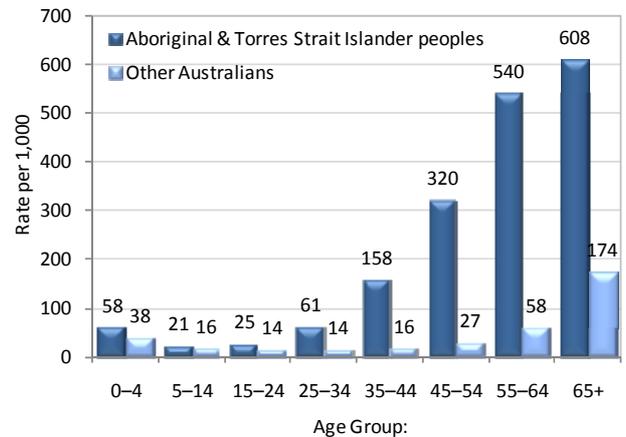
four years to establish a network of primary health care organisations (Medicare Locals) across Australia. They will support health professionals to provide more coordinated care, improve access to services, and drive integration across the primary health care, Indigenous health, and hospital and aged care sectors.

**Figure 153 – Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source AIHW Analysis of National Hospital Morbidity Database

**Figure 154 – Hospitalisation rates for ambulatory care sensitive hospital admissions, by Indigenous status and age group, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source AIHW Analysis of National Hospital Morbidity Database

### 3.07 Health promotion

**WHY IS IT IMPORTANT?:** Health promotion includes interventions designed to facilitate behavioural and environmental adaptations that will improve or protect health within social, physical, economic and political contexts. Health promotion includes lifestyle advice (e.g. smoking, alcohol and drug use, physical activity, diet), social marketing (e.g. sunscreen, safe sex), mass media campaigns (e.g. drink-driving, road safety) and public policy interventions. Health promotion also includes promoting social responsibility for health, empowering individuals, and strengthening community capacity. Currently there are limited methods for measuring the nature and level of health promotion programs and activities and their reach within Indigenous communities.

**FINDINGS:** In 2006–07, total government expenditure per person on public health for selected health promotion activities was estimated to be around \$26 for Indigenous persons and \$11 for non-Indigenous persons, and for prevention of hazardous and harmful drug use was \$30 for Indigenous persons and \$7 for non-Indigenous persons. These estimates are likely to understate expenditures as health promotion is often embedded within other funding sources and programs (e.g. funding for GPs).

In 2006–07, 88% of Divisions of General Practice ran programs for Type 2 diabetes, 85% for lifescrpts, 75% for health promotion, 55% for physical activity, 54% for alcohol and other drugs, 46% for nutrition, 40% for smoking and 25% for injury prevention. Around 35% of Divisions targeted Indigenous Australians in their Type 2 diabetes programs, 14% in their *Lifescrpts* programs, 25% in their health promotion programs, 10% in physical activity programs, 11% in their alcohol and other drugs programs, 13% in nutrition programs, 8% in their smoking programs, and 5% in their injury prevention programs. It is not known how many actual GP practices or patients were reached through these programs.

Based on the BEACH survey (2004–05 to 2008–09), it is estimated that selected clinical treatments related to health promotion were provided in around 29% of GP encounters for Indigenous patients. After adjusting for age, this was slightly less than for non-Indigenous Australians. The most common of these were general (unspecified) ‘advice/education’ which was provided in an estimated 5% of GP encounters with Indigenous patients. This was followed by ‘advice/education/treatment’ (4%) and counselling/advice related to nutrition and weight (4% of encounters for Indigenous patients, particularly for those with diabetes).

Counselling/advice related to smoking was provided in 3% of GP encounters for Indigenous patients, which was 2 times the rate for non-Indigenous patients. Counselling/advice related to alcohol was provided in around 2% of GP encounters for Indigenous patients which was also 2 times the rate for non-Indigenous patients.

In 2008–09, 94% of Aboriginal and Torres Strait Islander primary health care services offered health promotion/education programs; 82% organised influenza immunisation, 81% child immunisation, 77% women’s health programs, 76% organised pneumococcal immunisation, and 65% ran men’s health programs. Health promotion activities are also a key feature of programs run by Aboriginal and Torres Strait Islander substance use specific services.

CHINS data on health promotion programs are available for discrete Indigenous communities representing 18% of the Indigenous population, mostly in remote areas. In 2006, 67% of discrete Indigenous communities reported that 1 or more health promotion programs had been conducted, with women’s health programs reported by 58%, well babies programs by 54%, immunisation programs by 54% and men’s health programs by 52% of communities. Stop smoking programs were reported for only 26% of communities. Most programs were conducted weekly or monthly, except for trachoma control and eye health, which were most often conducted less than three-monthly.

**IMPLICATIONS:** The inter-relationships between alcohol consumption, chronic disease management and recruitment and retention of clinical staff could be explored. Accessibility of mainstream health services from both the geographic and cultural perspectives could also warrant further attention.

A range of health promotion initiatives are being implemented under the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* which has a focus on preventative health and primary health care. For example, the Indigenous Chronic Disease Package (ICDP) includes evidenced-based social marketing activities to reduce the prevalence of chronic disease risk factors, and includes the development of partnerships with local Indigenous community and media organisations and a specialist Indigenous communications consultant. The ICDP also includes funding for a national network of Regional Tobacco Coordinators, Tobacco Action Workers and Healthy Lifestyle Workers (see Measure 2.18). The Tackling Smoking workforce will implement community-based smoking prevention and cessation activities tailored to local communities. Healthy Lifestyle Workers will promote improved nutrition and physical activity and will seek to reduce the lifestyle risk factors that contribute to preventable chronic disease.

The Australian Government also supports VIBE Australia to deliver health promotion products and activities, targeting young Indigenous Australians. Factors in designing effective health promotion interventions for Indigenous communities include: involving local Indigenous people in design and implementation of programs; acknowledging different drivers that motivate individuals; building effective partnerships between community members and the organisations involved; cultural understanding and mechanisms for effective feedback to individuals and families; developing trusting relationships, community ownership and support for interventions (Black 2007).

**Table 61 – Expenditure for selected public health activities, by Indigenous status, 2006–07**

Selected public health activities:	Expenditure		Expenditure per person		
	Indig.	Non-Indig.	Indig.	Non-Indig.	Ratio
	\$m	\$m	\$	\$	
Communicable disease	20	194	38	10	4.0
Selected health promotion	14	222	26	11	2.4
Organised immunisation	19	298	36	15	2.5
Environmental health	5	66	9	3	2.8
Food standards and hygiene	1	17	1	1	1.6
Breast cancer screening	1	132	3	7	0.4
Cervical cancer screening	5	29	10	1	6.6
Prevention of hazardous and harmful drug use	16	145	30	7	4.2
Public health research	2	21	4	1	3.4
<b>Public health</b>	<b>81</b>	<b>1,124</b>	<b>155</b>	<b>55</b>	<b>2.8</b>

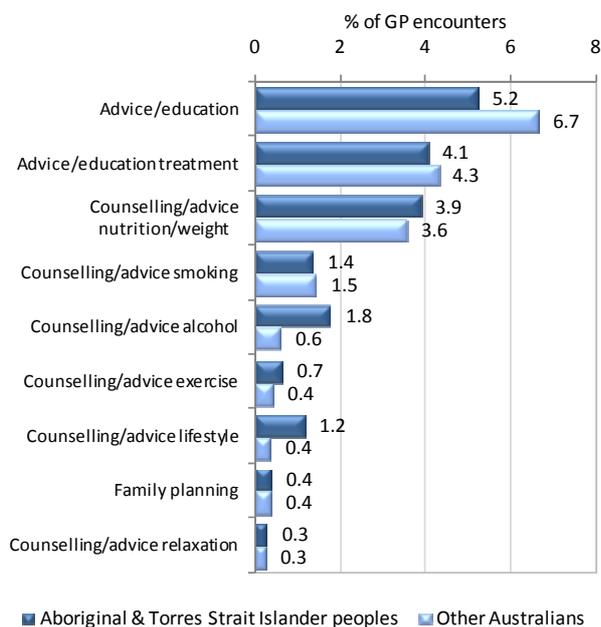
Source: AIHW health expenditure database

**Table 62 – Proportion of funded Aboriginal and Torres Strait Islander primary health care services that undertook selected preventative health care and screening activities, 2008–09**

Preventative health care and screening activities:	% of all responding services
Health promotion/education	94
Organise influenza immunisation	82
Child immunisation	81
Women's health programs	77
Organise pneumococcal immunisation	76
Dietary and nutrition programs	70
Antenatal/maternal programs	70
Infective diseases programs/education	66
Men's health programs	65
Child growth monitoring	64
Sexually transmissible infection contact tracing	61
Physical activity programs	59
Outreach health promotion	58

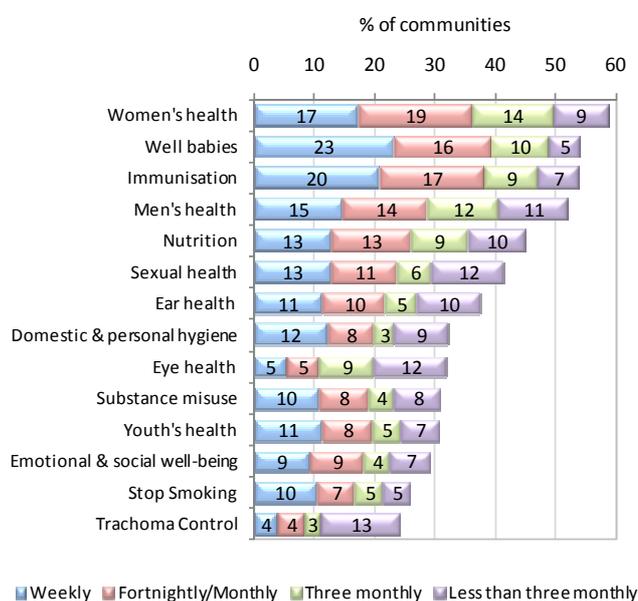
Source: AIHW analysis of Service Activity Reporting 2008–09

**Figure 155 – Proportion of clinical treatments provided by GPs, age-adjusted, by Indigenous status, 2004–05 to 2008–09**



Source: AIHW analysis of BEACH survey of general practice AGPSCC

**Figure 156 – Discrete Indigenous communities located 10 kilometres or more from a hospital: Selected health promotion programs conducted in community, 2006**



Source: AIHW analysis of ABS 2006 Community Housing and Infrastructure Needs Survey (CHINS)

### 3.08 Discharge against medical advice

**WHY IS IT IMPORTANT?:** Feedback on patient experiences, and community views of health care services and providers are important for shaping health services and policy. It is important to estimate consumer satisfaction as it is believed to impact on health-related behaviours. For example, satisfied consumers may be more likely to cooperate with treatment, continue using services, maintain a relationship with a specific provider, and actively participate in their own treatment. Australia has a mixed history of systematically seeking feedback from the people for whom health services are intended to benefit. A review of patient satisfaction and experience surveys found jurisdictions had adopted a range of methods for seeking feedback on patient experiences of hospitals and related services (Pearse 2005). Surveying the experiences of Aboriginal and Torres Strait Islander patients poses challenges which have been investigated by some jurisdictions.

The measure reported here is based on the extent to which Aboriginal and Torres Strait Islander people 'vote with their feet' (e.g. in discharging themselves from hospital against medical advice). The measure provides indirect evidence of the extent to which hospital services are responsive to Indigenous Australian patients' needs.

**FINDINGS:** Between July 2006 and June 2008, there were 12,780 hospitalisations (excluding private hospitalisations in Tasmania, the Australian Capital Territory and the Northern Territory, and admissions for mental and behavioural disorders) where Aboriginal and Torres Strait Islander people left hospital against medical advice or were discharged at their own risk. This represented around 2% of all hospitalisations for Aboriginal and Torres Strait Islander peoples, which compares with 0.4% for other Australians.

Indigenous Australians were discharged from hospital against medical advice at 6 times the rate of other Australians. Discharges from hospital against medical advice are most common for Aboriginal and Torres Strait Islander peoples aged 15–54 years. They are also more common for Indigenous people living in remote and very remote areas. The proportion of discharges against medical advice for Aboriginal and Torres Strait Islander people was highest in the Northern Territory (3% of episodes) and lowest in Tasmania and the Australian Capital Territory (just under 1% of episodes).

The most common principal diagnoses of hospitalisations of Indigenous Australians who were discharged against medical advice were injury and poisoning (2,912 separations), followed by diseases of the respiratory system (1,566 separations). These two groups of diagnoses represented 35% of all hospitalisations discharged against medical advice. As a proportion of all Indigenous separations for each specific diagnoses group, discharge against medical advice was highest for injury and poisoning and diseases of the skin (5.4%), followed by diseases of the nervous system (4.9%).

An analysis of the relative impact of a range of factors found that Indigenous status was the most significant variable contributing to whether a patient would discharge themselves from hospital against medical advice, even after controlling for the other factors.

**IMPLICATIONS:** The significantly elevated levels of discharge against medical advice suggest that there are significant issues in the responsiveness of hospitals to the needs and perceptions of Aboriginal and Torres Strait Islander peoples. Whilst there are major challenges in developing relevant mechanisms for obtaining feedback from Aboriginal and Torres Strait Islander patients, health systems need to design and implement these mechanisms. The data suggest these issues are important for all age groups, although the issues are most evident for those aged 15–54 years.

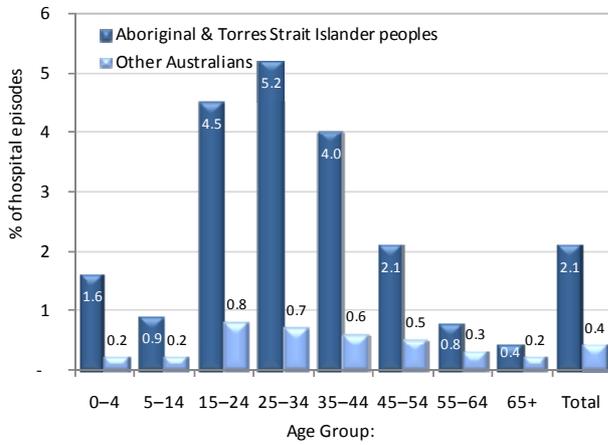
The *Cultural Respect Framework for Aboriginal and Torres Strait Islander Health* sets out the overarching commitments Australian jurisdictions have made to achieving the 'recognition, protection and continued advancement of the inherent rights, cultures and traditions of Aboriginal and Torres Strait Islander peoples'. The Framework proposes that Cultural Respect will be achieved when the health system is a safe environment for Aboriginal and Torres Strait Islander peoples and where cultural differences are respected. Cultural Respect is a commitment that the provision of services offered by the Australian health care system will not wittingly compromise the legitimate cultural rights, practices, values and expectations of Aboriginal and Torres Strait Islander peoples. Practical examples of respectful practices offered in the Framework include:

- representation on, and cross-cultural input into, governance structures and processes
- ensuring access to interpreter services
- where possible and appropriate, co-locating Aboriginal and Torres Strait Islander patients with other individuals who speak the same traditional language
- having written protocols in place, specific to Aboriginal and Torres Strait Islander women, on maternal and birthing health..

There are several questions for health service researchers and health service managers to tackle in devising strategies to achieve more responsive and respectful service delivery. More needs to be known about the reasons for the high rates of discharge against medical advice across individual factors (such as psychosocial, personal circumstances, health and wellbeing, and cultural issues); community level factors (such as levels of trust or mistrust in system); and hospital level factors (such as staff attitudes, hospital policies and the environment).

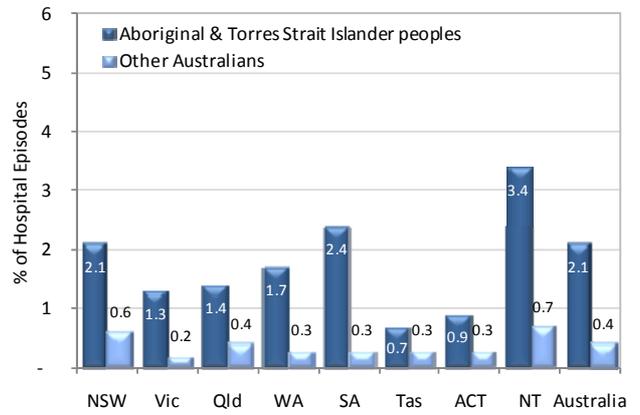
The experience of Aboriginal and Torres Strait Islander peoples of health services needs to be routinely evaluated but the mechanisms for doing this need to be better researched. Hospitals and health services that have implemented successful programs to reduce discharge against medical advice need to be studied and lessons disseminated.

**Figure 157 – Discharges from hospital against medical advice, by Indigenous status and age group (excluding mental and behavioural disorders), Australia, July 2006 to June 2008**



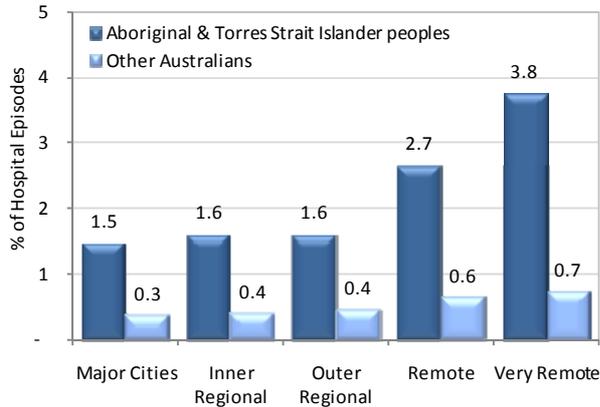
Note: Total is age standardised  
Source: AIHW National Hospital Morbidity Database

**Figure 158 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by jurisdiction, 2006-07 to 2007-08**



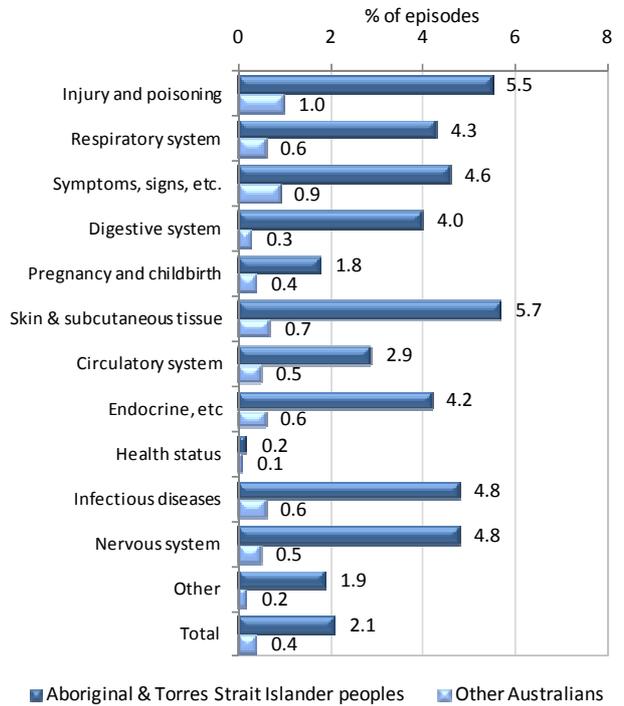
Source: AIHW National Hospital Morbidity Database

**Figure 159 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by Indigenous status and remoteness, 2006-07 to 2007-08**



Source: AIHW National Hospital Morbidity Database

**Figure 160 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by Indigenous status and principal diagnosis, Australia, July 2006 to June 2008**



Note: Excludes Mental and Behavioural Disorders  
Source: AIHW National Hospital Morbidity Database

### 3.09 Access to mental health services

**WHY IS IT IMPORTANT?:** Mortality rates for mental health and behavioural disorders are one and a half times as high for Aboriginal and Torres Strait Islander peoples than for other Australians (1.8 times as high for men and 1.3 times as high for women, see measure 1.25). Aboriginal and Torres Strait Islander people are more than two times as likely to die from suicide. Hospital admissions rates for intentional self-harm are twice as high as those for other Australians (measure 1.03). For Indigenous Australians, the intergenerational effects of colonisation and continuing social and economic disadvantage contribute to high rates of physical and mental health problems, high adult mortality, high suicide rates, child removals and incarceration rates which in turn lead to higher rates of grief, loss and trauma (see measure 1.16).

Most mental health services address mental health conditions once they have emerged rather than the underlying causes of that distress. Nevertheless, early access to effective services can help diminish the consequences of these problems and help restore people's emotional and social wellbeing. Therefore, the accessibility of mental health services for Aboriginal and Torres Strait Islander peoples is an important issue.

Mental health services include non-specialist services such as community-based health services, Aboriginal and Torres Strait Islander primary health care services and GPs; and specialist services such as private psychiatrists, state mental health teams, and designated psychiatric services both in general hospitals and in specialist facilities.

Reforms for mental health services were agreed by COAG in 2006. Aboriginal and Torres Strait Islander peoples were identified as a priority group in those reforms.

**FINDINGS:** In 2009–10, the rate of ambulatory mental health services claimed through Medicare was lower for Indigenous Australians than for non-Indigenous Australians (202 per 1,000 compared to 320 per 1,000). This includes private services for: psychiatric, psychological, GP and other allied health care. For the period 2004–05 to 2008–09, mental health problems were reported in an estimated 14% of GP encounters for Aboriginal and Torres Strait Islander people and 12% of GP encounters for other Australians.

In 2008–09, Aboriginal and Torres Strait Islander primary health care services reported 109,094 client contacts with emotional and social wellbeing staff or psychiatrists, representing 4% of the estimated total contacts. This is down from 124,211 client contacts in 200–06.

In 2007–08, state/territory-based specialised community mental health services reported 362,429 service contacts for Aboriginal and Torres Strait Islander clients, representing 6% of all client contacts. Rates of community mental health care service contacts for

Aboriginal and Torres Strait Islander peoples were almost three times the rates for other Australians. Rates were higher across all age groups.

Access to specialist psychiatry in rural and remote Australia is particularly problematic (Hunter 2007). In 2007 there were 4 full-time equivalent psychiatrists per 100,000 persons in remote and very remote areas compared with 23 per 100,000 in major cities. In 2009–10, Indigenous Australians were less likely than non-Indigenous Australians to have claimed through Medicare as private patients for psychologist care (81 compared with 135 per 1,000) and also psychiatric care (45 compared with 87 per 1,000).

In the two years to June 2008, hospitalisation rates for Aboriginal and Torres Strait Islander men for mental health issues were 2.2 times higher than the rates for other men, whilst rates for Aboriginal and Torres Strait Islander women were 1.5 times higher than for other women. Hospitalisation rates tend to be lower in the Northern Territory for both Aboriginal and Torres Strait Islander peoples and other people.

Hospitalisations of Aboriginal and Torres Strait Islander people for mental health issues have remained relatively constant since 2001–02 using trend data from four jurisdictions. Adding figures for New South Wales and Victoria, there has been a slight, but significant, increase (0.5% per annum between 2004–05 and 2007–08).

Rates of ambulatory equivalent hospital separations for mental health-related conditions for Aboriginal and Torres Strait Islander peoples were lower than for other Australians, particularly for specialised psychiatric care (rate ratio of 0.2). Other hospitalisations for these conditions were more than twice those for other Australians (1.8 times as high with specialised psychiatric care and 3.3 times as high without specialised psychiatric care).

The average length of stay for non-ambulatory care equivalent hospitalisation was 11.2 days for Aboriginal and Torres Strait Islander patients compared with 13.2 days for other Australians.

**IMPLICATIONS:** These findings suggest that access to primary care-level and specialist mental health services is patchy. Initiatives by COAG represent a major opportunity to address current deficiencies. Under *National Health Reform*, the Australian Government is working to improve the mental health system for Australians, including for population groups that may be missing out on services or are hard to reach. To improve outcomes for individuals at risk, the Government will continue to support prevention and early intervention activities.

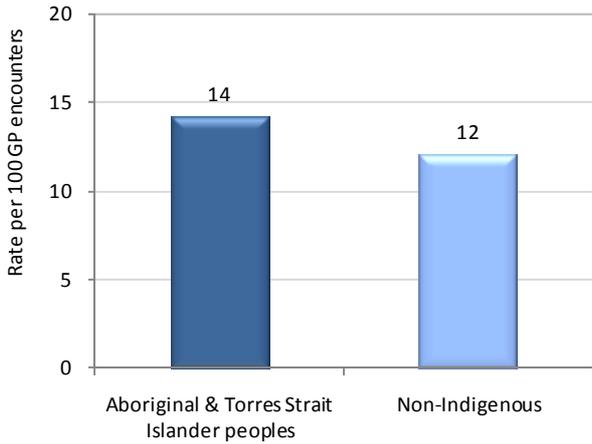
*The Fourth National Mental Health Plan: an agenda for collaborative government action in mental health 2009-2014* was endorsed by the Australian Health Ministers' Conference in September 2009. It includes the development of coordinated actions to implement a renewed *Aboriginal and Torres Strait Islander Social and Emotional Well Being Framework*. An Implementation Strategy for the Fourth Plan was

endorsed and released by AHMC in December 2010 and the Mental Health Standing Committee (an AHMAC subcommittee) is currently considering an implementation approach for the 34 actions of the Fourth Plan.

Key issues to be considered in addressing gaps include ensuring services are culturally accessible (see measure

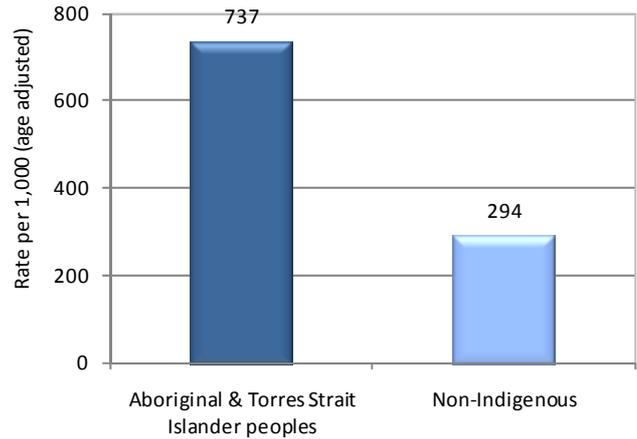
1.16), ensuring services are well linked into the system of primary health care, and that Aboriginal and Torres Strait Islander peoples are able to access effective treatment including specialist treatment through psychiatrists and psychologists.

**Figure 161 – Age-standardised rate per 100 encounters, mental health-related problems managed by GPs, by Indigenous status of the patient, 2004–05 to 2008–09**



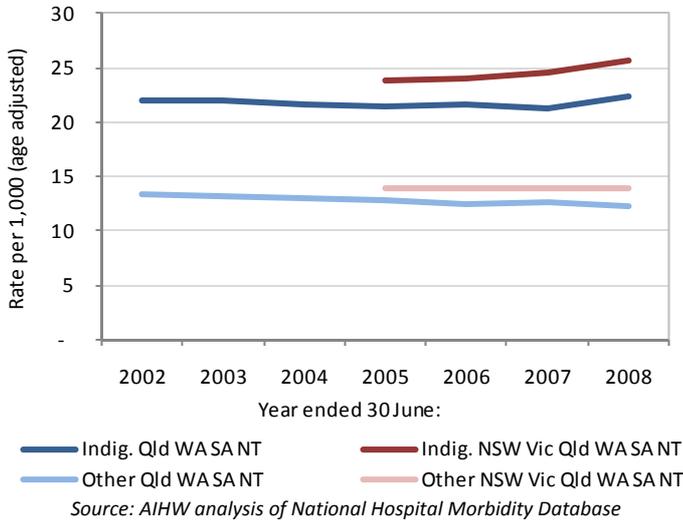
Source: AIHW analysis of BEACH survey of general practice, AGPSCC

**Figure 162 – Community mental health care service contacts per 1,000 population, by Indigenous status, 2007–08**



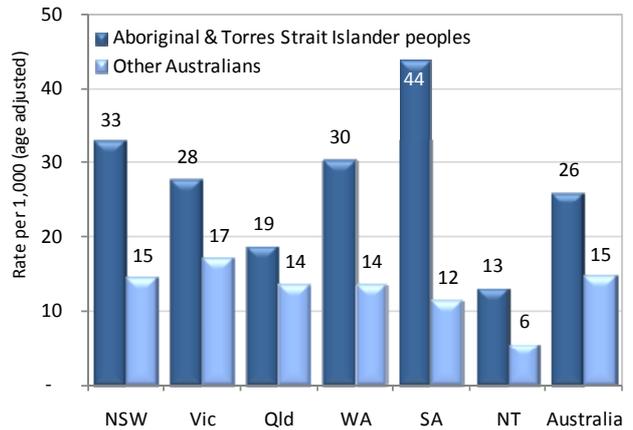
Source: AIHW analysis of National Community Mental Health Care Database

**Figure 163 – Age-standardised hospitalisation rates from mental health-related conditions, Qld, WA, SA and NT, 2001–02 to 2007–08 ; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 164 – Age-standardised hospitalisation rates for principal diagnosis of mental health-related conditions by Indigenous status by state/territory, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Hospital Morbidity Database

### 3.10 Aboriginal and Torres Strait Islander people in the health workforce

**WHY IS IT IMPORTANT?:** Aboriginal and Torres Strait Islander peoples are significantly under-represented in the health workforce. This potentially contributes to reduced access to health services. International studies suggest a preference for seeing health professionals from the same ethnic background (Powe & Cooper 2004). Patients were more likely to report more favourable ratings of patient care if the physician is of the same ethnic background. An Australian patient satisfaction survey found that the presence of an Aboriginal and Torres Strait Islander doctor at a community health centre was a key reason that Indigenous Australians attended the clinic (Hayman 1999). Patients reported that an Indigenous doctor was 'more understanding of their needs'. Numbers of Aboriginal and Torres Strait Islander patients attending the clinic increased markedly following the arrival of the Aboriginal and Torres Strait Islander doctor and other changes in the service designed to make it more welcoming.

**FINDINGS:** In 2006, there were 5,536 Aboriginal and Torres Strait Islander people employed in health-related occupations. Between 1996 and 2006, the number of Indigenous Australians employed in the health workforce increased by 2,165 (64%). In 2006, 1.2% of the Indigenous population was employed in health-related occupations. However, this is below the proportion of the non-Indigenous population employed in the health workforce (approximately 3%). While the Indigenous health workforce has grown between 1996 and 2006, the non-Indigenous health workforce has grown at a faster rate and there has been a 20% increase in the gap.

In 2006, the health occupation with the largest number of Indigenous Australians was nursing (1,449) followed by nursing support and personal care workers (974), and Aboriginal and Torres Strait Islander Health Workers (966). The occupations with the largest gap between Indigenous and non-Indigenous Australians were nurses, medical practitioners and allied health professionals.

Victoria had the highest proportion of its Indigenous population employed in the health workforce (2.4%) and Northern Territory had the lowest (1.2%).

The 35–44 year age group has the largest number of Indigenous Australians in the health workforce. The largest gaps are in the 25–34 and 55–64 year age groups. Females accounted for 74% of the Indigenous health workforce. Aboriginal and Torres Strait Islander Australians made up 62% of the workforce in Aboriginal and Torres Strait Islander primary health care services as at June 2006.

**IMPLICATIONS:** Improving the Aboriginal and Torres Strait Islander health workforce is fundamental to closing the gap in Indigenous life expectancy. The *Pathways into the health workforce for Aboriginal and Torres Strait Islander people: a blueprint for action* is designed to maximise Aboriginal and Torres Strait Islander participation in the health workforce through promoting

and improving pathways between school, vocational education, training and higher education; and retaining and building the capacity of the existing workforce (NATSIHC 2008a). AHMAC is also developing the *National Aboriginal and Torres Strait Islander Health Workforce Strategic Framework (2010–2015)*.

The *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* aims to increase the capacity of the primary care workforce to deliver health care to Indigenous Australians. Governments are introducing a range of initiatives. For example, the Australian government is providing funding for 668 new positions over four years, along with communication and marketing activities to encourage more Indigenous people to take up a career in health; and education and training to build the skills and capacity of the existing health workforce. The Australian Government has committed \$19 million over three years under the *National Indigenous Health Workforce Training Plan* to support the Indigenous health workforce.

Improving the representation of Indigenous Australians in the health workforce will require collaboration between the health and education sectors and success across a range of fronts. Educational disadvantages faced by Aboriginal and Torres Strait Islander children can reduce options for further training (see measures 2.04 and 2.05). Strategies to address barriers to entry into health professional training, and strengthen support while in training, need to be implemented (see measure 3.18). Improved opportunities for employment, advancement, and retention also require attention.

Aboriginal and Torres Strait Islander health professionals should have access to employment in a broad range of settings within the health sector and attention to the type of occupation is required to avoid under-representation in better remunerated, more skilled and managerial positions.

**Table 63 – Aboriginal and Torres Strait Islander people employed in selected health-related occupations, 1996, 2001 and 2006**

Occupation <sup>(a)</sup>	1996	2001	2006	Period linear % change	Rate per 10,000 2006		Rate difference (per 10,000)
					Indig.	Non-Indig.	
<b>Aboriginal and Torres Strait Islander Health Workers</b>	<b>667</b>	<b>853</b>	<b>966</b>	<b>44.8*</b>	<b>21.5</b>	<b>n.a.</b>	<b>n.a.</b>
<b>Nurses</b>	<b>1,258</b>	<b>1,123</b>	<b>1,449</b>	<b>15.2*</b>	<b>32.3</b>	<b>121.1</b>	<b>88.8</b>
Registered Nurses	640	832	1,111	73.6*	24.7	94.5	69.8
Nurse Managers and Nursing Clinical Directors	20	38	56	180.0*	1.2	7.2	6.0
Midwives	27	40	50	85.2*	1.1	6.7	5.6
Enrolled and mothercraft nurses	564	202	215	-61.9*	4.8	10.5	5.7
Nurse Educators and Researchers	7	11	17	142.9*	0.4	2.1	1.7
<b>Medical practitioners</b>	<b>61</b>	<b>90</b>	<b>101</b>	<b>65.6*</b>	<b>2.2</b>	<b>30.2</b>	<b>28.0</b>
Generalist medical practitioners	41	57	82	100*	1.8	19.7	17.9
General medical practitioner	29	47	61	110.3*	1.4	16.4	15.0
Resident medical officer	12	10	21	75.0*	0.5	3.3	2.8
Other medical practitioners	20	33	19	-0.5	0.4	10.5	10.1
<b>Allied health professionals</b>	<b>179</b>	<b>274</b>	<b>441</b>	<b>146.4*</b>	<b>9.8</b>	<b>36.0</b>	<b>26.2</b>
Dietitians	n.p.	18	7	75.0*	0.2	1.4	1.3
Optometrists	n.p.	n.p.	8	166.7*	0.2	1.7	1.5
Psychologists	13	19	43	230.8*	1.0	7.4	6.4
Physiotherapist	16	29	54	237.5*	1.2	6.7	5.5
Podiatrist	6	8	6	0	0.1	1.1	1.0
Speech professionals and audiologists	7	10	17	142.9*	0.4	2.7	2.3
Occupational therapist	n.p.	n.p.	13	160.0*	0.3	3.8	3.5
Social Worker	113	166	269	138.1*	6.0	6.7	0.7
Other health therapy professionals	12	12	24	143.4*	0.5	4.6	4.0
<b>Dental and dental allied workforce</b>	<b>147</b>	<b>155</b>	<b>205</b>	<b>39.5*</b>	<b>4.6</b>	<b>16.1</b>	<b>11.6</b>
Dental practitioner	12	13	15	25.0*	0.3	4.5	4.2
Dental hygienists, technicians and therapists	18	17	19	5.6	0.4	3.3	2.9
Dental assistant	117	125	171	46.2*	3.8	8.3	4.5
<b>Health diagnostic and promotion professionals</b>	<b>164</b>	<b>185</b>	<b>638</b>	<b>289.0*</b>	<b>14.2</b>	<b>22.4</b>	<b>8.2</b>
Medical Imaging Professionals	7	14	19	171.4*	0.4	5.6	5.2
Pharmacists	6	10	9	50.0*	0.2	8.4	8.2
Occupational Health and Safety Adviser	22	25	50	127.3*	1.1	3.7	2.6
Health promotion officers	n.a.	n.a.	438	n.a.	9.8	1.9	-7.9
Environmental health officer	122	114	98	-19.7*	2.2	2.1	-0.1
Other health diagnostic and promotion professionals	7	22	24	242.9*	0.5	0.7	0.2
<b>Other</b>	<b>895</b>	<b>1324</b>	<b>1736</b>	<b>94.0*</b>	<b>38.7</b>	<b>71.9</b>	<b>33.3</b>
Health service managers	21	n.p.	17	19.0*	2.9	4.6	1.6
Nursing support worker and personal care workers	579	808	974	68.2*	21.7	31.0	9.3
Ambulance officers and paramedics	49	83	153	212.2*	3.4	4.6	1.2
Drug and alcohol counsellor	80	96	117	46.3*	2.6	0.7	-1.9
Other	166	276	475	186.1*	8.0	31.0	23.0
<b>Total health occupations <sup>(h)</sup></b>	<b>3,371</b>	<b>4,004</b>	<b>5,536</b>	<b>64.2*</b>	<b>123.3</b>	<b>297.8</b>	<b>174.6</b>

Source: National Indigenous Health Equality Council 2010b

### 3.11 Competent governance

**WHY IS IT IMPORTANT?:** ‘Governance’ is about having the processes and institutional capacity to be able to exercise control through sound decision-making. ‘Competent governance’ is all about the means to establish good governance arrangements with the ultimate aim of achieving the social, cultural, and economic developments sought by citizens (Dodson & Smith 2003).

Governance enables the representation of the welfare, rights and interests of constituents, the creation and enforcement of policies and laws, the administration and delivery of programs and services, the management of natural, social and cultural resources, and negotiation with governments and other groups (de Alcantara 1998; Hawkes 2001; Westbury 2002; Dodson & Smith 2003). The manner in which such governance functions are performed has a direct impact on the wellbeing of individuals and communities.

Aboriginal Community Controlled Health Services (ACCHSs) were first established in the 1970s, and by the 1990s were an important provider of health services to Indigenous people in Australia. They can offer comprehensive primary health care appropriate to Aboriginal and Torres Strait Islander peoples (DoHA 2001; Larkins et al. 2006).

Competent governance in the context of Indigenous health must also address the cultural responsiveness of mainstream service delivery for Indigenous clients and effective participation of Indigenous people on decision-making boards, management committees and other bodies, as relevant. The stewardship role of governments in their efforts to improve Aboriginal and Torres Strait Islander health is also critical. Attention should be given to assessing not only the levels of access to appropriate care but the experiences of Aboriginal and Torres Strait Islander peoples in receiving care. Unfortunately, very little data are available nationally on these issues.

**FINDINGS:** The Office of the Registrar of Indigenous Corporations (ORIC) helps to administer the Corporations (Aboriginal and Torres Strait Islander) Act 2006, which superseded the Aboriginal Councils and Associations (ACA) Act 1976. In 2008–09, 81 out of the 84 Indigenous health corporations incorporated under the ACA Act and registered with ORIC had been fully compliant with the required provision of documents.

In 2008–09, of the 202 Aboriginal and Torres Strait Islander primary health care services funded by the Australian Government who provided data: 86% had a governing committee or board that met regularly; for 95% income and expenditure reports had been presented to the governing committee or board on at least 2 occasions through the year; for 77% all members of the governing committee or board were Aboriginal and/or Torres Strait Islander people, and for 77%, the governing committee/board members had received training related to governance issues.

In 2008–09, of the 45 Aboriginal and Torres Strait Islander substance use specific services funded by the Australian

Government who provided data: 98% had a governing committee or board that met regularly; for 57% all members of the governing committee or board were Aboriginal and/or Torres Strait Islander people, and for 71%, the governing committee/board members had received training related to governance issues.

In 2008–09, 40% of Aboriginal and Torres Strait Islander primary health care services had representatives on external Boards (e.g. hospitals); 57% participated in Regional Planning Forums and 77% were involved in committees on health (e.g. steering groups). Aboriginal and Torres Strait Islander representation on governing boards for mainstream public sector health varies considerably across the states and territories (SCATSIH & SIMC 2006).

As discussed in measure 3.12, 15% of Indigenous Australians reported that they needed to but didn’t visit a doctor in the previous 12 months, 8% did not visit another health professional when needed and 7% did not visit a hospital when they needed to. Some of the reasons people didn’t access services reflect failures in health services to adequately address the needs of these patients. For example, 10–16% did not attend services because they disliked the service/ professional, felt embarrassed or afraid, 5–6% felt the service would be inadequate and 1–2% were concerned about discrimination and cultural appropriateness. In addition, a range of other reasons people did not access health care when they needed to reflect potential failures in the governance of the health system as a whole e.g. cost, transport/distance, service not available in the area.

In 2008, 8% of people aged 15 years and over surveyed in the *National Aboriginal and Torres Strait Islander Social Survey* disagreed or strongly disagreed with the statement ‘Your doctor can be trusted’. In addition, 17% disagreed or strongly disagreed with the statement ‘Hospitals can be trusted to do the right thing by you’.

**IMPLICATIONS:** This data shows a continuing number of Aboriginal and Torres Strait Islander primary health care services are demonstrating sound governance arrangements. Case studies of the performance and governance of three Aboriginal councils in Queensland between 2000 and 2006 (Limerick 2009) identified contextual factors (such as education and skills, exposure to the ‘outside world’ and ‘whole of community’ focus in decision-making as opposed to family or kin orientation) as being significant in shaping successful governance attributes. It was also concluded from the case studies that “ostensibly orthodox governance principles and practices are not only relevant in the unique cultural context of Indigenous governance, but perhaps have even greater importance in this context” (p. 424).

A key strength of ACCHSs is their ability to respond flexibly to local community needs. Anderson & Brady (1995) suggest that self-determination has formed health providers with complex functions that are often a loci for the community. Many ACCHSs are part of larger community organisations which perform other social functions as well as health such as housing (Sullivan & Oliver 2007). The negotiation between a ‘community

controlled’ organisational philosophy with the norms of central bureaucracies may at times give rise to ‘conflicting ideas of accountability’ (Anderson & Brady 1995).

The Department of Health and Ageing aims to improve Indigenous-specific service delivery and sector capacity through:

- continuous improvement in the business planning and management systems of existing services;
- a robust Risk Management Framework;
- targeted support to organisations in difficulty;
- supporting the implementation and enhancement of clinical management and Patient Information Recall Systems; and
- supporting accreditation through the *Establishing Quality Health Standards* initiative, and ensuring that cultural security is recognised in Australian healthcare standards.

The Heads of Agreement signed by all Australian Governments on 13 February 2011, includes the establishment of new health governance structures such as Local Hospital Networks (LHNs) and Medicare Locals. Responsibility for hospital management will be devolved

to LHNs. This will increase local autonomy and flexibility so that services are more responsive to local needs, and provide more flexibility for local managers and local clinicians to drive innovation, efficiency and improvements for patients.

Independent primary health care organisations — to be called Medicare Locals — will be established with strong links to local communities and health professionals. Medicare Locals aim to improve coordination and integration of primary health care in local communities, address service gaps, and make it easier for patients to navigate their local health care system.

LHNs and Medicare Locals will collaborate to improve patient care and the quality of health and hospital services. They will better integrate general practice, primary health care and hospital care, so patients smoothly transition in and out of hospital and continue to receive the care they need. They will work together to identify and address local needs, including the needs of Aboriginal and Torres Strait Islanders and ACCHSs.

**Table 64 – Number and proportion of health corporations incorporated under the CATSI Act 2006 by compliance, 2008–09**

	Number	Proportion
Compliant	81	96
Not compliant	3	4

Source: AIHW analysis of The Office of the Registrar of Indigenous Corporations (unpublished data)

**Table 65 – Number and proportion of Aboriginal and Torres Strait Islander primary health-care services participating<sup>(a)</sup> in mainstream processes, 2008–09**

	No.	Per cent
Representation on external boards (e.g. hospitals)	81	40
Participation in regional planning forums (e.g. under the framework agreements)	115	57
Involvement in committees on health (e.g. steering groups)	154	77
<b>Total number of services</b>	<b>201</b>	<b>100</b>

(a) A service is recorded as having conducted an activity if that activity was conducted by either the service itself or by one of its auspiced entities.

Source: AIHW analysis of Service Activity Reporting, 2008–09

**Table 66 – Number and proportion of governing committee/board use, Aboriginal and Torres Strait Islander primary health-care services and substance-use services, 2008–09**

	Primary health care services		Substance use services	
	No.	%	No.	%
Governing Committee or Board met regularly	173	86	44	98
Income and expenditure statements were presented to Committee or Board on at least 2 occasions	169	95	45	100
All of the Governing Committee or Board Members were Aboriginal and/or Torres Strait Islander	136	77	25	57
Governing Committee or Board received training	137	77	32	71
<b>Total number of services</b>	<b>202</b>	<b>100</b>	<b>45</b>	<b>-</b>

Source: AIHW analysis of Service Activity Reporting, 2008–09 and Drug and Alcohol Service Activity Reporting 2008–09

### 3.12 Access to services by types of service compared to need

**WHY IS IT IMPORTANT?:** Measures presented in this section examine the level of access to health care for Aboriginal and Torres Strait Islander peoples compared with their need for health care. Indigenous Australians have significantly poorer health status than non-Indigenous Australians, life expectancy is 11.5 years less for males and 9.7 years less for females and Indigenous Australians are twice as likely to rate their health as fair or poor compared with non-Indigenous Australians. Access to health care when needed is essential to closing the gap in Indigenous life expectancy.

**FINDINGS:** In 2004–05, 42% of Indigenous Australians reported accessing health care in the last two weeks or hospital in the last 12 months. After adjusting for age differences between the two populations, Indigenous Australians accessed health care at similar rates to non-Indigenous Australians. In the previous two weeks, 20% of Aboriginal and Torres Strait Islander people had visited a doctor or specialist, 5% casualty/outpatients, 17% other health professionals, and 4% dentists. In the previous 12 months, 16% had been admitted to hospital.

Indigenous Australians were more than twice as likely to visit casualty/outpatients and half as likely to see a dentist. For people reporting fair or poor health, 40% of Indigenous Australians and 42% of non-Indigenous Australians reported visiting a doctor in the last 2 weeks, 11% of Indigenous and 6% of non-Indigenous Australians reported visiting a casualty department or outpatient clinic and 30% of Indigenous and 27% of non-Indigenous Australians reported admission to hospital in the last 12 months. After adjusting for differences in age structure, 36% of Indigenous people reported that it had been two years or more since their last dental consultation, compared with 29% of non-Indigenous people. Reported use of these health services has not changed significantly since the last survey in 2001. Indigenous Australians were hospitalised for palliative care 1.4 times the rate of other Australians. The overall rate of elective surgery for Indigenous Australians (49 per 1,000 persons) was markedly lower than for other Australians (86 per 1,000 persons) (AIHW 2008d).

In 2008, 30% of Aboriginal and Torres Strait Islander peoples aged 15 years and over reported problems with accessing health and other services (e.g. legal, employment and Centrelink). Access issues were higher in remote areas than non-remote areas. Of the people reporting having problems accessing services, close to two-thirds reported having problems accessing dentists, followed by doctors (32%), hospitals (22%) and Aboriginal and Torres Strait Islander health workers (19%).

In 2004–05, 15% of Aboriginal and Torres Strait Islander people reported that at some time in the last 12 months they did not go to a doctor when needed, 7% did not go to hospital when needed, 21% did not go to a dentist when needed and 8% did not go to another health

professional when needed. A higher percentage of Indigenous Australians in non-remote areas reported not accessing doctors, dentists and other health professionals when needed compared with those living in remote areas. Reasons for not accessing services vary between regions. In non-remote areas, cost is a more important factor. In remote areas, transport/distance and the lack of availability of services are more important. Waiting times were also important factors for not accessing doctors, hospitals, dentists and other health professionals. In addition, barriers such as disliking the service/professional, feeling afraid or embarrassed were also mentioned. Many of these issues relate to the cultural appropriateness of the service. Cost was the main reason Aboriginal and Torres Strait Islander people did not visit a dentist (29%).

In 2004–05, around 15% of Indigenous Australians in non-remote areas required co-payment for their last visit to the doctor, 37% required co-payment for their last visit to a specialist and 17% required co-payment for their last visit to other health professionals. In non-remote areas, 15% of Indigenous Australians are covered by private health insurance compared with an estimated 51% for the rest of the population. The most common reason that Indigenous Australians did not have private health insurance was that they could not afford it (65%).

In 2009–10, Indigenous Australians had 5.4 million Medicare claims of which 2.7 million were for non-referred GP consultations (note: not all episodes of care delivered through Indigenous primary health care services can be claimed through Medicare). The two most common Medicare items claimed by Indigenous Australians were standard GP consultations followed by pathology. In 2009–10, out-of-pocket costs for services claimed through Medicare were lower for Indigenous Australians (9% of fees claimed) than non-Indigenous Australians (21% of fees claimed). After adjusting for differences in age structure of the populations, Indigenous Australians received fewer Medicare services per 1,000 in the population overall for every type of service except non-referred GP items and pathology. Within the non-referred GP category, Indigenous Australians were more likely than non-Indigenous Australians to have received services for longer GP consultations, nurse/Aboriginal Health Worker consultations, Indigenous health checks, GP management plans and team care arrangements. Service claims for imaging, private specialists and allied health care were all lower for Indigenous Australians. There was a clear gradient in service claims reducing by remoteness with rates per 1,000 falling for all types of services (except out of hospital pathology claims). The disparity between Indigenous and non-Indigenous Australians for private specialist care claimed through Medicare increased with remoteness. Indigenous Australians living in major cities claimed for private specialist services at a rate of 861 per 1,000 compared to 1045 per 1,000 for non-Indigenous Australians. In very remote areas Indigenous Australians claimed for private specialist services at a rate of 185 per 1,000 compared to 426 per 1,000 for non-Indigenous Australians. Indigenous women had higher rates of services claimed

per 1,000 through Medicare than Indigenous men. Indigenous Australians had higher rates of services claimed in the 15–54 year age group compared with non-Indigenous Australians and lower rates in the 0–14 years and 55 years plus age groups.

Over the last five years, there has been a steady rise in the number of Aboriginal and Torres Strait Islander primary health care services; from 120 services in 1999–2000 to 156 services in 2007–08. Between 1999–2000 and 2007–08, episodes of health care provided to clients of these services have increased by 52% from 1.22 million to 1.85 million. Equivalent full-time staff (both paid by the service and visiting) increased by 89% over the same period.

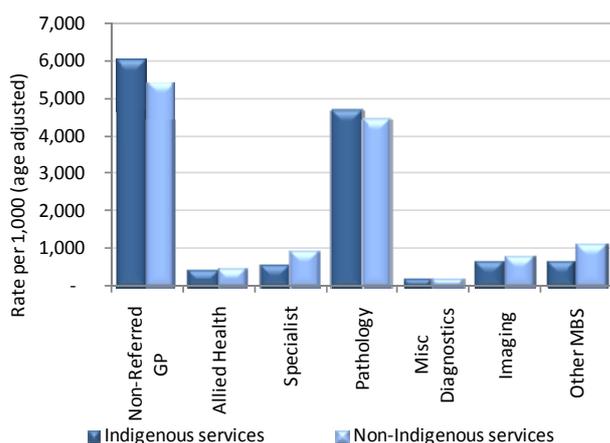
**IMPLICATIONS:** Aboriginal and Torres Strait Islander peoples report similar rates of access to health care overall with differences evident by type of care. These differences are associated with factors such as cost, cultural appropriateness and access. Data in this report suggest that Aboriginal and Torres Strait Islander peoples have significantly poorer health and therefore we should expect to see access to health services 2–3 times higher rather than 1.1 times higher. Gaps in access to dental services are clear from the national survey data. Less is known about disparities in access to specialist services however these also require attention. Indigenous Australians have much lower levels of private health insurance, rely on public hospital services to a greater degree and have lower rates of elective surgery. Barriers to accessing care when needed vary between remote and non-remote areas, suggesting that strategies need to be adapted for local circumstances.

The *National Indigenous Reform Agreement* notes that ‘All health services play an important role in providing Indigenous people with access to effective health care, and being responsive to and accountable for achieving government and community health priorities.’ (COAG 2008b, p.6) In support of this work, COAG has agreed to the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* which aims to improve the way the Australian health care system prevents, treats and manages chronic diseases.

As part of *National Health Reform*, the implementation of Medicare Locals will aim to improve and strengthen the coordination and integration of primary health care in local communities, address service gaps and make it easier for patients to navigate their local health care system. The five strategic objectives of Medicare Locals are to: improve the patient journey through developing integrated and coordinated services; provide support to clinicians and service providers to improve patient care; identify the health needs of local areas and develop locally focused and responsive services; facilitate the implementation and successful performance of primary health care initiatives and programs; and be efficient and accountable with strong governance and effective management.

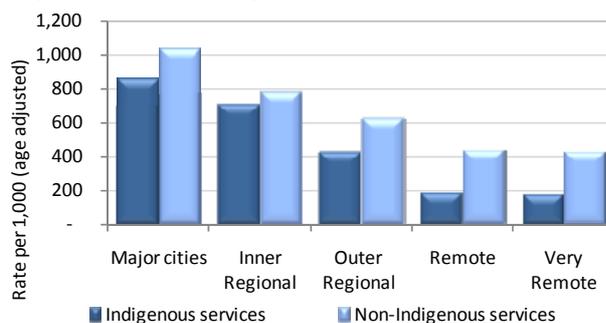
Ongoing community engagement and input is a requirement of GP Super Clinics organisational governance arrangements in order to respond to local community needs and priorities, including those of Indigenous Australians.

**Figure 165 – Age-standardised MBS claim rate, by Indigenous status, Australia, 2009–10**



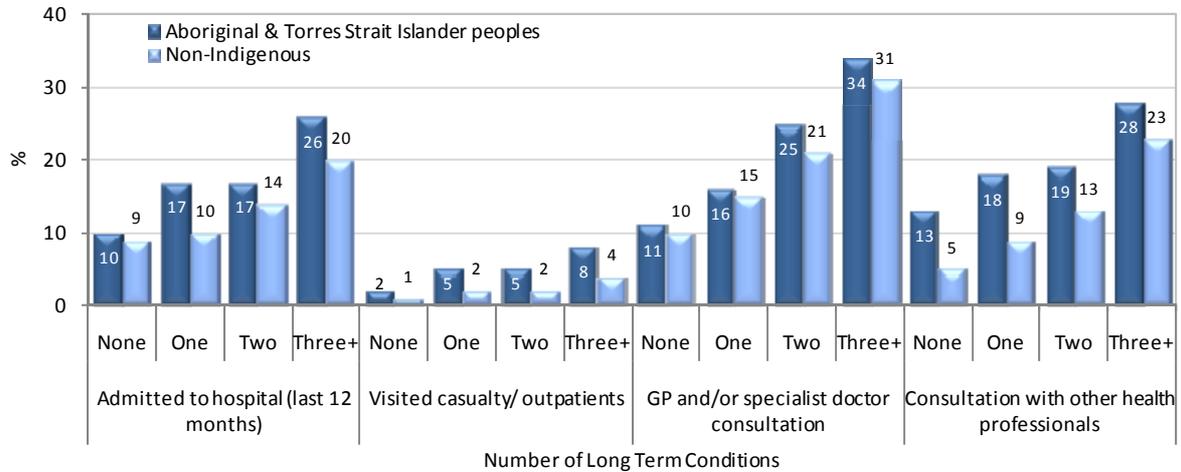
Source: Medicare Financing & Analysis Branch, Department of Health and Ageing

**Figure 166 – Age-standardised MBS claim rate for specialist services, by remoteness, Australia, 2009–10**



Source: Medicare Financing & Analysis Branch, Department of Health and Ageing

**Figure 167 – Proportion of people who accessed health care, by type of health care, within the last 12 months (hospital) or last 2 weeks (other health care), by Indigenous status, and number of self-reported number long-term health conditions, Australia 2004–05**



Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

**Table 67 – Whether needed to go to a dentist, doctor, other health professional or hospital, reasons didn't go, by remoteness area, Aboriginal and Torres Strait Islander peoples, 2004–05**

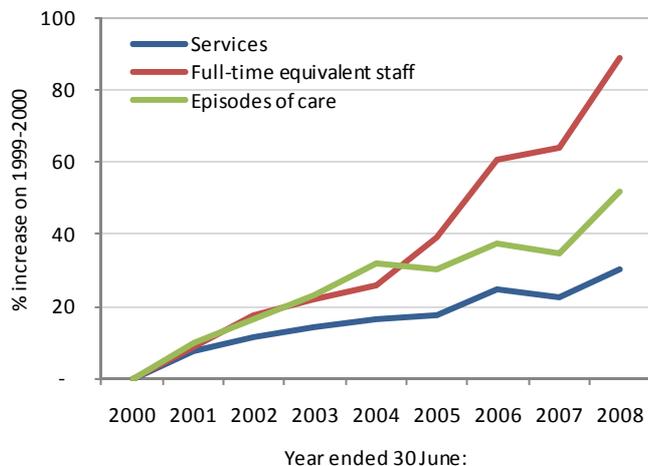
	Dentist			Doctor			Health Professional			Hospital		
	Non-remote	Remote	Total	Non-remote	Remote	Total	Non-remote	Remote	Total	Non-remote	Remote	Total
Needed to go to service in the last 12 months but didn't	23	16	21	17	10	15	9	5	8	7	7	7
<b>Reasons why didn't visit:</b>												
Cost	32	15	29	14	4*	12	33	5#	28	5*	3*	4
Too busy	15	11	14	26	17	24	27	20	26	17	16	16
Dislikes	21	20	21	10	11	10	12	11*	12	18	9*	16
Waiting time too long or not available at time required	21	23	22	14	15	14	7*	19	9	18	10*	16
Decided not to seek care	14	8	13	27	22	26	18	16	17	25	26	25
Transport/distance	7	28	11	11	28*	14	7*	15*	8	13	34	19
Not available in area	3	28	8	2#	13*	4*	2*	30	7	2*	8*	4*
Felt it would be inadequate	2*	2#	2*	5	7*	5	5*	5#	5	6	7*	6
Discrimination/ not culturally appropriate/ language problems	—#	1#	—*	1	1#	1*	2#	2#	2*	2*	2#	2*
Other	9	7*	8	12	5	11	11	10*	11	15	9	14

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

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

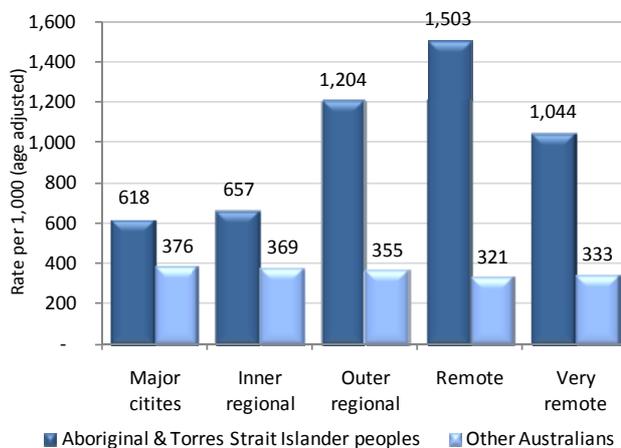
ABS & AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

**Figure 168 – Cumulative per cent changes to Aboriginal and Torres Strait Islander primary health care services, 1999–2000 to 2007–08**



Source: Service Activity Reporting 2005–06

**Figure 169 – Age-standardised hospitalisation rates by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2007 to June 2009**



Source: AIHW analysis of National Hospital Morbidity Database

**Figure 170 – Proportion of people aged 15 years and over who accessed health care, by type of health care, within the last 12 months (hospital) or last 2 weeks (other health care), by Indigenous status, and self-reported health status, age-standardised, Australia 2004–05**



Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey and 2004–05 National Health Survey

### 3.13 Access to prescription medicines

**WHY IS IT IMPORTANT?:** Essential medicines save lives and improve health when they are available, affordable, quality assured and properly used (WHO 2004). Affordable access is important for many acute and chronic illnesses. For chronic illnesses such as diabetes, hypertension, heart disease and renal failure, multiple medications may be required for many years to avoid complications (WHO 2004). It is important to ensure that Aboriginal and Torres Strait Islander peoples, who experience high rates of acute and chronic illnesses, are able to access appropriate prescription medications when they are required. In Australia, the main mechanism for ensuring reliable, timely and affordable access to a wide range of prescription medications is the Australian Government's Pharmaceutical Benefits Scheme (PBS). In 2008–09, the scheme subsidised the cost of an estimated 182 million prescriptions, at a cost of \$7.7 billion.

Access to pharmacies is particularly problematic for people living in rural and remote Australia, where many Aboriginal and Torres Strait Islander peoples live. Specific provisions under the PBS allow clients of around 167 approved remote-area Aboriginal and Torres Strait Islander primary health care services to receive medicines directly from these services at the time of medical consultation without charge or the need for a normal prescription form.

In 2005, the Expert Advisory Panel on Aboriginal and Torres Strait Islander medicines was formed to advise the Pharmaceutical Benefits Advisory Committee (PBAC) on medicines for the treatment of conditions usually specific to Indigenous Australians. The PBAC recommends medicines for listing on the PBS. To date the panel has assisted with the listing of 19 items which support treatment of conditions common in Indigenous health settings. These medicines have been listed to address the greater burden of disease experienced by Indigenous Australians and morbidity almost exclusively seen in this population.

**FINDINGS:** In 2006–07, total expenditure on pharmaceuticals per Aboriginal and Torres Strait Islander person was around 40% of the amount spent on non-Indigenous people (\$248 compared with \$613). Benefits paid through the Pharmaceutical Benefits Scheme were estimated to be 60% of the level of expenditures for non-Indigenous Australians (\$175 compared with \$290). In 2001–02, per person pharmaceuticals expenditure was estimated to be 33% of the amount spent on non-Indigenous people. This suggests that the gap in spending between Indigenous and non-Indigenous Australians is closing.

Mainstream arrangements account for 69% of payments for Aboriginal and Torres Strait Islander people. The remainder are Section 100 and other special supply PBS drugs. The gaps between expenditures for Aboriginal and Torres Strait Islander peoples are greatest in non-remote areas. In remote and very remote areas, per

person pharmaceutical expenditures for Aboriginal and Torres Strait Islander peoples are higher, largely due to the impact of the special provisions for remote area Aboriginal health services. Pharmaceutical expenditures in these areas are almost twice the per person expenditures for Aboriginal and Torres Strait Islander peoples in other areas.

**IMPLICATIONS:** There is a large gap between pharmaceutical expenditures for Aboriginal and Torres Strait Islander peoples and other Australians, although this gap appears to have reduced between 2001–02 and 2006–07. Estimation of this gap is complicated by the absence of high quality data sources on Indigenous pharmaceutical usage and expenditures, the younger age profile for Aboriginal and Torres Strait Islander peoples and the problems in access to prescription medicines faced by all people living in remote and very remote Australia. Improved estimates are now available using the Voluntary Indigenous Identifier (VII) available with Medicare data.

Given the high prevalence of acute and chronic illnesses for Indigenous Australians, low levels of expenditure suggest severe problems in access to medicines. These problems are evident across geographical regions. The special provisions under the Pharmaceutical Benefits Scheme for remote Aboriginal and Torres Strait Islander primary health care services have played an important role in addressing problems in remote areas.

Access needs to be addressed at multiple levels. Prescription medicines are prescribed by primary care and specialist practitioners, and barriers to accessing these services in the first place may result in under use of medications. Appropriateness of prescribing may also be an issue. Once a prescription has been issued, access to pharmacies may be limited, particularly in rural and remote areas. Financial barriers, particularly for people on low incomes, can be important, despite safety nets. It is estimated that in 2001, around 19% of Australians did not fill a prescription because of cost (Blendon et al. 2003). Ongoing compliance is an issue for all patients with chronic illnesses, and these issues may be exacerbated for Indigenous Australians.

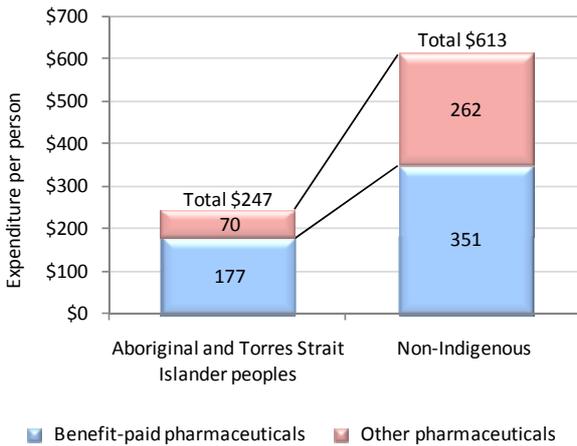
The PBS Co-payment Measure under the Indigenous Chronic Disease Package was introduced on 1 July 2010 to help address the financial barriers Aboriginal and Torres Strait Islander peoples may face in accessing PBS medicines. The new arrangements provide assistance with the cost of PBS medicines for eligible Aboriginal and Torres Strait Islander people living with, or at risk of, chronic disease. Over 70,000 people are expected to benefit from the new arrangements by the end of 2012–13.

Under the 4<sup>th</sup> *Community Pharmacy Agreement* funding is provided to assist pharmacies operating and starting up in rural and remote areas. Programs specific to Indigenous health have also been funded including the *Quality Use of Medicines Maximised for Aboriginal and Torres Strait Islander People* program. The primary aim of this program is to improve medication compliance and quality use of medicines and consequently the health

outcomes of Aboriginal and Torres Strait Islander peoples that attend participating Aboriginal Community Controlled Health Services in rural and urban areas of Australia. The program will be extended under the *5th Community Pharmacy Agreement*.

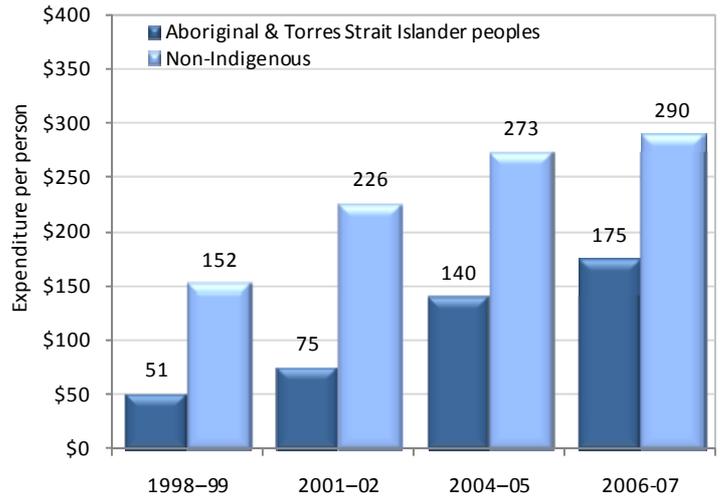
It is important to develop a better understanding of how the various barriers impact on Indigenous Australians, in order to better target strategies. As data improve, better analysis of gaps in the PBS arrangements will be possible to inform programs and policies.

**Figure 171 – Average pharmaceutical expenditure per person, Australia, 2006–07**



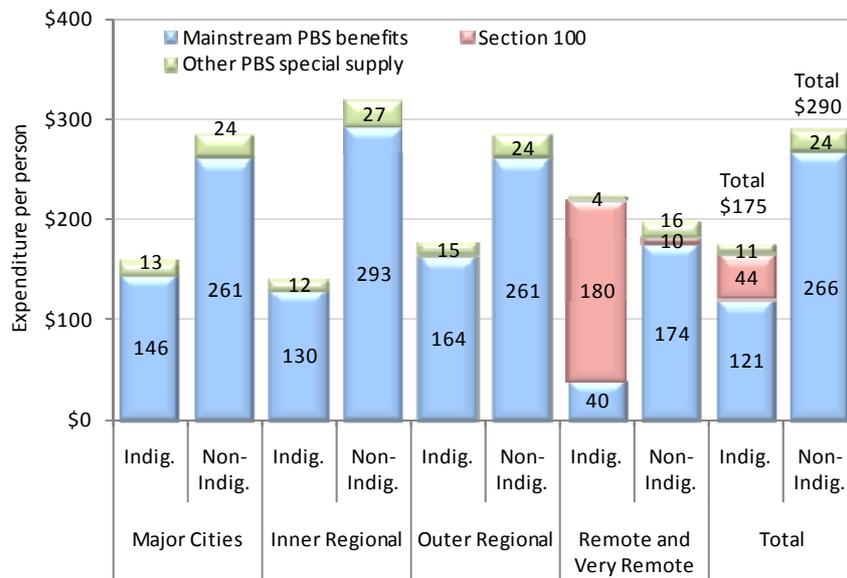
Source: AIHW 2009

**Figure 172 – Average health expenditure per person by the Australian Government on the Pharmaceutical Benefits Scheme, constant prices, by Indigenous status, 1998–99, 2001–02, 2004–05 and 2006–07**



Source: AIHW 2008

**Figure 173 – Average health expenditure per person by the Australian Government on the Pharmaceutical Benefits Scheme, Indigenous Australians, by remoteness, 2006–07**



Source: AIHW 2010d

### 3.14 Access to after-hours primary care

**WHY IS IT IMPORTANT?:** 'After hours' is usually taken to mean services provided on Sunday, before 8am and/or after 1pm on Saturday, or at any time other than 8am to 8pm on weekdays. An important component of comprehensive primary care services is the capacity for patients to access services after hours. In the absence of after-hours primary health care, patients with more urgent needs may delay seeking care. In many circumstances, it is preferred that the primary health care doctor is consulted first. For example, for people with chronic conditions, the primary health care doctor will know about the patient's condition and history, and be able to make an informed judgment about the treatment required. For some patients, work and school commitments make it difficult to access primary care during normal working hours. These patients are increasingly looking for more convenient arrangements. All these issues apply to Aboriginal and Torres Strait Islander peoples. Indeed, several factors (such as the higher prevalence of chronic conditions and higher incidence of injury) suggest that after-hours services may be more important for Indigenous Australians.

GPs employ various after-hours arrangements including: practice-based services (GPs within a practice looking after their own patients after hours); deputising services (commercial companies employing doctors to provide an after-hours service); emergency departments (primary care patients attend emergency departments after hours due to a lack of other services); co-operatives (GPs from different practices forming a non-profit making organisation to provide care for their own patients after hours); primary care centres (patients attending a centre rather than being seen in their own home or in the emergency department after hours); telephone triage and advice services (the use of telephone consultations for primary care patients seeking medical help after hours) (Leibowitz et al. 2003).

Over recent years, the need to provide additional support for GPs in the provision of after-hours services has been recognised. There are special Medicare items for the provision of after-hours consultations, with increased benefit rates. However, these have been insufficient to ensure after-hours GP services are comprehensive. The Australian Government has provided funding through several programs to improve provision, including financial, through *Practice Incentives Program (PIP)* payments; trials of alternative arrangements (Dunt et al. 2002); and through the General Practice After Hours Program. The establishment of 'GP super clinics' will also partially address issues concerning the adequacy of after-hours coverage in some regions.

**FINDINGS:** Over the period April 2004 to March 2009, 95% of Indigenous GP encounters were with practices offering after-hours care arrangements. This compared with 99% of other Australian GP encounters. Types of arrangements included 'practice does its own', 'referral to

other services', 'deputising service', 'cooperative with other practices' and 'other arrangements'. Deputising service for after-care arrangements were more than twice as common in practices attended by other Australians.

In 2008–09, approximately 60% of OATSIH funded Aboriginal and Torres Strait Islander Primary health care services provided care outside of normal operating hours. The most common services provided outside of normal operating hours were transport (78%) and transfer/admission to hospital (76%). Approximately 73% provided services for emotional and social wellbeing/mental health; 61% provided diagnosis and treatment of illness/disease; 58% provided treatment of injury; 56% provided antenatal/maternal care; 31% provided hospital inpatient/outpatient care; and 25% provided care in police station/lock-up/prison.

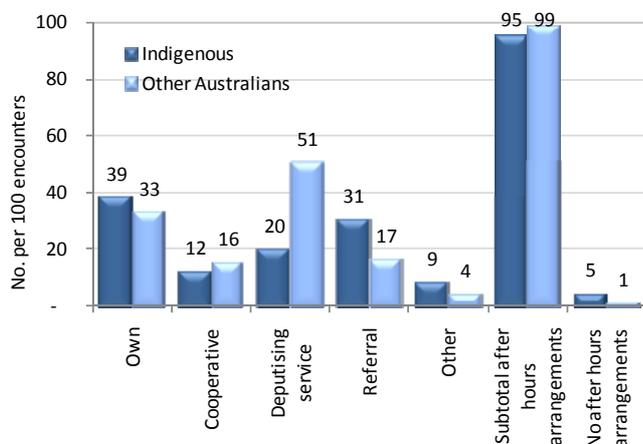
Data on services provided by emergency departments are limited to public hospitals mainly located in major cities (those classified as principal referral, specialist women's and children's hospitals or large hospitals). In the period 2006–07 and 2007–08, there were 467,115 episodes of care for Aboriginal or Torres Strait Islander patients in emergency departments located in these hospitals, representing 4% of all episodes of care. Around half (225,182) emergency department episodes of care for Indigenous patients occurred after hours. This is similar for non-Indigenous patients.

For Indigenous patients there were 302,457 emergency department episodes of care in the period 2006–07 and 2007–08 that were classified as semi-urgent or non-urgent (triage category 4 and 5). Around 65% of Indigenous presentations to emergency departments after hours were for semi-urgent or non-urgent triage categories.

**IMPLICATIONS:** The provision of after-hours GP consultations is much lower in areas where Indigenous Australians make up a higher proportion of the population. This reflects geographic factors (such as poor access to after-hours GPs generally in rural and remote areas), but it also suggest generally poorer access to these services. While Indigenous Australians make up 2.5% of the population, they represent 5% of emergency department episodes in hospitals for which data on after hours care are collected. Around half of these episodes occurred after hours. A better understanding is required of the needs of Aboriginal and Torres Strait Islander peoples for health services after hours, and the best ways of providing coverage.

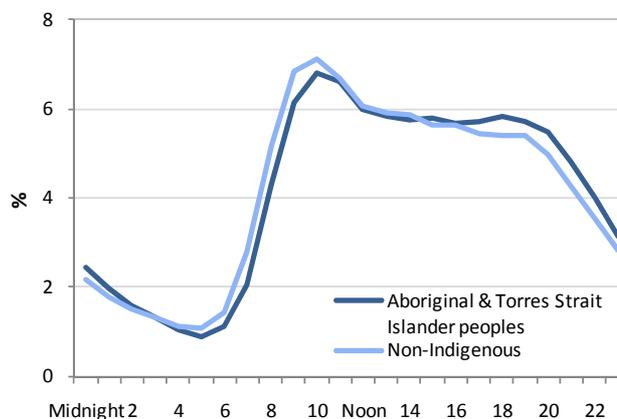
Under *National Health Reform*, the Australian Government will establish a national after-hours telephone-based General Practice medical advice and diagnostic service. The new Medicare Locals to be established progressively from July 2011, will be funded to plan and ensure the availability of face-to-face after hours services for their region. These services will be integrated with the new telephone-based GP service.

**Figure 174 – Rate of GP encounters, by whether the GP has after-hours arrangements in place, by Indigenous status of the patient, April 2004 to March 2009**



Source: AIHW analysis of Medicare Database

**Figure 175 – Non-admitted patient emergency care episodes for triage categories 4 (semi-urgent) and 5 (non-urgent) by time of day and Indigenous status, Australia, 2006–07 to 2007–08**



Note: These data are limited to public hospitals mainly located in major cities classified as principal referral, specialist women’s and children’s hospitals or large hospitals.

Source: AIHW analysis of National Non-admitted Patient Emergency Department Care Database

**Table 68 – Non-admitted patient emergency care episodes after hours, by Indigenous status, 2006–07 to 2007–08**

Time of presentation	Number				Percent			
	Indig.	Non-Indig.	Not stated	Total	Indig.	Non-Indig.	Not stated	Total
<b>All emergency department episodes</b>								
On Sundays	67,883	1,542,960	68,484	1,679,327	15	16	16	16
Before 8am or after 1pm on Saturday	50,889	1,040,499	48,246	1,139,634	11	11	11	11
Before 8am or after 8pm on a weekday	106,410	2,119,772	98,071	2,324,253	23	21	23	22
<b>Total after hours</b>	<b>225,182</b>	<b>4,703,231</b>	<b>214,801</b>	<b>5,143,214</b>	<b>48</b>	<b>47</b>	<b>50</b>	<b>48</b>
<i>Not after hours</i>	241,933	5,212,591	217,966	5,672,490	52	53	50	52
<b>Total</b>	<b>467,115</b>	<b>9,915,822</b>	<b>432,767</b>	<b>10,815,704</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Semi-urgent or non-urgent (triage category 4 and 5) emergency department episodes</b>								
On Sundays	44,407	945,232	40,676	1,030,315	15	16	17	16
Before 8am or after 1pm on Saturday	31,866	605,237	26,767	663,870	11	10	11	10
Before 8am or after 8pm on a weekday	63,430	1,160,704	51,587	1,275,721	21	20	21	20
<b>Total after hours</b>	<b>139,703</b>	<b>2,711,173</b>	<b>119,030</b>	<b>2,969,906</b>	<b>46</b>	<b>46</b>	<b>48</b>	<b>46</b>
<i>Not after hours</i>	162,754	3,178,808	127,307	3,468,869	54	54	52	54
<b>Total</b>	<b>302,457</b>	<b>5,889,981</b>	<b>246,337</b>	<b>6,438,775</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Note: These data are limited to public hospitals mainly located in major cities classified as principal referral, specialist women’s and children’s hospitals or large hospitals.

Source: AIHW analysis of National Non-admitted Patient Emergency Department Care Database

### 3.15 Regular GP or health service

**WHY IS IT IMPORTANT?:** Having a usual primary care provider, sometimes known as the ‘medical home’, is associated with good communication between the patient and provider, greater trust in the health care provider (Mainous et al. 2001), improved preventive care and better health outcomes (Starfield 1998; Starfield & Shi 2004). Effective communication between the patient and provider is particularly relevant in the health of Indigenous Australians where communication issues can lead to health care problems such as misdiagnosis and incorrect treatment. An ongoing relationship between the patient and provider assists in understanding long-term health needs and facilitates the coordination of care with other providers (e.g. specialists) to meet patient needs (Forrest & Starfield 1996). Having a usual primary care provider correlates with higher quality care (Christakis et al. 2002; Inkelas et al. 2004). The literature focuses on having a regular GP. Given the different models of care in Australia such as Aboriginal and Torres Strait Islander primary health care services and private GP practices, it may be difficult to draw clear conclusions about the relationships between having a regular health service and continuity of care.

One international survey found that 88% of Australians reported having a regular GP. Rates were higher in the UK and NZ at 91% and lower in Canada (86%) and the US (83%). In Australia, a further 6% reported they had no regular doctor but did have a usual place of care (Schoen et al. 2004).

**FINDINGS:** This measure is derived from the National Aboriginal and Torres Strait Islander Health Survey and has not been updated since the 2006 version of this report. In 2004–05, 91% of all Aboriginal and Torres Strait Islander people reported that they usually went to the same GP or medical service. This proportion is similar across age groups (with slightly higher rates for people aged 0–14 years and 55 years and over) and other socioeconomic dimensions including main language spoken at home, household income, remoteness region of residence and private health insurance status.

Sixty per cent of Aboriginal and Torres Strait Islander people went to a doctor if they had a problem with their health, and 30% reported they went to an ‘Aboriginal medical service’. Note that the next survey will include improved questions on this topic including preferences for care. ‘Aboriginal medical services’ were used as the regular source of health care for 15% of Aboriginal and Torres Strait Islander people in major cities rising to 76% in very remote areas. A higher use of hospitals for regular health care was reported in Queensland and Western Australia compared with other jurisdictions.

Seventy-eight per cent of Aboriginal and Torres Strait Islander people who usually went to the same GP or medical service reported that their treatment when seeking health care in the previous 12 months was the same as non-Indigenous people. Five per cent reported their treatment was better than non-Indigenous people

and 4% that their treatment was worse than non-Indigenous people. However, 16% of Indigenous Australians reported that over the previous 12 months they felt treated badly by a health service provider because they were Indigenous. Up to a third of these people tried to avoid the situation, which suggests they may not have sought care when it was required.

**IMPLICATIONS:** A high proportion of Aboriginal and Torres Strait Islander peoples have a usual source of health care. This finding is encouraging as access for a usual source of care is one of the foundations for a good primary care system.

The two major sources of care for Indigenous Australians are Aboriginal medical services and mainstream GPs. Aboriginal medical services play a more dominant role as the usual source of care in remote areas of Australia. The small number of services nationally limits their accessibility for some Indigenous Australians. Aboriginal medical services offer services in addition to primary medical care and remain the service of choice for many Aboriginal and Torres Strait Islander peoples. These services are controlled by the local community and have significant expertise in Aboriginal and Torres Strait Islander health. There is evidence that Aboriginal medical services treat patients with more complex problems (Larkins et al. 2006). Strengthening these services in areas of potentially high demand should remain a priority.

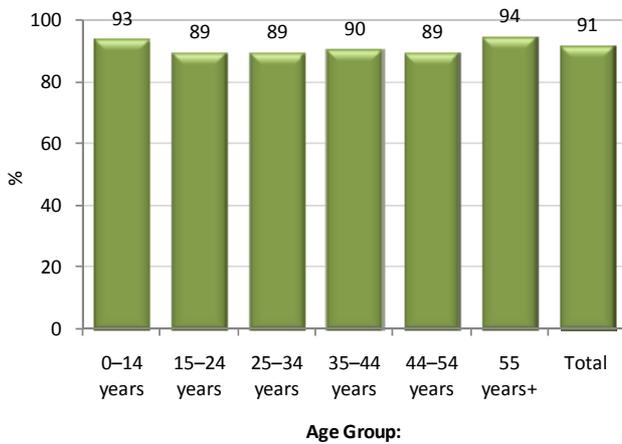
While mainstream general practice is a significant source of care, reports suggest a relatively small proportion of private GPs provide sensitive and appropriate services to their Indigenous patients and that these GPs tend to attract most Indigenous patients living locally (Heyman 2009, Andrews 2002). Unlike Aboriginal medical services, for most GPs Indigenous clients will remain a small proportion of their clients. This makes developing expertise in Aboriginal and Torres Strait Islander health issues challenging. Strategies are required to address lack of expertise in Indigenous health issues, lack of awareness of Aboriginal and Torres Strait Islander primary health care initiatives, cultural insensitivity and discrimination by mainstream providers. There is evidence that few mainstream GPs currently identify which of their patients are Aboriginal and Torres Strait Islander. Therefore they are not in a position to offer the additional MBS, PBS and immunisation programs available (Norris et al. 2004; Riley et al. 2004). However, some mainstream practices have implemented very successful strategies explicitly focused on their Indigenous patients (e.g. Hayman et al. 2009; Spurling et al. 2009).

Under the *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes* (COAG 2008b) Governments have agreed to initiatives to assist primary health care services to improve service delivery. The Australian Government is investing \$474 million between 2009–10 and 2012–13 for this priority area. Initiatives include the new *Practice Incentives Program (PIP) Indigenous Health Incentive* which aims to support accredited general practices and Indigenous

health services to provide better health care for Indigenous Australians. Under the *Improving Indigenous Access to Mainstream Primary Care Program* Indigenous Health Project Officer positions in Divisions of General Practice, NACCHO and its affiliates have been funded to improve the capacity of general practice to deliver culturally sensitive primary care services, increase the uptake of Indigenous specific MBS items including Indigenous health checks and follow-up items and support mainstream primary care services to identify Indigenous Australians.

Under the Indigenous Chronic Disease Package, 38

**Figure 176 – Whether the person usually goes to same GP/medical service, by age group, Aboriginal and Torres Strait Islander peoples 2004–05**

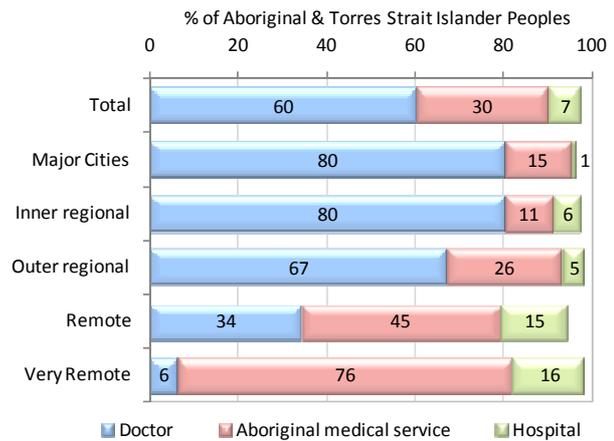


Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

additional GP registrar training posts have also been established, together with expanded nurse scholarships and clinical placements in Indigenous health services.

While Aboriginal and Torres Strait Islander peoples may have a usual source of care, it is not clear that health care is always sought or accessible (see measure 3.12). Further data development is required to give a good indication as to whether, having sought care, Aboriginal and Torres Strait Islander peoples received appropriate follow-up care, are referred for specialist care, or are able to receive specialist care when this is required.

**Figure 177 – Where usually go if problem with health, by remoteness area, Aboriginal and Torres Strait Islander peoples 2004–05**



Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

**Table 69 –Aboriginal and Torres Strait Islander peoples perceptions of treatment when seeking health care, 2004–05**

	Percentage
<b>Treatment when seeking health care in last 12 months compared with non-Indigenous people</b>	
Worse than non-Indigenous people	4
The same as non-Indigenous people	77
Better than non-Indigenous people	5
Only encountered Indigenous people	2
Did not seek health care in last 12 months	5
Don't know/not sure	7
<b>Total</b>	<b>100</b>
<b>Whether felt treated badly because Aboriginal or Torres Strait Islander in last 12 months</b>	
Yes	16
No	84
<b>Total</b>	<b>100</b>
<b>What usually do when treated badly because Aboriginal/Torres Strait Islander (a) (b)</b>	
Try to avoid the person/situation	33
Try to change the way you are or things that you do	9
Try to do something about the people who did it	30
Talk to family or friends about it	38
Keep it to yourself	18
Just forget about it	28
Do anything else	5
No action	4

(a) Persons may have reported more than one type of action.

(b) Persons who answered yes to 'whether treated badly in the last 12 months because Aboriginal/Torres Strait Islander'.

Source: ABS and AIHW analysis of 2004–05 National Aboriginal and Torres Strait Islander Health Survey

### 3.16 Care planning for clients with chronic diseases

**WHY IS IT IMPORTANT?:** Chronic diseases such as circulatory disease, diabetes, renal disease, chronic respiratory disease, cancers and chronic mental health conditions are a major cause of morbidity and mortality among Aboriginal and Torres Strait Islander peoples (see measure 1.23 and 1.02). Effective management of chronic disease can delay the progression of disease, decrease the need for high-cost interventions, improve quality of life, and increase life expectancy. As good quality care for people with chronic disease generally involves multiple health care providers across multiple settings, the development of care plans is one way in which the client and primary health care provider can ensure appropriate care is arranged and coordinated.

A care plan is a written action plan containing strategies for delivering care that address an individual's specific needs, particularly patients with chronic conditions and/or complex care needs. A care plan can be used to record comprehensive, accurate and up to date information about the patient's condition, actions the patient needs to take, the various services required and collaboration with other service providers to achieve management goals for the patient. Development of a care plan can also help encourage the patient to take some responsibility for their care, including the identification of any actions the patient might take to help achieve the goals of treatment. A care plan may involve one health professional (usually a GP or other primary health care doctor) and patient, or may be negotiated with several service providers (e.g. GP, nurse, Aboriginal health worker, allied health professionals, community services providers) in liaison with the patient.

A recent review of evidence concerning chronic disease management interventions in primary care settings in Australia found that interventions most likely to be effective in the Australian context were: engaging primary care in self-management support through education and training for GPs and practice nurses, and including self-management support in care plans linked to multidisciplinary team support (Dennis et al. 2008). A study of general practice patients with Type 2 diabetes found that following implementation of a care plan the proportion of patients involved in multi-disciplinary care and in the adherence to diabetes care guidelines increased. There were also improvements in patients' metabolic control and cardiovascular risk factors (Zwar et al. 2007).

GPs are encouraged to develop care plans through a number of primary care items under the Medical Benefits Schedule. In July 2005, new Chronic Disease Management items were introduced specifically focused on patients with chronic or terminal conditions who will benefit from a structured approach to management of their care needs (DoHA 2008b). These include an item related to the development of General Practitioner Management Plans (GPMPs), an item for a Team Care Arrangement (TCAs) where planning involves a broader

team and items for where GPs contribute to the care plans developed by another service provider and reviews of those plans.

Aboriginal and Torres Strait Islander primary health care services have been facilitating care planning for their patients across the health system and with other sectors since the inception of the first services (Central Australian Aboriginal Congress 2004).

**FINDINGS:** Medicare claims data show that there were 23,927 GP management plan services claimed by Indigenous Australians during 2009–10. After adjusting for differences in age structures, Indigenous Australians received more claimed GP management plans than non-Indigenous Australians (76 per 1,000 compared to 47 per 1,000). Indigenous Australians also had a higher rate of nurse/Aboriginal Health Worker consultations claimed than non-Indigenous Australians (578 per 1,000 compared with 327 per 1,000) and team care arrangements (60 per 1,000 compared to 37 per 1,000).

Data from services funded under the *Healthy for Life* program show that of the 8,535 Indigenous adults with Type 2 diabetes who are regular clients of *Healthy for Life* services, 2,813 (33%) had a GPMP (or equivalent). Of the 2,395 Indigenous adults with coronary heart disease who are regular clients of the *Healthy for Life* service, 691 (29%) had a general practitioner management plan or equivalent. Take-up of these items was higher for services located in regional (26–29%) and remote (38–39%) areas compared with services in urban areas (18–20%). These rates have all improved since last measured in 2007. Take-up of items for TCAs has increased from 3–4% in 2007 to 18–19% in 2009.

Key elements of effective asthma management include the development of a written asthma action plan and regular use of medications that control the disease and prevent exacerbations of the condition (AIHW Australian Centre for Asthma Monitoring 2005). In 2004–05, it was estimated that 25% of Aboriginal and Torres Strait Islander people with asthma, living in non-remote areas, had a written asthma plan, compared with 22% of non-Indigenous Australians. However, for some age groups this pattern was reversed (e.g. 5–24 and 45–54 year age groups). The prevalence of asthma is higher for Indigenous people (18% of the population compared with 10% for non-Indigenous Australians).

Information on the management of chronic conditions by Aboriginal and Torres Strait Islander primary care services is available through the OATSIH Service Reporting system (see measure 3.04). In 2008–09, 91% of services provided care planning and 67% reported that discharge planning was well coordinated between the hospital and the service. In 2008–09, 78% of services provided or facilitated shared care arrangement for the management of people with chronic conditions.

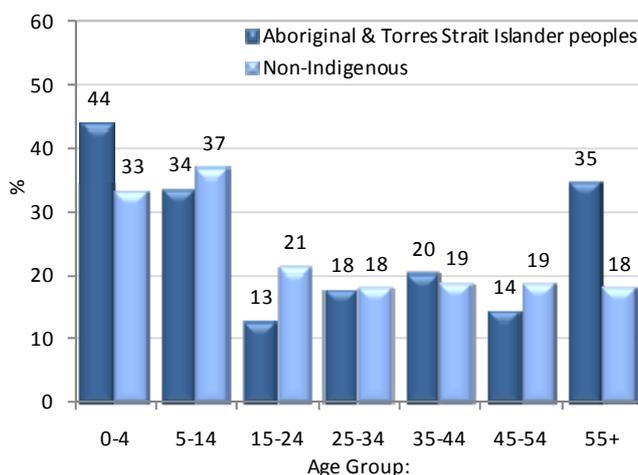
**IMPLICATIONS:** As discussed in relation to measure 3.04, the provision of organised chronic disease management in Aboriginal and Torres Strait Islander primary health care services has been demonstrated to result in improvement in various health outcomes (Hoy et al. 1999; Hoy et al. 2000; Rowley et al. 2000;

McDermott et al. 2003; Bailie et al. 2007). Care planning is one of the important elements in effective chronic disease management (Vagholkar et al. 2007).

Currently the Australian Government provides funding through the *Practice Incentives Program (PIP)* *Indigenous Health Incentive* to support general practices and Indigenous health services to provide best practice

management of chronic disease. Health services participating in this program are also able to refer Aboriginal and Torres Strait Islander clients needing more complex care to the new Care Coordination and Supplementary Services Program. Chronic disease management for Indigenous Australians is vital for closing the gap in Indigenous life expectancy (see measure 3.04).

**Figure 178 – Proportion of people with asthma reporting that they have a written asthma action plan by Indigenous status and age group, non-remote areas, 2004–05**



Source: AIHW analysis of 2004–05 NATSIHS and 2004–05 National Health Survey

**Table 70 – Number and proportion of Indigenous regular clients of services funded through the *Healthy for Life* program with a chronic disease who have a current *General Practitioner Management Plan* and/or an equivalent alternative, by type of chronic disease and remoteness, at 30 June 2009**

	Urban	Regional	Remote	Total
<b>Number of Indigenous regular clients with a current GPMP and/or alternative:</b>				
Type 2 Diabetes	261	705	1,847	2,813
Coronary Heart Disease	108	218	365	691
<b>Total number of Indigenous regular clients with a chronic disease:</b>				
Type 2 Diabetes	1,302	2,422	4,811	8,535
Coronary Heart Disease	606	844	945	2,395
<b>Proportion of Indigenous regular clients with a chronic disease who have a current GPMP and/or alternative (%):</b>				
Type 2 Diabetes	20.0	29.1	38.4	33.0
Coronary Heart Disease	17.8	25.8	38.6	28.9

Source: AIHW, *Healthy for Life* data collection

**Table 71 – Number and proportion of Indigenous regular clients of services funded through the *Healthy for Life* program with a chronic disease who have a current MBS item 723 Team Care Arrangement, by type of chronic disease, at 30 June 2007, 2008 and 2009**

	30 June:		
	2007	2008	2009
<b>Type 2 Diabetes:</b>			
Number of Indigenous regular clients with a current TCA	85	931	1,520
Total number of Indigenous regular clients with Type 2 diabetes	2,252	7,084	7,905
Proportion who have a current TCA (%)	3.8	13.1	19.2
<b>Coronary Heart Disease:</b>			
Number of Indigenous regular clients with a current TCA	28	na	415
Total number of Indigenous regular clients with coronary heart disease	956	na	2,294
Proportion who have a current TCA (%)	2.9	na	18.1

Source: AIHW, *Healthy for Life* data collection

### 3.17 Accreditation

**WHY IS IT IMPORTANT?:** Accreditation is a process, usually voluntary, through which a recognised external body assesses the extent to which a health care organisation meets applicable quality standards. Quality standards typically address issues such as: governance of the organisation, management of safety issues such as infection control, handling of care processes such as discharge planning, general management issues such as human resource management, quality of the physical infrastructure, and issues such as handling of patient complaints. Assessments often result in recommendations for action. The assessment outcome may also be reported publicly in a summarised form. The services accessed by Aboriginal and Torres Strait Islander peoples should be able to demonstrate a comparable level of quality when compared with other health services in Australia. While accreditation status is a broad measure, it provides one measure of the capability of services, based on their skills and knowledge, to provide quality health services to Aboriginal and Torres Strait Islander peoples.

In Australia, there are well developed accreditation systems for hospitals and general practice. Most hospitals are accredited by the Australian Council of Healthcare Standards (ACHS) *Evaluation and Quality Improvement Program* (EQuIP), although other accreditation systems are used by hospitals such as the *Quality Improvement Council* (QIC). Overall, 87% of hospitals accounting for 97% of hospital beds have achieved some form of accreditation (AIHW 2010a). Most large hospitals are accredited. Accreditation is less common for small hospitals located in regional and remote areas. Achieving accreditation generally requires a considerable ongoing investment of time and resources which is not always easy for smaller hospitals. It is not possible to draw conclusions about the quality of care in hospitals that do not have accreditation.

Accreditation in general practice involves assessment against standards set by the Royal Australian College of General Practitioners (RACGP) in five key areas: practice services, rights and needs of patients, quality assurance and education, practice administration, and physical factors for workplace health and safety (Royal Australian College of General Practitioners 2006). There are two registered accreditation providers: Australian General Practice Accreditation Limited (AGPAL) and General Practice Accreditation Plus (GPA+). Most general practices are accredited by AGPAL. The RACGP standards indirectly address issues for Aboriginal and Torres Strait Islander peoples. For example, in assessing whether patient care is effective, accreditation assessors ask GPs if they 'can access guidelines for specific clinical care of patients who self-identify as Aboriginal and Torres Strait Islanders'.

**FINDINGS:** For the jurisdictions in which Indigenous identification in hospital patient data are considered adequate, 94% of episodes for Aboriginal and Torres Strait Islander peoples occurred in accredited hospitals, which was similar to episodes for other Australians. The

percentage of both Aboriginal and Torres Strait Islander patient episodes and other patient episodes treated in accredited hospitals is higher for hospitals located in outer regional (98%) and inner regional (95%) areas.

In 2009–10, an estimated 87% of registered general practices were accredited through AGPAL or GPA+. Accreditation was highest (89%) for practices in areas where Aboriginal and Torres Strait Islander peoples make up 2–3% of the population.

In 2008–09, of the 130 Aboriginal and Torres Strait Islander primary health care services that employed a GP 65% (85) were accredited.

As at June 2009, of the 72 services that were included in the *Healthy For Life* program and reported information on accreditation, 65% (47) of services were accredited, 1.4% provisionally accredited (1), and 14% (10) were undergoing accreditation.

The 2007–08 Federal Budget committed \$36.9 million over four years for the *A Better Future for Indigenous Australians — Establishing Quality Health Standards* (EQHS) Measure. This Measure was funded to support eligible Indigenous health organisations become accredited under Australian health care standards. As at November 2010, 137 Aboriginal and Torres Strait Islander primary health care organisations employing a general practitioner were eligible for support under the EQHS measure. In addition there were 71 eligible Indigenous health service organisations without general practitioners including Substance Use Services, Link Up, Bringing Them Home, Social and Emotional Well Being and Advocacy Groups.

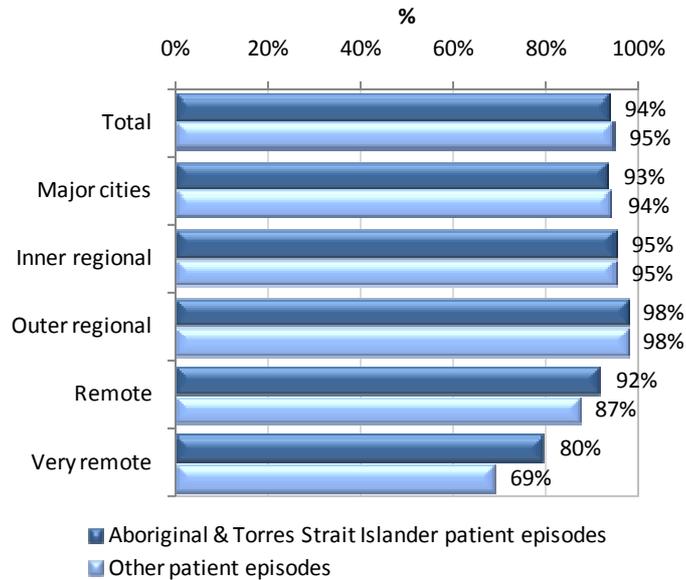
**IMPLICATIONS:** Most accreditation processes do not specifically address the needs of Aboriginal and Torres Strait Islander peoples in either quality or safety of care. Accreditation processes do not address capacity to provide culturally specific skills and knowledge to address the health needs of Aboriginal and Torres Strait Islander peoples. Little research into the appropriateness of accreditation processes for the health needs of Aboriginal and Torres Strait Islander peoples has been undertaken (Otim et al. 2002).

The Commonwealth has sought to progress the debate around the nature and value of accreditation of health service delivery to Indigenous Australians by establishing the Indigenous Health Service Accreditation Advisory Committee in 2007 and funding accreditation-specific research and information projects throughout the Aboriginal and Torres Strait Islander community controlled health sector.

The Aboriginal and Torres Strait Islander Health Sector Accreditation and Quality Standards Project (CRCATSIH 2008) comments on the following aspects of accreditation: the nature of accreditation standards that could be applied to the Aboriginal and Torres Strait Islander community controlled health sector; the most feasible approach to implement accreditation against those standards; and the support needed in order to achieve such accreditation.

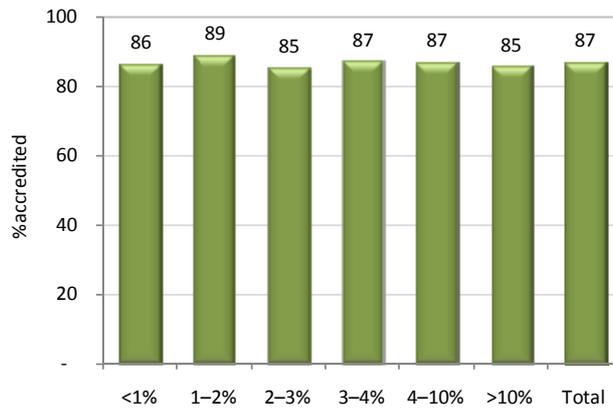
A related project being undertaken by the Quality Improvement Council is investigating the extent to which accreditation processes can be streamlined in order to minimise the administrative burden on health service providers, especially in cases where multiple accreditation might apply.

**Figure 179 – Proportion of hospital admitted patient episodes in accredited hospitals, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008**



Source: AIHW analysis of National Public Hospitals Establishment Database

**Figure 180 – Proportion of general practices accredited<sup>(a)</sup> by Divisions of General Practice, by proportion of the population that is Indigenous<sup>(b)</sup>, 2009–10**



(a) Indigenous proportions are based on ABS population estimates used in the Annual Survey of Divisions of General Practice

(b) GPA+ data is for the period 2009–2010. AGPAL data is as of February 2010

Source: AIHW analysis of AGPAL and GPA+

### 3.18 Aboriginal and Torres Strait Islander people training for health-related disciplines

**WHY IS IT IMPORTANT?:** Aboriginal and Torres Strait Islander peoples are significantly under-represented in the health workforce (see measure 3.10). Improving the participation of Aboriginal and Torres Strait Islander peoples in tertiary education for health-related disciplines is vital to increasing Aboriginal and Torres Strait Islander participation in the health workforce, and creating a workforce capable of addressing the significant challenges in Aboriginal and Torres Strait Islander health.

**FINDINGS:** In 2008, there were an estimated 1,428 Aboriginal and Torres Strait Islander tertiary student enrolments in health-related courses and 248 completions. Although enrolment and completion rates for Indigenous students have increased since 2001, the gap between Indigenous and non-Indigenous student rates has widened. The success rate for Indigenous students studying health-related courses in 2008 was 74% compared with 93% for non-Indigenous students.

The most common health-related course for Indigenous undergraduate students in 2008 was nursing (582 enrolments, and 71 completions). In the same year, there were 298 Indigenous student enrolments in public health courses. Of these, 142 were in a specific Indigenous health course. In the same year, there were 47 completions in a public health course, of which 27 were in a specific Indigenous health public health course. There were an estimated 128 Indigenous student enrolments in medicine. In 2008, there were 13 Indigenous medical student completions, compared with 10 in 2003, 9 in 1999 and 3 in 1997. Participation rates remain very low in rehabilitation therapies, dental studies, pharmacy, radiography and optical science. Indigenous student enrolment and completion rates were lower than non-Indigenous student rates in the younger age groups, but exceeded non-Indigenous student rates in the older age groups (35 years plus for enrolments and 45 years plus for completions).

Vocational Education and Training (VET) attracts the highest proportion of Indigenous students studying and completing health-related courses. In 2008, there were an estimated 6,143 Indigenous student enrolments in health-related courses in the VET sector and 395 completions. Indigenous student rates in health-related courses were higher than non-Indigenous student rates for both enrolments (194 per 10,000 compared to 65 per 10,000) and completions (13 per 10,000 compared to 7 per 10,000). The most common type of health-related course for Aboriginal and Torres Strait Islander VET students was public health (4,094 enrolments and 182 completions) followed by nursing (421 enrolments and 98 completions). In the same year, there were 126 VET sector student completions in a course aimed at Aboriginal and Torres Strait Islander Health Worker occupations in Australia. Women account for 72% of the student completions in this course. Participation rates

remain very low in pharmacy, optical science, dental studies and complementary therapies.

In 2008, the VET load pass rate for Indigenous students studying health-related courses was 70% compared with 81% for non-Indigenous students.

**IMPLICATIONS:** In March 2008, the National Indigenous Health Workforce Training Plan was launched. This was followed by the launch of the *Pathways into the workforce for Aboriginal and Torres Strait Islander people: a blueprint for action* in July 2008 (NATSIHC 2008b) and the establishment of the National Indigenous Health Equality Council (NIHEC) to advise the Minister on a range of matters including workforce.

The Training Plan provides three year funding to Indigenous health professional groups to support students and employees. These groups include the Australian Indigenous Doctors Association (AIDA), the Congress of Aboriginal and Torres Strait Islander Nurses (CATSIN) and the establishment of the Indigenous Allied Health Australia and the National Aboriginal and Torres Strait Islander Health Workers Association. The Plan includes funding to up-skill the current Aboriginal and Torres Strait Islander Health Worker workforce; employ Workforce Issues Policy Officers within the Aboriginal community controlled jurisdictional affiliates to promote health careers in schools and colleges; and the Leaders in Medical Education Network to integrate Indigenous health in the health sciences, medical and nursing schools.

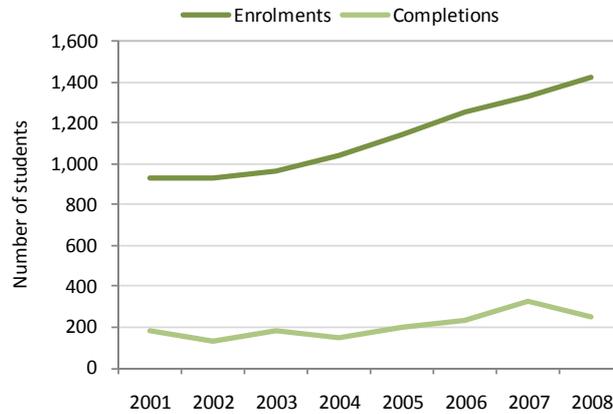
The Puggy Hunter Memorial Scholarship Scheme provides scholarships for Aboriginal and Torres Strait Islander students in all health disciplines. In 2010, there were over 300 Indigenous students studying under the Puggy Hunter Memorial Scholarship Scheme.

Some medical schools have been significantly more successful in attracting and retaining Indigenous medical students. These schools have adopted comprehensive approaches including: locally-based strategies involving personal contact and community engagement; building relationships with potential students and their families and communities through (e.g. school visits by Indigenous medical students and doctors); and Indigenous medical or health support units. Fifty-seven per cent of Indigenous Australian medical students reported the presence of a support unit as their main reason for choosing a university. The presence of Indigenous staff within the school was also important, along with mentoring, curriculum and cultural safety (Minniecon & Kong 2005). AIDA proposes all medical schools have established pathways into medicine for Indigenous Australians by 2010. The availability of Indigenous health support units within universities and colleges, supporting Indigenous students across health disciplines is a key requirement. Improvements in school educational retention and attainment are also necessary (see measure 2.05). Strategies are required to increase enrolment in courses for the health disciplines in which Indigenous students are under-represented.

**Table 72 – Student enrolments and completions in health-related courses in the Tertiary Education sector, 2008**

	Enrolled				Completions			
	Number:		Rate per 10,000:		Number:		Rate per 10,000:	
	Indig.	Other	Indig.	Other	Indig.	Other	Indig.	Other
Nursing	582	32,225	18.2	22.9	71	7,382	2.2	5.2
Public health	298	4,188	9.3	3.0	47	677	1.5	0.5
<i>Indigenous health</i>	142	27	4.4	-	27	n.p.	0.8	-
<i>Other public health</i>	156	4,180	4.9	3.0	20	706	0.6	0.5
Medical studies	128	12,037	4.0	8.6	13	2,011	0.4	1.4
Rehabilitation therapies	73	12,200	2.3	8.7	12	2,353	0.4	1.7
Dental studies	20	2,310	0.6	1.6	4	499	0.1	0.4
Pharmacy	9	4,634	0.3	3.3	n.p.	960	0.1	0.7
Radiography	n.p.	1,874	0.3	1.3	n.p.	434	-	0.3
Optical science	n.p.	545	0.1	0.4	-	n.p.	-	0.1
<b>Total</b>	<b>1,120</b>	<b>69,833</b>	<b>35.0</b>	<b>49.6</b>	<b>152</b>	<b>14,449</b>	<b>4.7</b>	<b>10.3</b>

Source: AIHW analysis of Higher Education Student Statistics Collection

**Figure 181 – Indigenous Australian university student enrolments and completions in health-related courses, 2001–2008**

Source: AIHW analysis of Higher Education Student Statistics Collection

**Table 73 – Vocational education and training (VET) sector students enrolled and completed health-related courses, 2008**

	Enrolled				Completions			
	Number:		Rate per 10,000:		Number:		Rate per 10,000:	
	Indig.	Other	Indig.	Other	Indig.	Other	Indig.	Other
Public health	4,094	33,951	129.4	24.5	182	2,410	5.8	1.7
Nursing	421	19,082	13.3	13.8	98	2,992	3.1	2.2
Medical studies	n.p.	505	n.p.	0.4	-	n.p.	..	n.p.
Dental studies	70	3,816	2.2	2.8	11	1,296	0.3	0.9
Complementary therapies	59	3,162	1.9	2.3	n.p.	858	n.p.	0.6
Rehabilitation therapies	11	650	0.3	0.5	n.p.	157	n.p.	0.1
Optical science	n.p.	966	n.p.	0.7	-	109	..	0.1
Pharmacy	-	68	..	-	-	n.p.	..	n.p.
Other health	1,483	28,251	46.9	20.4	94	2,174	3.0	1.6
<b>Total</b>	<b>6,143</b>	<b>90,451</b>	<b>194.1</b>	<b>65.2</b>	<b>395</b>	<b>10,031</b>	<b>12.5</b>	<b>7.2</b>

Source National VET provider collection 2008

### 3.19 Expenditure on Aboriginal and Torres Strait Islander health compared to need

**WHY IS IT IMPORTANT?:** A basic equity principle is that health expenditures should be targeted to reflect relative needs for health services. Health expenditures for population groups with higher levels of need should be proportionately higher. For Aboriginal and Torres Strait Islander peoples, the principle means that the demonstrable higher levels of need should be accompanied by higher levels of health expenditure. If health expenditures are not sufficiently matched to need, then this fundamental principle of equity will not be met and services for Aboriginal and Torres Strait Islander peoples will struggle to be sustainable and effective. There are many challenges in working through how this principle can be defined and assessed (Commonwealth Grants Commission 2001; SCRGSP 2007). However, a broad assessment of how well the principle is given effect is provided by comparing broad differentials in health status with differences in per capita health expenditures.

**FINDINGS:** On a per person basis, average health expenditures for Aboriginal and Torres Strait Islander people in 2006–07 were estimated to be \$5,569, which was 31% higher than the expenditure for other Australians (\$4,247). Including high care residential aged care (which was incorporated in health expenditure estimates prior to 2006–07), total expenditures were estimated to be 25% higher for Indigenous Australians compared with non-Indigenous Australians. This increased from 17% in 2004–05, indicating expenditures for Indigenous Australians increased at a greater rate than for non-Indigenous Australians over this period. When first estimated in 1995–96, the ratio was 1.08. Some of the change since that time will reflect methodological issues, rather than actual expenditure increases.

Governments provided an estimated 93% of the funding used to pay for health goods and services for Aboriginal and Torres Strait Islander peoples during 2006–07 compared with 68% for other Australians. Per person funding provided by the Australian Government for Aboriginal and Torres Strait Islander peoples was \$2,336 compared with \$1,872 for other Australians, a ratio of 1.25:1. Excluding grants from the Commonwealth Government per person funding provided by state and territory governments for Aboriginal and Torres Strait Islander peoples was \$1,930 compared with \$563 for other Australians, a ratio of 3.4:1 (AIHW 2009).

Estimated expenditures per person by state and territory governments vary across jurisdictions, with the highest expenditures per person in the Northern Territory. Most variation between jurisdictions is explained by differences in the proportion of Indigenous people in the state living in remote and very remote areas. For the main programs, in 2006–07, expenditures were an estimated \$4,597 per Aboriginal and Torres Strait

Islander person in remote and very remote areas compared with \$3,316 in outer regional, \$2,394 in inner regional areas and \$2,564 in major cities. The higher expenditures in rural and remote areas are largely related to hospital services and OATSIH grants to ACCHOs. The higher expenditures partly reflect higher costs of delivering health care services in rural and remote areas.

MBS expenditure per person was higher for non-Indigenous Australians across all remoteness areas. The gap between Indigenous Australians and non-Indigenous was greatest in major cities and inner regional areas and smallest in remote areas. PBS expenditure per person was highest in remote areas for Indigenous Australians and highest in major cities and inner regional areas for non-Indigenous Australians. The cost per hospital separation was higher for Indigenous Australians than non-Indigenous Australians (AIHW 2009).

In 2006–07, expenditures for primary health care services were \$2,599 per person for Aboriginal and Torres Strait Islander peoples compared with \$2,007 for other Australians. Primary health care expenditures on medical services including those paid through the Medicare Benefits Schedule were \$342 per Aboriginal and Torres Strait Islander person compared with \$525 for other Australians. Per person expenditures on pharmaceuticals in the primary care sector were also much lower for Aboriginal and Torres Strait Islander peoples (\$224 versus \$509—see measure 3.13). Per person expenditures on community health services were seven times higher for Indigenous Australians—\$1,187 per person compared with \$182 per person for other Australians. Community health expenditures accounted for \$620 million in 2006–07 or 46% of total primary health care expenditures for Indigenous Australians. Per person expenditures on dental services for Aboriginal and Torres Strait Islander peoples were half that for other Australians.

Australian Government Indigenous specific health program expenditure has increased from \$115 million in 1995–96 to \$586 million in 2009–10, a growth in real terms of 255%.

In 2006–07, expenditures for secondary and tertiary health care services (excluding residential care) were \$2,753 per person for Aboriginal and Torres Strait Islander peoples compared with \$2,007 for other people. Hospital expenditure is the largest single expenditure item in secondary/tertiary accounting for \$2,199 per Indigenous Australian. Expenditures on secondary/tertiary care medical services (mainly specialist care) were estimated to be \$81 per Aboriginal and Torres Strait Islander person compared with \$288 per person for other Australians.

**IMPLICATIONS:** On a per person basis, average health expenditures for Indigenous Australians are 31% higher than for other Australians. However, measures of health status show mortality rates (measures 1.23 and 1.25), infant mortality (measure 1.19) and the occurrence of a broad range of diseases (measures 1.04, 1.05, 1.06, 1.07, 1.08, 1.09, 1.10, 1.11 and 1.12) are 200%–300% times

higher in Aboriginal and Torres Strait Islander peoples. Were expenditure commensurate with need, rates of expenditure on Aboriginal and Torres Strait Islander Australians should be significantly higher compared with the non-Indigenous population. For other Australians, use of health services rises with level of illness. For example, people with one significant medical condition have MBS and PBS usage 4 times the national average and for those with five conditions, expenditure is up to 12 times higher (Dwyer et al. 2004). Therefore, per person health expenditures for Aboriginal and Torres Strait Islander peoples are not sufficient to match needs.

Various estimates have been made of the level of expenditure that would be required to equitably address Aboriginal and Torres Strait Islander health needs. Dwyer et al. (2004, p. 71) reviewed a range of studies and concluded that ‘total health spending on Indigenous populations would need to be increased to a level between 3 and 6 times the current national average per capita expenditure to achieve equitable access to effective care’.

Current expenditures on primary care services fall well short of these benchmarks, although there have been important recent increases. Experience over recent years has demonstrated increased funding can lead to significantly improved level of service provision in Aboriginal and Torres Strait Islander primary care services. Targeted government spending has increased significantly in recent years and there are further significant increases committed over the next three years (COAG 2008c). Across the Health and Ageing portfolio, funding of almost \$1.2 billion has been allocated in 2010–11 for health programs specific to Aboriginal and Torres Strait Islander peoples. These recent investments

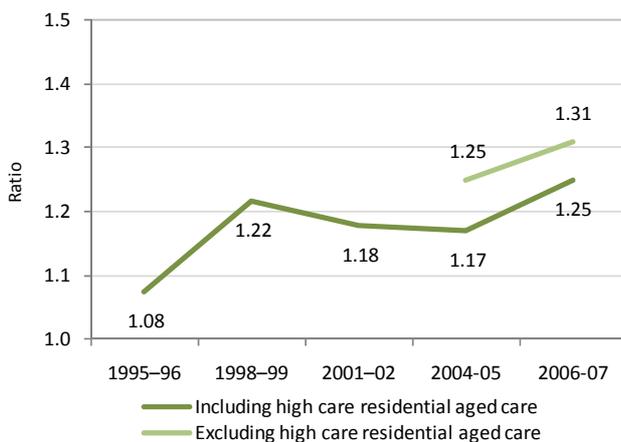
equate to an 87% increase in Indigenous health funding across the Portfolio since 2007–08.

It is vital to ensure increased investments in services for Indigenous Australians:

- are directed to effective interventions and approaches, including an effective system of primary health care
- enable Aboriginal and Torres Strait Islander peoples to access health services including Aboriginal and Torres Strait Islander, mainstream and specialist services
- are allocated appropriately to reflect need and costs of service delivery across regions and recognise costs of service delivery, particularly in remote areas
- are used efficiently and strategically to build capacity in the services and the workforce providing for the needs of Aboriginal and Torres Strait Islander peoples.

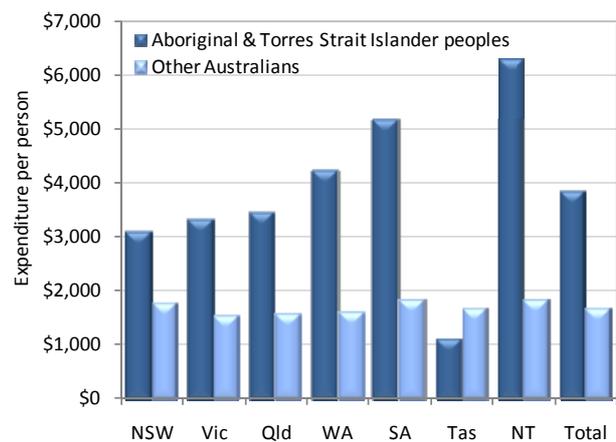
Aboriginal and Torres Strait Islander peoples have yet to reap the full benefits of primary health care that their Indigenous counterparts overseas have achieved. The evidence points to the need for further and sustained investment in primary health care, along with action on the social determinants, as a crucial strategy for closing the gap in life expectancy between Indigenous and non-Indigenous Australians (Griew 2008). Working towards targets to close the gap in Indigenous health is challenging, and requires substantial investment in the determinants of health such as housing, education and employment, improved access to health services, and support for individual behaviour change.

**Figure 182 – Estimated per person health expenditure ratio of Indigenous to non-Indigenous Australians, Australia, 1998–99, 2001–02, 2004–05, 2006–07**



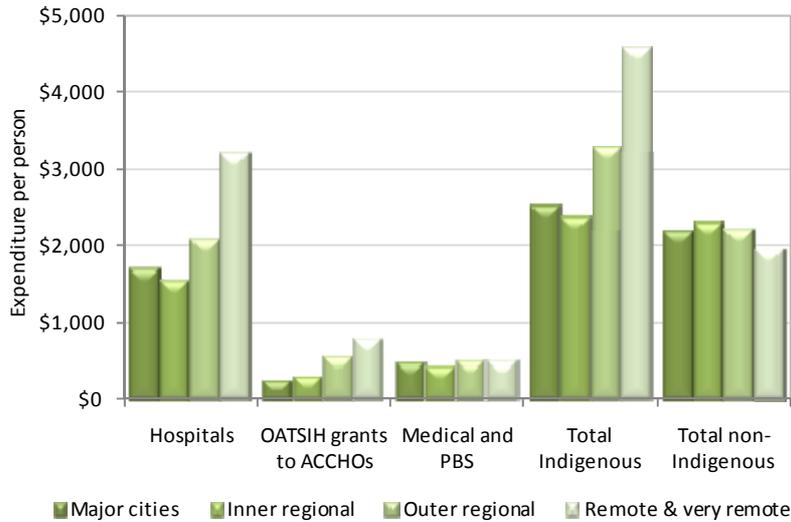
Source: AIHW 2005, AIHW 2008, AIHW 2009

**Figure 183 – Estimated state and territory health expenditure per person, by Indigenous status, 2006–07**



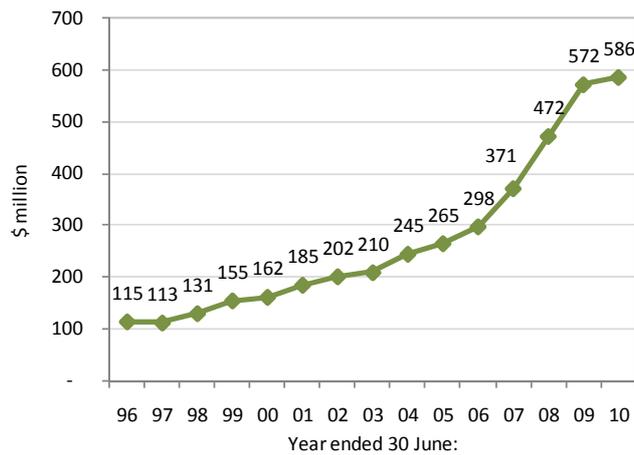
Source: AIHW 2009

**Figure 184 – Estimated health expenditure on selected health services per person for Aboriginal and Torres Strait Islander, by remoteness, 2006–07**



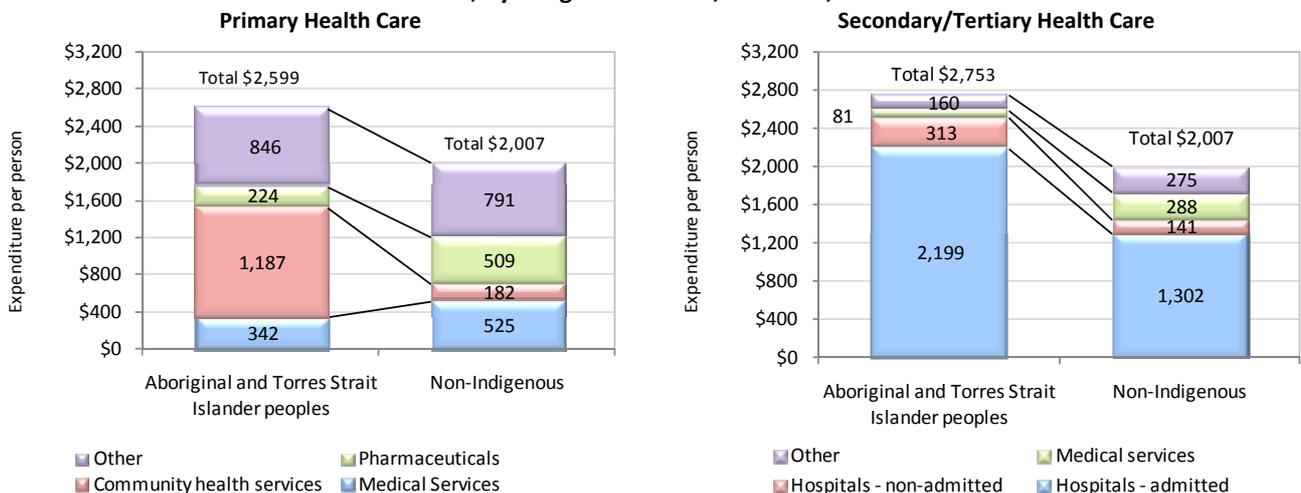
Source: AIHW 2010d

**Figure 185 – Expenditure by the Australian Government on Indigenous-specific health programs, 1995–96 to 2009–10**



Source: Australian Government Department of Health and Ageing

**Figure 186 – Average health expenditure per person for primary health care and secondary/tertiary health care services, by Indigenous status, Australia, 2006–07**



Source: AIHW 2009

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### 3.20 Recruitment and retention of clinical and management staff (including GPs)

**WHY IS IT IMPORTANT?:** The capacity to recruit and retain appropriate staff is critical to the sustainability of Aboriginal and Torres Strait Islander primary health care services, particularly in rural and remote areas. Recruitment and retention is also an important issue for mainstream services and GPs in rural and remote areas.

**FINDINGS:** In 2007, there were 77,193 registered medical practitioners in Australia of which 87% were employed in medicine. Many of those not working in medicine were working in medicine overseas, were retired or were not working.

In 2008–09, 73% of full-time equivalent GPs worked in capital cities or other metropolitan areas and only 2% in remote areas. A survey of the rural workforce conducted in November 2008 found that of the 4,626 GPs working in rural Australia, an estimated 34% had been in the current practice for two years or less. In remote areas, between 49% (remote centres) and 52% (other remote areas) had been in the current practice for 2 years or less (Health Workforce Queensland & New South Wales Rural Doctors Network 2009).

In 2007, 86% of nurses were currently employed in nursing, and in 2006, 86% of dental therapists/oral health therapists were employed in dentistry.

For other health professionals, the proportion working in their field ranged were as follows: 80% for physiotherapists (2002 data), 86% for occupational therapists (2002–03 data), 87% for psychologists (2003 data), and 92% for podiatrists (2003 data). Many of those not working in their field were not looking for work in their field.

In 2008–09, there were 2,839 full-time equivalent health (clinical) staff and 1,589 full-time equivalent administrative and support staff positions within Aboriginal and Torres Strait Islander primary health care services funded by the Australian Government. An estimated 8% of health positions and 3% of administrative and support staff positions were vacant.

In the 15 years from 1995–96, Australian Government funding for these services has increased by 255% in real terms. In the six years to June 2009, there has been an increase of 60% in the workforce of Aboriginal and Torres Strait Islander primary health care services funded by the Australian Government.

The highest number of health staff vacancies in June 2008 were for Aboriginal Health Workers (84), followed by social and emotional wellbeing workers (47), nurses (39) and doctors and specialists (34). For services located in major cities and regional areas, between 8 and 9% of health positions were vacant, but for remote and very remote areas, vacancies were between 10 and 12%. Vacancies for administrative and support positions were highest for positions located in major cities (7%) followed by remote areas (5%).

Of the 256 health staff positions that were vacant, 66% had been vacant for 26 weeks or more. Of the 64 administrative and support staff vacancies, 51% had been vacant for this length.

A study of GPs conducted in 2001 found that important factors determining general practice retention in rural and remote areas were: professional considerations, particularly on-call arrangements; professional support; variety of rural practice; local availability of services; and regional attractiveness (Humphreys et al. 2002).

Another study found that doctors who were satisfied with their current medical practice intend to remain in rural practice for 40% longer than those who are not satisfied (11.5 years compared with 8.2 years) (Alexander & Fraser 2007). GPs content with their life as a rural doctor intend to remain in rural practice for 51% longer than those who are discontented (11.8 years compared with 7.8 years). Continuing professional development, training opportunities, professional support and networking as well as financial support were identified as priorities for GPs, and training in Indigenous health as a key information deficit.

**IMPLICATIONS:** The measures reported here focus on a few aspects of a complex set of issues. They suggest there are challenges for Aboriginal and Torres Strait Islander primary health care services in recruiting particularly clinical staff to meet the growth in the sector. There are no data on state and territory health services in equivalent circumstances, although it is known they also face significant recruitment and retention issues. Recruitment and retention issues are most significant for Aboriginal and Torres Strait Islander health services and mainstream services located in rural and remote Australia. Little is known about the turn-over of staff in Aboriginal and Torres Strait Islander primary health care services and how this compares with mainstream services. Another issue is doctors' incomes and achieving rates that are competitive with metropolitan private practice.

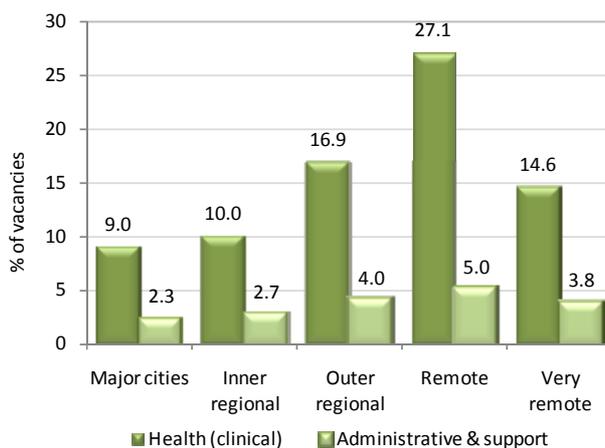
In November 2008, COAG committed up to \$1.6 billion over four years to the *National Partnership on Closing the Gap in Indigenous Health Outcomes*. Building the capacity of the health workforce is recognised as an essential element of this work. The capacity of the primary care workforce in Indigenous and mainstream health services will be expanded to increase the uptake of health services by Aboriginal and Torres Strait Islander peoples. Measures include communication and marketing activity to attract more Indigenous people to work in health and more people to work in Indigenous health; additional workforce including Aboriginal and Torres Strait Islander Outreach Workers, health professionals and practice managers; and additional nursing scholarships, registrar training posts and nurse clinical placements.

*The Pathways into the health workforce for Aboriginal and Torres Strait Islander people: a blueprint for action* is designed to provide Australian governments with advice and strategies to maximise Aboriginal and Torres Strait Islander participation in the health workforce

through promoting and improving pathways between school, vocational education, training and higher education; and retaining and building the capacity of the existing workforce by addressing the ongoing support and career development needs (NATSIHC 2008b). Recognition of Aboriginal and Torres Strait Islander health as an identifiable specialty is also considered to be important in improving services and retaining highly skilled clinicians.

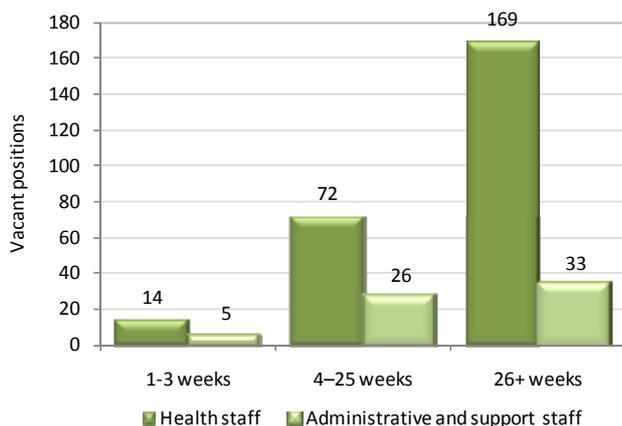
Strong cooperation and collaboration between the health and education portfolios is vital for improving recruitment and retention of health staff. The need for a cross portfolio approach is reinforced by the Blueprint for Action as well as the Higher Education Review.

**Figure 187 – Proportion of selected staff vacancies in Aboriginal health care services, by remoteness area, 2008-2009**



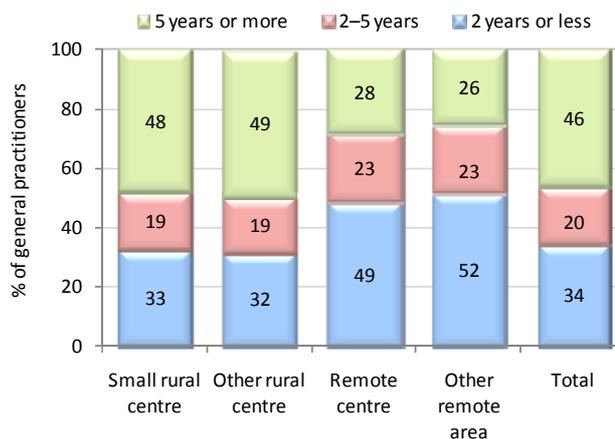
Source: AIHW analysis of Service Activity Reporting

**Figure 188 – Full-time equivalent health staff and administrative and support staff vacancies, Aboriginal and Torres Strait Islander primary health care organisations, by length of time vacant, 30 June 2008**



Source: AIHW analysis of Service Activity Reporting

**Figure 189 – Proportion of GPs in practice by length of service and remoteness, November, 2008**



Source: AIHW analysis of Combined Rural Workforce Agencies National Minimum Data Set report

## References

- Aboriginal and Torres Strait Islander Social Justice Commissioner 2005, *Social Justice Report 2005*, Human Rights and Equal Opportunity Commission, Sydney, <[http://www.hreoc.gov.au/social\\_Justice/sj\\_report/sjreport05/index.html](http://www.hreoc.gov.au/social_Justice/sj_report/sjreport05/index.html)>.
- Acheson, D 1998, *Independent Inquiry into Inequalities in Health Report: Part 2*, The Stationery Office, London: U.K.
- Adhikari, P 2006, *Socio-economic indexes for areas: Introduction, use and future directions*. ABS Cat. No. 1351.0.55.015. , ABS, Canberra.
- AIHW Australian Centre for Asthma Monitoring 2005, *Asthma in Australia 2005*. AIHW Asthma Series 2. AIHW cat. no. ACM 6, AIHW, Canberra.
- Alexander, C & Fraser, J 2007, 'Education, training and support needs of Australian trained doctors and international medical graduates in rural Australia: a case study of special needs?', *Rural and Remote Health* vol. 7, Article No 681.
- Allen Consulting Group 2010, *Independent Review of Policing in Remote Indigenous Communities in the Northern Territory—Policing further into remote communities—Report to the Australian Government and the Northern Territory Government*.
- Anderson, I 2008, 'An analysis of national health strategies addressing Indigenous injury: consistencies and gaps', *Injury*, vol. 39, no. Suppl 5, pp. s55–60.
- Anderson, I & Brady, M 1995, *Performance indicators for Aboriginal health services*. Discussion paper No. 81, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Andrews, B, Simmons, P, Long, I, & Wilson, R. 2002. *Identifying and overcoming the barriers to Aboriginal access to general practitioner services in rural New South Wales*, Wiley Online Library. **10**: 196-201.
- Ansari, Z, Laditka, JN & Laditka, SB 2006, 'Access to health care and hospitalization for ambulatory care sensitive conditions', *Med Care Res Rev*, vol. 63, no. 6, pp. 719–41.
- Arnold, J, De Costa, CM & Howat, P 2009, 'Timing of transfer for pregnant women from Queensland Cape York communities to Cairns for birthing.', *Medical Journal of Australia*, vol. 190, no. 10, pp. 594–6.
- Atkinson, P, Buckworth, M & Dean, F 2007, 'Aboriginal community-controlled health organisations address the multiple determinants of Aboriginal health through housing', *An Overview of the Current Knowledge of the Social Determinants of Indigenous Health*. Commission on Social Determinants of Health, WHO.
- Australian Curriculum Assessment and Reporting Authority 2009, *2009 National assessment program: Literacy and Numeracy*, ACARA, <[www.acara.edu.au](http://www.acara.edu.au)>.
- Australian Bureau of Statistics 1997, *Occasional paper: Mortality of Aboriginal and Torres Strait Islander Australians*. ABS cat. no. 3315.0, ABS, Canberra.
- Australian Bureau of Statistics 2002, *National Health Survey: Aboriginal and Torres Strait Islander Results, Australia, 2001* Canberra, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4715.02001?OpenDocument>>.
- Australian Bureau of Statistics 2006a, *National Aboriginal and Torres Strait Islander Health Survey 2004–05*. ABS cat. no. 4715.0, ABS, Canberra, <<http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/C36E019CD56EDE1FCA256C76007A9D36>>.
- Australian Bureau of Statistics 2006b, *National Aboriginal and Torres Strait Islander Health Survey: Users' Guide, 2004–05*, ABS cat. no. 4715.0.55.004, Canberra, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4715.0.55.004Main+Features12004–05?OpenDocument>>.
- Australian Bureau of Statistics 2007a, *Births Australia, 2006*. Cat no 3301.0, ACT, Canberra.
- Australian Bureau of Statistics 2007b, *Housing and Infrastructure in Aboriginal and Torres Strait Islander Communities, Australia 2006*, ABS cat no. 4710.0, Canberra, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4710.0Main+Features22006?OpenDocument>>.
- Australian Bureau of Statistics 2008, *Health Literacy, Australia, 2006*. ABS Cat No. 4233.0, ABS, Canberra.
- Australian Bureau of Statistics 2009a, *Experimental Life Tables for Aboriginal and Torres Strait Islander Australians, Australia*, ABS cat. no. 3302.0.55.003, Canberra.
- Australian Bureau of Statistics 2009b, *Prisoners in Australia*. ABS cat. no. 4517.0, ABS, Canberra.
- Australian Bureau of Statistics & Australian Institute of Health and Welfare 2005, *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2005*, ABS cat. no. 4704.0; AIHW cat. no. IHW 14, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10172>>.
- Australian Bureau of Statistics & Australian Institute of Health and Welfare 2008, *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2008*, ABS & AIHW, Canberra.
- Australian Commission on Safety and Quality in Health Care 2009, *Proposed National Safety and Quality Framework*, ACSQHC, Sydney, <[http://www.health.gov.au/internet/safety/publishing.nsf/Content/C774AE55079AFD23CA2577370000783C/\\$File/22177-NSQF.PDF](http://www.health.gov.au/internet/safety/publishing.nsf/Content/C774AE55079AFD23CA2577370000783C/$File/22177-NSQF.PDF)>.

- Australian Council for Educational Research 2004, *Supporting English literacy and numeracy learning for Indigenous students in the early years. 2004*, ACER, Melbourne.
- Australian Health Ministers' Advisory Council's Standing Committee on Aboriginal and Torres Strait Islander Health Working Party 2004, *Cultural Respect Framework for Aboriginal and Torres Strait Islander Health 2004–2009*, Australian Health Ministers' Advisory Council, Adelaide, <<http://www.health.gov.au/internet/wcms/publicshing.nsf/Content/health-oatsih-pubs-crf.htm>>.
- Australian Institute of Aboriginal and Torres Strait Islander Studies 2009, 'Perspectives on Urban Life: Connections and Reconnections', *National Indigenous Studies Conference*, AIATSIS, Canberra.
- Australian Institute of Health and Welfare 2002a, *Chronic diseases and associated risk factors in Australia 2001*, AIHW cat. no. PHE 33, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/7574>>.
- Australian Institute of Health and Welfare 2002b, *Diabetes: Australian facts 2002*. AIHW Cat. No. CVD 20 (*Diabetes Series No.3*), AIHW, Canberra.
- Australian Institute of Health and Welfare 2004a, *Health expenditure Australia 2002–03*, AIHW cat. no. HWE 27, Health and Welfare Expenditure Series no. 20, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10043>>.
- Australian Institute of Health and Welfare 2004b, *Heart, stroke and vascular diseases—Australian facts 2004*. AIHW Cat. No. CVD 27., AIHW and National Heart Foundation of Australia (Cardiovascular Disease Series No. 22), Canberra.
- Australian Institute of Health and Welfare 2004c, *National Health Data Dictionary Version 12*, AIHW cat. no. HWI 43, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/8964>>.
- Australian Institute of Health and Welfare 2005a, *Chronic kidney disease in Australia 2005*, AIHW cat. no. PHE 68, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10137>>.
- Australian Institute of Health and Welfare 2005b, *Indigenous housing needs 2005: a multi-measure needs model*, AIHW cat. no. HOU 129, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10166>>.
- Australian Institute of Health and Welfare 2006a, *Australia's Health 2006*, AIHW cat. no. AUS 73, Australia's health no. 10, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10321>>.
- Australian Institute of Health and Welfare 2006b, *Statistics on drug use in Australia 2006*, AIHW cat. no. PHE 80, Drug statistics series no. 18, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10393>>.
- Australian Institute of Health and Welfare 2007, *Australian hospital statistics 2005–06*, AIHW cat. no. HSE 50, Health services series no. 30, AIHW, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10455>>.
- Australian Institute of Health and Welfare 2008a, *2007 National Drug Strategy Household Survey: Detailed findings*, AIHW, Canberra.
- Australian Institute of Health and Welfare 2008b, *Cervical screening in Australia 2005–06*. Cancer Series no. 41. AIHW cat. no. 36., AIHW, Canberra.
- Australian Institute of Health and Welfare 2008c, *Child protection in Australia 2006–07*. AIHW cat. no. CWS 31., Child Welfare Series no. 43. , AIHW, Canberra.
- Australian Institute of Health and Welfare 2008d, *Elective surgery in Australia: new measures of access*, AIHW cat. no. HSE 57, AIHW, Canberra.
- Australian Institute of Health and Welfare 2009, *Expenditures on health for Aboriginal and Torres Strait Islander peoples 2006–07*, Health and welfare expenditure series no. 39. AIHW cat. no. HWE 48, AIHW, Canberra.
- Australian Institute of Health and Welfare 2010a, *Australian hospital statistics 2008–09*, Health services series no. 17. Cat. no. HSE 84., AIHW, Canberra.
- Australian Institute of Health and Welfare 2010b, *Child Protection Australia 2008–09*. Child welfare series no. 47. Cat. no. CWS 35, Child Welfare Series no. 47. , AIHW, Canberra.
- Australian Institute of Health and Welfare 2010c, *Diabetes in pregnancy: its impact on Australian women and their babies*, Diabetes series no. 14. Cat. no. CVD 52, Australian Institute of Health and Welfare, Canberra.
- Australian Institute of Health and Welfare 2010d, *Expenditures on health for Aboriginal and Torres Strait Islander peoples 2006–07: An analysis by remoteness and disease*, Health and welfare expenditure series no. 40. AIHW cat. no. HWE 49, AIHW, Canberra.
- Australian Institute of Health and Welfare 2010e, *An Enhancement Mortality Database for estimating Indigenous life expectancy: A feasibility study*. Unpublished study commissioned by AIHW.
- Australian Institute of Health and Welfare, Leeds KL, Gourley M, Laws PJ, Zhang J, Al-Yaman F & EA, S 2007, *Indigenous mothers and their babies, Australia 2001–2004*. AIHW cat. no. PER 38. Perinatal statistics series no. 19. , AIHW, Canberra.
- Australian Medical Association 1999, 'Smoking and pregnancy: a national consensus conference', Melbourne.
- Australian Medical Association 2005, *AMA Position Statement: Nutrition*, Canberra, viewed

- 30/11/05,  
<[http://www.ama.com.au/web.nsf/doc/WEEN-6JJW4G/\\$file/AMA\\_Position\\_Statement\\_On\\_Nutrition.pdf](http://www.ama.com.au/web.nsf/doc/WEEN-6JJW4G/$file/AMA_Position_Statement_On_Nutrition.pdf)>.
- Australian Medical Association 2005, *AMA report card series 2005: Aboriginal and Torres Strait Islander Health, lifting the weight low birthweight babies: an Indigenous health burden that must be Lifted.*, 27 May 2005, <<http://www.ama.com.au>>.
- Bailie, R, Si, D, Dowden, M & Lonergan, K 2007, *Audit and Best Practice for Chronic Disease Project: Final Report*, Menzies School of Health Research, Darwin.
- Bailie, RS, Si, D, Robinson, GW, Togni, SJ & D'Abbs, PH 2004, 'A multifaceted health-service intervention in remote Aboriginal communities: 3-year follow-up of the impact on diabetes care', *Med J Aust*, vol. 181, no. 4, pp. 195–200.
- Baker, J & Adhikari, P 2007, *Socio-economic Index for Individuals and Families. ABS Cat. No. 1352.0.55.086* ABS, Canberra.
- Beard, JR, Earnest, A, Morgan, G, Chan, H, Summerhayes, R, Dunn, TM, Tomaska, NA & Ryan, L 2008, 'Socioeconomic disadvantage and acute coronary events: a spatiotemporal analysis', *Epidemiology*, vol. 19, no. 3, pp. 485–92.
- Begg, S, Vos, T, Barker, B, Stevenson, C, Stanley, L & Lopez, A 2007, *2007. The burden of disease and injury in Australia 2003. PHE 82.*, AIHW, Canberra.
- Berger, L, Wallace, L & Bill, N 2009, 'Injuries and injury prevention among Indigenous children and young people', *Pediatric Clinics of North America*, vol. 56, no. 6, pp. 1519–37.
- Berlyn, C & Bromfield, LM 2009, *Child protection and Aboriginal and Torres Strait Islander children. National Child Protection Clearinghouse Resource Sheet, 10.*, Australian Institute of Family Studies, viewed 15/4/2010, <<http://www.aifs.gov.au/nch/pubs/sheets/rs10/rs10.html>>.
- Berman, S 2007, 'The end of an era in otitis research', *N Engl J Med*, vol. 356, no. 3, pp. 300–2.
- Berry, J, Harrison, J & Ryan, P 2009, 'Hospital admissions of Indigenous and non-Indigenous Australians due to interpersonal violence, July 1999 to June 2004', *Australian and New Zealand Journal of Public Health*, vol. 33, no. 3, pp. 215–22.
- Billings, J, Zeitel, L, Lukomnik, J, Carey, TS, Blank, AE & Newman, L 1993, 'Impact of socioeconomic status on hospital use in New York City', *Health Aff (Millwood)*, vol. 12, no. 1, pp. 162–73.
- Bindman, AB, Grumbach, K, Osmond, D, Komaromy, M, Vranizan, K, Lurie, N, Billings, J & Stewart, A 1995, 'Preventable hospitalizations and access to health care', *JAMA*, vol. 274, no. 4, pp. 305–11.
- Black, A 2007, *Evidence of effective interventions to improve the social and environmental factors impacting on health: Informing the development of Indigenous Community Agreements*, Department of Health and Ageing, Canberra.
- Blendon, RJ, Schoen, C, DesRoches, C, Osborn, R & Zapert, K 2003, 'Common concerns amid diverse systems: health care experiences in five countries', *Health Aff (Millwood)*, vol. 22, no. 3, pp. 106–21.
- Bodenheimer, T, Lorig, K, Holman, H & Grumbach, K 2002, 'Patient self-management of chronic disease in primary care', *JAMA*, vol. 288, no. 19, pp. 2469–75.
- Booth, A & Carroll, N 2005, *Overcrowding and Indigenous Health in Australia*, Centre for Economic Policy Research Discussion Paper no. 498, Research School of Social Sciences, Australian National University, Canberra, <<http://ideas.repec.org/p/auu/dpaper/498.html>>.
- Borzycki, M & Baldry, E 2003, *Promoting Integration: The Provision of Prisoner Post-release Services*, Trends & Issues in Crime and Criminal Justice no. 262, Australian Institute of Criminology, Canberra, <<http://www.aic.gov.au/publications/tandi2/tandi262.html>>.
- Bowden, FJ, Tabrizi, SN, Garland, SM & Fairley, CK 2002, 'Infectious diseases. 6: Sexually transmitted infections: new diagnostic approaches and treatments', *Med J Aust*, vol. 176, no. 11, pp. 551–7.
- Brimblecombe, J & O'Dea, K 2009, 'The role of energy cost in food choices for an Aboriginal population in northern Australia', *Medical Journal of Australia*, vol. 190, no. 10, pp. 549–51.
- Bromfield, L & Holzer, P 2008, *A national approach for child protection: Project report. Report commissioned by the Community and Disability Services Ministers' Advisory Council*, National Child Protection Clearinghouse, Australian Institute of Family Studies.
- Bull, F, Bauman, A, Bellew, B & Brown, W 2004, *Getting Australia Active II: An update of evidence on physical activity for health*, National Public Health Partnership (NPHP), Melbourne, <[http://www.nphp.gov.au/publications/a\\_z.htm](http://www.nphp.gov.au/publications/a_z.htm)>.
- Burgess, M 2003, 'Immunisation: a public health success', *N S W Public Health Bull*, vol. 14, no. 1–2, pp. 1–5.
- Butler, T & Milner, L 2003, *The 2001 New South Wales Inmate Health Survey*, Corrections Health Service, Matraville, NSW, <[http://www.justicehealth.nsw.gov.au/pubs/Inmate\\_Health\\_Survey\\_2001.pdf](http://www.justicehealth.nsw.gov.au/pubs/Inmate_Health_Survey_2001.pdf)>.
- Butler, TG, Dolan, KA, Ferson, MJ, McGuinness, LM, Brown, PR & Robertson, PW 1997, 'Hepatitis B and C in New South Wales prisons: prevalence and risk factors', *Med J Aust*, vol. 166, no. 3, pp. 127–30.
- Calabria, B, Doran, CM, Vos, T, Shakeshaft, AP & Hall, W 2010, 'Epidemiology of alcohol-related burden of disease among Indigenous

- Australians', *Aust N Z J Public Health*, vol. 34 Suppl 1, pp. S47–51.
- Cass, A, Cunningham, J, Snelling, P, Wang, Z & Hoy, W 2003, 'Renal transplantation for Indigenous Australians: identifying the barriers to equitable access', *Ethn Health*, vol. 8, no. 2, pp. 111–9.
- Centers for Disease Control and Prevention 2006, *The health consequences of involuntary exposure to tobacco smoke: a report of the Surgeon General*, U.S. Department of Health and Human Services, Rockville, Maryland: U.S., <[http://www.cdc.gov/tobacco/data\\_statistics/sgr/sgr\\_2006/index.htm](http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2006/index.htm)>.
- Central Australian Aboriginal Congress 2004, *Congress history: Milestones*, Central Australian Aboriginal Congress, viewed 24 July 2008, <<http://www.caac.org.au/timeline.html>>.
- Centre for Epidemiology and Research, NSW Department of Health 2006, *Report of the Chief Health Officer 2004: Burden of disease: Hospitalisation for ambulatory care sensitive conditions* viewed 15/12/2005, <[http://www.health.nsw.gov.au/public-health/chorep/bod/bod\\_acs.htm](http://www.health.nsw.gov.au/public-health/chorep/bod/bod_acs.htm)>.
- Centre for Medicare Education 2000, *Considering Health Literacy*, Issue Brief no. 6, Washington DC: U.S., viewed 16/5/2006, <<http://ihcrp.georgetown.edu/agingsociety/pdfs/kieferlit.pdf>>.
- Christakis, DA, Wright, JA, Zimmerman, FJ, Bassett, AL & Connell, FA 2002, 'Continuity of care is associated with high-quality care by parental report', *Pediatrics*, vol. 109, no. 4, p. e54.
- Christie, M & Greatorex, J 2004, 'Yolngu Life in the Northern Territory of Australia: The Significance of Community and Social Capital', *The Asia Pacific Journal of Public Administration*, vol. 26, no. 1, pp. 55–69.
- Christou, A, Katzenellenbogen, JM & Thompson, SC 2010, 'Australia's National Bowel Cancer Screening Program: does it work for Indigenous Australians?', *BMC Public Health*, vol. 10, no. 373, p. 21.
- Co-operative Research Centre for Aboriginal Health 2008, *Aboriginal and Torres Strait Islander health sector accreditation and quality standards project* Co-operative Research Centre for Aboriginal Health, Darwin.
- COAG Reform Council 2010, *National Healthcare Agreement: Baseline performance report for 2008–09*, Report to the Council of Australian Governments, COAG Reform Council, Canberra.
- COAG Reform Council 2010, *National Indigenous Reform Agreement: Baseline performance report for 2008–09*, Report to the Council of Australian Governments, COAG Reform Council, Sydney.
- Coates, H 2009, 'Current management of otitis media in Australia', *Medical Journal of Australia*, vol. 191, no. 9, p. S37.
- Colley, JR 1974, 'Respiratory symptoms in children and parental smoking and phlegm production', *Br Med J*, vol. 2, no. 5912, pp. 201–4.
- Comino EJ, Titmuss A, Harris E, Craig P, Jackson Pulver LR 2007, *Identification of Aboriginal Infants at an Urban Hospital*, *Journal of Paediatrics and Child Health* 43: 623–626
- Commission on Social Determinants of Health 2007, *An overview of the current knowledge of the social determinants of indigenous health*. , WHO, Geneva.
- Commission on Social Determinants of Health 2008, *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health.*, World Health Organization, Geneva, <[http://whqlibdoc.who.int/publications/2008/9789241563703\\_eng.pdf](http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf)>.
- Commission on Social Determinants of Health 2008, *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report.*, WHO, Geneva.
- Committee on Leading Health Indicators for Healthy People 2011, *Leading Health Indicators for Healthy People 2020: Letter Report*. The National Academies press, Washington:
- Commonwealth Department of Health and Aged Care 2001, *Better Health Care: studies in the successful delivery of primary health care services for Aboriginal and Torres Strait Islander Australians*, Canberra, <<http://www.health.gov.au/internet/wcms/Publishing.nsf/Content/health-oatsih-pubs-bhcs.htm>>.
- Commonwealth Department of Health and Ageing 2008a, *About overweight and obesity*, DoHA, Canberra, viewed 11 March 2009, <<http://www.health.gov.au/internet/main/Publishing.nsf/Content/health-pubhlth-strateg-hlhwt-obesity.htm>>.
- Commonwealth Department of Health and Ageing 2008b, *Chronic disease management (CDM) Medicare items, Updated 1 January 2008*, Commonwealth Department of Health and Ageing, viewed 16 July 2008, <<http://www.health.gov.au/internet/main/publishing.nsf/Content/pcd-programs-epc-chronicdisease-pdf-qas>>.
- Commonwealth Grants Commission 2001, *Report on Indigenous Funding 2001*, Canberra, <[http://www.cgc.gov.au/state\\_finances\\_inquiries/report\\_of\\_the\\_indigenous\\_funding\\_inquiry\\_2002](http://www.cgc.gov.au/state_finances_inquiries/report_of_the_indigenous_funding_inquiry_2002)>.
- Condon, JR, Barnes, T, Armstrong, BK, Selva-Nayagam, S & Elwood, JM 2004, *Stage at diagnosis and cancer survival of Indigenous and non-Indigenous people in the Northern Territory, 1991–2000 (in preparation)*, Cooperative Research Centre for Aboriginal Health (CRCAH), Darwin.
- Condon, JR, Barnes, T, Armstrong, BK, Selva-Nayagam, S & Elwood, JM 2005, 'Stage at diagnosis and cancer survival for Indigenous Australians in the Northern Territory', *Med J Aust*, vol. 182, no. 6, pp. 277–80.

- Condon, JR, Cunningham, J, Barnes, T, Armstrong, BK & Selva-Nayagam, S 2006, 'Cancer diagnosis and treatment in the Northern Territory: assessing health service performance for indigenous Australians', *Intern Med J*, vol. 36, no. 8, pp. 498–505.
- Conti, G, Heckman, J & Urzua, S 2010, 'The Education–Health Gradient', pp. 1–12.
- Coory, M & Baade, P 2003, 'Is median age at death a useful way to monitor improvements in mortality among Indigenous Australians?', *Aust N Z J Public Health*, vol. 27, no. 6, pp. 627–31.
- Coory, MD & Walsh, WF 2005, 'Rates of percutaneous coronary interventions and bypass surgery after acute myocardial infarction in Indigenous patients', *Med J Aust*, vol. 182, no. 10, pp. 507–12.
- Council of Australian Governments 2007, *Communique: Council of Australian Governments Meeting 20 December 2007*, viewed 18/7/2008, <<http://www.coag.gov.au/meetings/201207/index.htm#ind>>.
- Council of Australian Governments 2008a, *Communique: Council of Australian Governments Meeting 26 March 2008*, viewed 18/7/2008, <<http://www.coag.gov.au/meetings/260308/index.htm#indigenous>>.
- Council of Australian Governments 2008b, *National Indigenous Reform Agreement (Closing the Gap)*, <[http://www.coag.gov.au/intergov\\_agreements/federal\\_financial\\_relations/index.cfm](http://www.coag.gov.au/intergov_agreements/federal_financial_relations/index.cfm)>.
- Council of Australian Governments 2008c, *National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes*, <[http://www.coag.gov.au/intergov\\_agreements/federal\\_financial\\_relations/index.cfm](http://www.coag.gov.au/intergov_agreements/federal_financial_relations/index.cfm)>.
- Council of Australian Governments 2008d, *The National Partnership Agreement on Preventive Health*, viewed 18/7/2008, <<http://www.coag.gov.au/meetings/260308/index.htm#indigenous>>.
- Council of Australian Governments 2009, *Protecting children is everyone's business: National framework for protecting Australia's children 2009–2020*, Australian Government, Canberra, viewed 15/5/2010, <[http://www.coag.gov.au/coag\\_meeting\\_outcomes/2009-04-30/docs/child\\_protection\\_framework.pdf](http://www.coag.gov.au/coag_meeting_outcomes/2009-04-30/docs/child_protection_framework.pdf)>.
- Couzos, S & Murray, R 2003, *Aboriginal primary health care: an evidence-based approach (2nd edition)*, Oxford University Press, Melbourne.
- Craig, ME, Femia, G, Broyda, V, Lloyd, M & Howard, NJ 2007, 'Type 2 diabetes in Indigenous and non-Indigenous children and adolescents in New South Wales', *Med J Aust*, vol. 186, no. 10, pp. 497–9.
- Cunningham, J 2002, 'Diagnostic and therapeutic procedures among Australian hospital patients identified as indigenous', *Med J Aust*, vol. 176, no. 2, pp. 58–62.
- Cunningham, J 2010, 'Socio-economic gradients in self-reported diabetes for Indigenous and non-Indigenous Australians aged 18–64', *Aust N Z J Public Health*, vol. 34 Suppl 1, pp. S18–24.
- Cunningham, J, Rumbold, AR, Zhang, X & Condon, JR 2008, 'Incidence, aetiology, and outcomes of cancer in Indigenous peoples in Australia', *Lancet Oncol*, vol. 9, no. 6, pp. 585–95.
- d'Abbs, P & Shaw, G 2008, *Evaluation of the Impact of Opal Fuel*, Commonwealth Department of Health and Ageing, Canberra.
- Daly, A & Smith, D 2005, 'Indicators of risk to the well-being of Australian Indigenous Children', *Australian Review of Public Affairs*, vol. 6, no. 1, pp. 39–57.
- Daly, AE & Smith, DE 1998, 'Indigenous Sole Parent Families: Welfare Dependency and Work Opportunities', *Australian Bulletin of Labour*, vol. 24, no. 1, pp. 47–66.
- Daly, AE & Smith, DE 1999, *Indigenous household demography and socioeconomic status: the policy implications of the 1996 Census data*, Centre for Aboriginal Economic Policy Research (CAEPR) Discussion Paper No. 181, Canberra, <<http://dspace.anu.edu.au/bitstream/1885/40167/1/DP181.pdf>>.
- Davies, MJ 2000, *Oral health and access to dental services among Indigenous Australians: Research report, March 2000*, AIHW cat. no. DEN 64, AIHW Dental Statistics and Research Unit, The University of Adelaide, Adelaide, <<http://www.aihw.gov.au/publications/index.cfm/title/6673>>.
- Davis, TM, McAullay, D, Davis, WA & Bruce, DG 2007, 'Characteristics and outcome of type 2 diabetes in urban Aboriginal people: the Fremantle Diabetes Study', *Intern Med J*, vol. 37, no. 1, pp. 59–63.
- de Alcantara, C 1998, 'Uses and abuses of the concept of governance', *International Social Science Journal*, vol. 155, pp. 105–13.
- de Costa, CM & Wenitong, M 2009, 'Could the Baby Bonus be a bonus for babies?', *Medical Journal of Australia*, vol. 190, no. 5, pp. 242–3.
- Deeble, J, Mathers, C, Smith, L, Goss, J, Webb, R & Smith, V 1998, *Expenditures on health services for Aboriginal and Torres Strait Islander peoples*, AIHW, Department of Health & Family Services, and National Centre for Epidemiology and Population Health, AIHW cat. no. HWE 6, Canberra.
- Delpierre, C, Lauwers-Cances, V, Lang, T & Berkman, L 2009, 'Using self-rated health for analysing social inequalities in health: a risk for underestimating the gap between socioeconomic groups', *Journal of Epidemiology and Community Health*, vol. 63, pp. 426–32.
- Dennis, SM, Zwar, N, Griffiths, R, Roland, M, Hasan, I, Powell Davies, G & Harris, M 2008, 'Chronic disease management in primary care: from evidence to policy', *Med J Aust*, vol. 188, no. 8 Suppl, pp. S53–6.

- Department of Families, H, Community Services and Indigenous Affairs,, 2010, *Indigenous Family Safety Agenda — Future directions in Indigenous family safety: a statement by the Minister for Families, Housing, Community Services and Indigenous Affairs*, FaHCSIA, Canberra.
- Devitt, J, Cass, A, Cunningham, J, Preece, C, Anderson, K & Snelling, P 2008, 'Study Protocol - Improving Access to Kidney Transplants (IMPAKT): a detailed account of a qualitative study investigating barriers to transplant for Australian Indigenous people with end-stage kidney disease', *BMC Health Serv Res*, vol. 8, p. 31.
- Dodd, JM, Crowther, CA & Robinson, JS 2002, 'Guiding antenatal care', *Med J Aust*, vol. 176, no. 6, pp. 253–4.
- Dodson, M & Smith, D 2003, *Governance for sustainable development: Strategic issues and principles for Indigenous Australian communities*, Centre for Aboriginal Economic Policy Research, Australian National University, Canberra.
- Drewnowski, A & Specter, SE 2004, 'Poverty and obesity: the role of energy density and energy costs', *Am J Clin Nutr*, vol. 79, no. 1, pp. 6–16.
- Drysdale, M, Faulkner, S & Chesters, J 2006, *Footprints Forward: Better Strategies for the Recruitment, Retention and Support of Indigenous Medical Students*, Monash University School of Rural Health, Moe.
- Dunt, D, Day, S & van Dort, P 2002, *After hours primary medical care trials. National evaluation report*, Centre for Health Program Evaluation, Canberra.
- Dwyer, J, Silburn, K & Wilson, G 2004, *National Strategies for Improving Indigenous Health and Health Care*, Aboriginal and Torres Strait Islander Primary Health Care Review: Consultant Report no.1, Office for Aboriginal and Torres Strait Islander Health, Canberra, <<http://www.health.gov.au/internet/wcms/publicshing.nsf/Content/health-oatsih-pubs-reviewphc.htm>>.
- Eades, S 2004, *Maternal and Child Health Care Services: Actions in the Primary Health Care Setting to Improve the Health of Aboriginal and Torres Strait Islander Women of Childbearing Age, Infants and Young Children*, Aboriginal and Torres Strait Islander Primary Health Care Review: Consultant Report no. 6, Menzies School of Health Research, Casuarina, NT, <[http://www.beststart.vic.gov.au/docs/health\\_care\\_review6.pdf](http://www.beststart.vic.gov.au/docs/health_care_review6.pdf)>.
- Eades, S, Read, AW, Stanley, FJ, Eades, FN, McCaullay, D & Williamson, A 2008, 'Bibbulung Gnarneep ('solid kid'): causal pathways to poor birth outcomes in an urban Aboriginal birth cohort', *J Paediatr Child Health*, vol. 44, no. 6, pp. 342–6.
- Eades, SJ & Read, AW 1999, 'Infant care practices in a metropolitan aboriginal population Bibbulung Gnarneep Team', *J Paediatr Child Health*, vol. 35, no. 6, pp. 541–4.
- Ewald, D & Boughton, B 2002, *Maternal Education and Child Health: An Exploratory Investigation in a Central Australian Aboriginal Community*, Occasional Papers Series Issue no. 7, The Cooperative Research Centre for Aboriginal and Tropical Health (CRCATH), Casuarina, NT, <[http://www.crcath.org.au/publications/downloads/Maternal\\_Education\\_and\\_Child\\_Health.pdf](http://www.crcath.org.au/publications/downloads/Maternal_Education_and_Child_Health.pdf)>.
- Fisher, DA & Weeramanthri, TS 2002, 'Hospital care for Aboriginals and Torres Strait Islanders: appropriateness and decision making', *Med J Aust*, vol. 176, no. 2, pp. 49–50.
- Forrest, CB & Starfield, B 1996, 'The effect of first-contact care with primary care clinicians on ambulatory health care expenditures', *J Fam Pract*, vol. 43, no. 1, pp. 40–8.
- Franks, C 2006, 'Gallinyalla: A town of substance? A descriptive study of alcohol, tobacco, medicines and other drug use in a rural setting', *Rural Remote Health*, vol. 6, no. 2, p. 491.
- Fred Hollows Foundation 2006, *Indigenous Health in Australia: Literacy, education and health*, Enfield, NSW, viewed 30/5/2006, <[http://www.eniar.org/news/pdfs/6\\_literacy\\_education.pdf](http://www.eniar.org/news/pdfs/6_literacy_education.pdf)>.
- Freeman, B, Chapman, S & Storey, P 2008, 'Banning smoking in cars carrying children: an analytical history of a public health advocacy campaign', *Australian and New Zealand Journal of Public Health*, vol. 32, no. 1, pp. 60–5.
- Freemantle, CJ, Read, AW, de Klerk, NH, Charles, AK, McCaullay, D & Stanley, FJ 2005, 'Interpretation of recent sudden infant death syndrome rates in Western Australia', *J Paediatr Child Health*, vol. 41, no. 12, pp. 669–70.
- Freemantle, J, de Klerk, N, Read, A, Blair, E & Alessandri, L 2004, *Western Australian Mortality Study*, Western Australia.
- Frigo, T, Corrigan, M, Adams, I, Hughes, P, Stephens, M & Woods, D 2003, *Supporting English Literacy and Numeracy Learning for Indigenous Students in the Early Years*, ACER Research Monograph no. 57, Australian Council for Educational Research (ACER), Melbourne, <[http://www.acer.edu.au/documents/Mono\\_57-SupportingEnglishLearningForIndigenous.pdf](http://www.acer.edu.au/documents/Mono_57-SupportingEnglishLearningForIndigenous.pdf)>.
- Gakidou, E, Cowling, K, Lozano, R & Murray, CJL 2010, 'Increased educational attainment and its effect on child mortality in 175 countries between 1970 and 2009: a systematic analysis', *Lancet*, vol. 376, pp. 959–74.
- Garnett, S & Sithole, B 2007, *Healthy Country, Healthy People: Sustainable Northern Landscapes and the Nexus with Indigenous Health*, Australian Government Land and Water Australia, Canberra.

- Gibson, O & Segal, L 2009, 'Avoidable hospitalisation in Aboriginal and non-Aboriginal people in the Northern Territory', *Medical Journal of Australia*, vol. 191, no. 1, p. 411.
- Griew, R Unpublished.
- Gross, PA, Hermogenes, AW, Sacks, HS, Lau, J & Levandowski, RA 1995, 'The efficacy of influenza vaccine in elderly persons. A meta-analysis and review of the literature', *Ann Intern Med*, vol. 123, no. 7, pp. 518–27.
- Gunasekera, H, Knox, S, Morris, P, Britt, H, McIntyre, P & Craig, JC 2007, 'The spectrum and management of otitis media in Australian indigenous and nonindigenous children: a national study', *Pediatr Infect Dis J*, vol. 26, no. 8, pp. 689–92.
- Gunasekera, H, Morris, P, Daniels, J, Couzos, S & Craig, J 2009, 'Otitis media in Aboriginal children: the discordance between burden of illness and access to services in rural/remote and urban Australia', *Journal of Paediatrics and Child Health*, vol. 45, pp. 425–30.
- Hall, SE, Bulsara, CE, Bulsara, MK, Leahy, TG, Culbong, MR, Hendrie, D & Holman, CD 2004, 'Treatment patterns for cancer in Western Australia: does being Indigenous make a difference?', *Med J Aust*, vol. 181, no. 4, pp. 191–4.
- Hanna, JN & Clark, MF 2010, 'Acute rheumatic fever in Indigenous people in North Queensland: some good news at last?', *Medical Journal of Australia*, vol. 192, no. 10, pp. 581–4.
- Harlap, S & Davies, AM 1974, 'Infant admissions to hospital and maternal smoking', *Lancet*, vol. 1, no. 7857, pp. 529–32.
- Hawkes, DC 2001, 'Indigenous peoples: Self-government and intergovernmental relations', *International Social Science Journal*, vol. 167, pp. 153–61.
- Hayman, N 1999, 'The poor health status of Aboriginal and Torres Strait Islander peoples: Can more Indigenous doctors make a difference?', *New Doctor*, no. 70, pp. 19–21.
- Hayman, N, White, N & Spurling, G 2009, 'Improving Indigenous patients' access to mainstream health services: the Inala experience', *Medical Journal of Australia*, vol. 190, no. 10, pp. 604–6.
- Haysom, L, Williams, R, Hodson, E, Lopez-Vargas, P, Roy, L, Lyle, D & Craig, J 2009, 'Cardiovascular risk factors in Australian Indigenous and non-Indigenous children: a population-based study', *Journal of Paediatrics and Child Health*, vol. 45, no. 1–2, pp. 20–7.
- Health Workforce Queensland & New South Wales Rural Doctors Network 2009, *Medical practice in rural and remote Australia: Combined Rural Workforce Agencies National Minimum Data Set report as at 30th November 2008*, HWQ, Brisbane, <[http://www.healthworkforce.com.au/downloads/Publications/MDS%20Report%202008\\_final\\_Cover\\_rev1.pdf](http://www.healthworkforce.com.au/downloads/Publications/MDS%20Report%202008_final_Cover_rev1.pdf)>.
- Herceg, A 2005, *Improving health in Aboriginal and Torres Strait Islander mothers, babies and young children: a literature review*, Office for Aboriginal and Torres Strait Islander Health (OATSIH), Commonwealth Department of Health and Ageing, Canberra, <<http://www.health.gov.au/internet/h41/publishing.nsf/Content/respack-litreview>>.
- Hirayama, T 1981, 'Non-smoking wives of heavy smokers have a higher risk of lung cancer: a study from Japan', *Br Med J (Clin Res Ed)*, vol. 282, no. 6259, pp. 183–5.
- Hobbs, M, Krazlan, K, Ridout, S, Mai, Q, Knuiman, M & Chapman, R 2006, *Mortality and morbidity in prisoners after release from prison in Western Australia 1995–2003*, Research and Public Policy Series no. 71, Australian Institute of Criminology, Canberra, <<http://www.aic.gov.au/publications/rpp/71/rpp71.pdf>>.
- Hoy, W, Kelly, A, Jacups, S, McKendry, K, Baker, P, MacDonald, S, Wang, Z, Punguatji, N, Kerinauia, J, Tipiloura, E & Harrison, C 1999, 'Stemming the tide: reducing cardiovascular disease and renal failure in Australian Aborigines', *Aust N Z J Med*, vol. 29, no. 3, pp. 480–3.
- Hoy, W & Nicol, J 2010, 'Birthweight and natural deaths in a remote Australian Aboriginal community', *Medical Journal of Australia*, vol. 192, no. 1, pp. 14–9.
- Hoy, WE, Baker, PR, Kelly, AM & Wang, Z 2000, 'Reducing premature death and renal failure in Australian aboriginals. A community-based cardiovascular and renal protective program', *Med J Aust*, vol. 172, no. 10, pp. 473–8.
- Hoy, WE, Kondalsamy-Chennakesavan, S, Wang, Z, Briganti, E, Shaw, J, Polkinghorne, K & Chadban, S 2007, 'Quantifying the excess risk for proteinuria, hypertension and diabetes in Australian Aborigines: comparison of profiles in three remote communities in the Northern Territory with those in the AusDiab study', *Aust N Z J Public Health*, vol. 31, no. 2, pp. 177–83.
- Hull, B, Lawrence, G, MacIntyre, CR & McIntyre, P 2002, *Immunisation Coverage: Australia 2001*, National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS), University of Sydney, Canberra, <<http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/immu-cov-2001>>.
- Human Rights & Equal Opportunity Commission 1997, *Bringing Them Home: Report of the National Inquiry into the Separation of Aboriginal and Torres Strait Islander Children from their Families*, Sydney, <<http://www.austlii.edu.au/au/special/rsjproject/rsjlibrary/hreoc/stolen/>>.
- Humphreys, JS, Jones, MP, Jones, JA & Mara, PR 2002, 'Workforce retention in rural and remote Australia: determining the factors that influence length of practice', *Med J Aust*, vol. 176, no. 10, pp. 472–6.

- Hunt, JM & Lumley, J 2002, 'Are recommendations about routine antenatal care in Australia consistent and evidence-based?', *Med J Aust*, vol. 176, no. 6, pp. 255–9.
- Hunter, BH & Smith, DE 2000, *Surveying mobile populations: Lessons from recent longitudinal surveys of Indigenous Australians*, Centre for Aboriginal Economic Policy Research (CAEPR) Discussion Paper No. 203, Canberra, <[http://dspace.anu.edu.au/bitstream/1885/41427/1/2000\\_DP203.pdf](http://dspace.anu.edu.au/bitstream/1885/41427/1/2000_DP203.pdf)>.
- Hunter, E 2007, 'Disadvantage and discontent: A review of issues relevant to the mental health of rural and remote Indigenous Australians', *Australian Journal of Rural Health*, vol. 15, pp. 88–93.
- Inkelas, M, Schuster, MA, Olson, LM, Park, CH & Halfon, N 2004, 'Continuity of primary care clinician in early childhood', *Pediatrics*, vol. 113, no. 6 Suppl, pp. 1917–25.
- International Initiative on Maternal Mortality and Human Rights 2010, *International Roundtable on Maternal Mortality, Human Rights and Accountability*, IIMMHR, Geneva, viewed 6 December 2010, <<http://righttomaternalhealth.org/resource/mm-hr-accountability>>.
- Ivers, R, Clapham, K, Senserrick, T, Lyford, M & Stevenson, M 2008, 'Injury prevention in Australian Indigenous communities', *Injury*, vol. 39, no. Suppl 5, pp. s61–7.
- Jacoby, PA, Coates, HL, Arumugaswamy, A, Elsbury, D, Stokes, A, Monck, R, Finucane, JM, Weeks, SA & Lehmann, D 2008, 'The effect of passive smoking on the risk of otitis media in Aboriginal and non-Aboriginal children in the Kalgoorlie-Boulder region of Western Australia', *Med J Aust*, vol. 188, no. 10, pp. 599–603.
- Jamieson, LM, Armfield, JM & Roberts-Thomson, KF 2006, 'Oral health inequalities among indigenous and nonindigenous children in the Northern Territory of Australia', *Community Dent Oral Epidemiol*, vol. 34, no. 4, pp. 267–76.
- Jamieson, LM, Armfield, JM & Roberts-Thomson, KF 2007, 'Indigenous and non-indigenous child oral health in three Australian states and territories', *Ethn Health*, vol. 12, no. 1, pp. 89–107.
- Jamieson, LM, Roberts-Thomson, KF & Sayers, SM 2010, 'Risk indicators for severe impaired oral health among indigenous Australian young adults', *Oral Health*, vol. 10, no. 1, pp. 1–11.
- Jeon, Y, Essue, B, Jan, S, Wells, R & Whitworth, J 2009, 'Economic hardship associated with managing chronic illness: a qualitative inquiry', *BMC Health Services Research*, vol. 9, no. 182.
- Johnston, V, Lea, T & Carapetis, JR 2009, 'Joining the dots: The links between education and health and implications for Indigenous children', *Journal of Paediatrics and Child Health*, vol. 45, pp. 692–7.
- Johnston, V & Thomas, D 2008, 'Smoking behaviours in a remote Australian Indigenous community: The influence of family and other factors', *Social Science and Medicine*, vol. 67, no. 11, pp. 1708–16.
- Kennedy B, Cornes S, Martyn S, Wills R, Breckell C, 2009, *Measuring Indigenous perinatal outcomes – should we use the Indigenous status of the mother, the father or the baby?* Technical report #2. Health and Statistics Centre, Queensland Health
- Kennedy, B & Firman, D 2004, *Indigenous SEIFA – Revealing the ecological fallacy. Population and society: issues, research, policy*, Australian Population Association, Canberra.
- Kokkinos, PF, Narayan, P & Papademetriou, V 2001, 'Exercise as hypertension therapy', *Cardiol Clin*, vol. 19, no. 3, pp. 507–16.
- Kolos, V, Menzies, R & McIntyre, P 2007, 'Higher pertussis hospitalization rates in indigenous Australian infants, and delayed vaccination', *Vaccine*, vol. 25, no. 4, pp. 588–90.
- Kondalsamy-Chennakesavan, S, Hoy, WE, Wang, Z & Shaw, J 2008, 'Quantifying the excess risk of type 2 diabetes by body habitus measurements among Australian aborigines living in remote areas', *Diabetes Care*, vol. 31, no. 3, pp. 585–6.
- Krieg, AS 2006, 'Aboriginal incarceration: health and social impacts', *Med J Aust*, vol. 184, no. 10, pp. 534–6.
- Kritharides, L, Brownc, A, Briegera, D, Ridell, T, Zeitz, C, Jeremya, R, Tonkinf, A, Walsh, W & White, H 2010, 'Overview and Determinants of Cardiovascular Disease in Indigenous Populations', *Heart, Lung and Circulation*, vol. 19, pp. 337–43.
- Krug, EG, Dahlberg, LL, Mercy, JA, Zwi, AB & Lozano, R 2002, *World report on violence and health*, World Health Organisation (WHO), Geneva: Switzerland, <[http://www.who.int/violence\\_injury\\_prevention/violence/world\\_report/en/](http://www.who.int/violence_injury_prevention/violence/world_report/en/)>.
- Larkins, SL, Geia, LK & Panaretto, KS 2006, 'Consultations in general practice and at an Aboriginal community controlled health service: do they differ?', *Rural Remote Health*, vol. 6, no. 3, p. 560.
- Laws, PJ & Sullivan, EA 2004a, *Australia's mothers and babies 2002*, Perinatal Statistics Series No. 15, AIHW National Perinatal Statistics Unit, AIHW cat. no. PER 28, Sydney, <<http://www.aihw.gov.au/publications/index.cfm/title/10089>>.
- Laws, PJ & Sullivan, EA 2004b, *Report on the evaluation of the Perinatal National Minimum Data Set*, Perinatal Statistics Series no. 14, AIHW National Perinatal Statistics Unit, AIHW cat. no. PER 27, Sydney <<http://www.aihw.gov.au/publications/index.cfm/title/10088>>.
- Laws, PJ & Sullivan, EA 2005, *Australia's mothers and babies 2003*, Perinatal statistics series no. 16, AIHW National Perinatal Statistics Unit, AIHW cat. no. PER 29, Sydney, <<http://www.aihw.gov.au/publications/index.cfm/title/10202>>.

- Lee, KS, Clough, AR, Jaragba, MJ, Conigrave, KM & Patton, GC 2008, 'Heavy cannabis use and depressive symptoms in three Aboriginal communities in Arnhem Land, Northern Territory', *Med J Aust*, vol. 188, no. 10, pp. 605–8.
- Leeder, SR, Corkhill, R, Irwig, LM, Holland, WW & Colley, JR 1976, 'Influence of family factors on the incidence of lower respiratory illness during the first year of life', *Br J Prev Soc Med*, vol. 30, no. 4, pp. 203–12.
- Leibowitz, R, Day, S & Dunt, D 2003, 'A systematic review of the effect of different models of after-hours primary medical care services on clinical outcome, medical workload, and patient and GP satisfaction', *Fam Pract*, vol. 20, no. 3, pp. 311–7.
- Leonard, H, Nassar, N, Bourke, J, Blair, E, Mulroy, S, de Klerk, N & Bower, C 2008, 'Relation between intrauterine growth and subsequent intellectual disability in a ten-year population cohort of children in Western Australia', *Am J Epidemiol*, vol. 167, no. 1, pp. 103–11.
- Levy, M 2005, 'Prisoner health care provision: Reflections from Australia', *International Journal of Prisoner Health*, vol. 1, no. 1, pp. 65–73.
- Li, S, Gray, N, Guthridge, S & Pircher, L 2009, 'Avoidable hospitalisation in Aboriginal and non-Aboriginal people in the Northern Territory', *Medical Journal of Australia*, vol. 190, no. 10, pp. 532–6.
- Limerick, M 2009, 'What makes an Aboriginal council successful? Case studies of Aboriginal community government performance in far north Queensland', *Australian Journal of Public Administration*, vol. 68, no. 4, pp. 414–28.
- Long, S, Memmott, P & Seelig, T. 2007. Australian Indigenous housing research: a review and audit. *AHURI Research & Policy Bulletin*, 95.
- Longstreet, D, Health, D, Savage, I, Vink, R & Panaretto, KS 2008, 'Estimated nutrient intake of urban Indigenous participants enrolled in a lifestyle intervention program', *Nutrition and Dietetics*, vol. 65, no. 2, pp. 128–33.
- Mackerras, DE, Reid, A, Sayers, SM, Singh, GR, Bucens, IK & Flynn, KA 2003, 'Growth and morbidity in children in the Aboriginal Birth Cohort Study: the urban-remote differential', *Med J Aust*, vol. 178, no. 2, pp. 56–60.
- Mainous, AG, 3rd, Baker, R, Love, MM, Gray, DP & Gill, JM 2001, 'Continuity of care and trust in one's physician: evidence from primary care in the United States and the United Kingdom', *Fam Med*, vol. 33, no. 1, pp. 22–7.
- Marmot, M 2005, 'Social determinants of health inequalities', *Lancet*, vol. 365, no. 9464, pp. 1099–104.
- Marmot, M 2010, *Fair Society, Healthy Lives: Strategic review of health inequalities in England post-2010*, The Marmot Review, London, <<http://www.marmotreview.org/AssetLibrary/pdfs/Reports/FairSocietyHealthyLives.pdf>>.
- Marmot, M & Wilkinson, R 2006, *Social Determinants of Health*, 2nd, Oxford University Press, Oxford.
- Mathers, C, Vos, T & Stevenson, C 1999, *The burden of disease and injury in Australia*, AIHW cat. no. PHE 17, Canberra, <<http://www.aihw.gov.au/publications/phe/bdia/bdia-c00.pdf>>.
- Mathers, CD & Schofield, DJ 1998, 'The health consequences of unemployment: the evidence', *Med J Aust*, vol. 168, no. 4, pp. 178–82.
- McDermott, R, O'Dea, K, Rowley, K, Knight, S & Burgess, P 1998, 'Beneficial impact of the homelands movement on health outcomes in central Australian aborigines', *Aust N Z J Public Health*, vol. 22, no. 6, pp. 653–8.
- McDermott, R, Tulip, F, Schmidt, B & Sinha, A 2003, 'Sustaining better diabetes care in remote indigenous Australian communities', *BMJ*, vol. 327, no. 7412, pp. 428–30.
- McDermott, R, Tulip, F & Sinha, A 2004, 'Sustaining better diabetes care in remote indigenous Australian communities', *Qual Saf Health Care*, vol. 13, no. 4, pp. 295–8.
- McDonald, S, Chang, S & Excell, L (eds) 2006, *Twenty eighth report of Australia and New Zealand dialysis and transplant registry*, ANZData Registry, Adelaide.
- McLaren, B 1996, 'Renal failure in Arnhem Land: missed opportunities for prevention and treatment', *Aust J Rural Health*, vol. 4, no. 2, pp. 61–6.
- McLure, P 2000, *Participation Support for a More Equitable Society: Final Report of the Reference Group on Welfare Reform*, Canberra.
- Menzies, R & Singleton, R 2009, 'Vaccine preventable diseases and vaccination policy for Indigenous populations', *Pediatric Clinics of North America*, vol. 56, no. 6, pp. 1263–83.
- Menzies, R, Turnour, C, Chiu, C & McIntyre, P 2008, 'Vaccine Preventable Diseases and Vaccination Coverage in Aboriginal and Torres Strait Islander People, Australia 2003 to 2006', *Commun Dis Intell*, vol. 32, no. 2 Suppl.
- Mercy Hospital for Women, Southern Health Service & Women's & Children's Health Service 2001, *Three Centres Consensus Guidelines on Antenatal Care Project*, Melbourne, <<http://www.health.vic.gov.au/maternitycare/pubs.htm>>.
- Meuleners, LB, Hendrie, D & Lee, AH 2008, 'Hospitalisations due to interpersonal violence: a population-based study in Western Australia', *Med J Aust*, vol. 188, no. 10, pp. 572–5.
- Miller, J, Knott, V, Wilson, C, Cunningham, J, Condon, J, Roder D, et al. 2010, *Aboriginal and Torres Strait Islander Cancer Control Research Project*. The Australian Government Cancer Australia.
- Ministerial Council on Drug Strategy 2006, *National Drug Strategy: Aboriginal and Torres Strait Islander Peoples Complementary Action Plan 2003–2009*, Commonwealth Government Department of Health and Ageing, Canberra,

- <<http://www.health.gov.au/internet/drugstrategy/publishing.nsf/Content/indigenous-drug-strategy-lp>>.
- Ministerial Council on Education, Training and Youth Affairs, 2009, *National report on schooling in Australia 2008*, MCEETYA, Melbourne.
- Minniecon, D & Kong, K 2005, *Healthy Futures: Defining best practice in the recruitment and retention of Indigenous medical students*, Australian Indigenous Doctors' Association (AIDA), Canberra, <<http://www.aida.org.au/healthyfutures.asp>>.
- Moore, A, Vu, H, Herceg, A & Al-Yaman, F 2008, *Hospital procedures for diseases of the digestive tract in Indigenous and other Australians: a multivariate analysis of hospital separation data. AIHW Cat. no. IHW 23*, AIHW, Canberra.
- Morphy, F 2005, *The future of the homelands in north-east Arnhem Land: Paper prepared for Reconciliation Australia ICG Project Workshop with NT and Australian Government Partners*, Centre for Aboriginal Economic Policy Research, Australian National University, Darwin, <[http://www.anu.edu.au/caepr/Projects/Homelands\\_future\\_FMorphy.pdf](http://www.anu.edu.au/caepr/Projects/Homelands_future_FMorphy.pdf)>.
- Morris, PS, Leach, AJ, Halpin, S, Mellon, G, Gadil, G, Wigger, C, Mackenzie, G, Wilson, C, Gadil, E & Torzillo, P 2007, 'An overview of acute otitis media in Australian Aboriginal children living in remote communities', *Vaccine*, vol. 25, no. 13, pp. 2389–93.
- Mullins, P, Western, J & Broadbent, B 2001, *The links between housing and nine key socio cultural factors: a review of the evidence positioning paper*, AHURI Positioning Paper No. 4, Australian Housing and Urban Research Institute, Queensland Research Centre, Brisbane.
- Murray, C, Tandon, A, Salomon, J, Mathers, C & Sadana, R 2003, 'Cross-population comparability of evidence for health policy', in C Murray and D Evans (eds), *Health systems performance assessment: Debates, methods and empiricism*, WHO, Geneva, pp. 705–13.
- National Aboriginal and Torres Strait Islander Health Council 2003, *National Strategic Framework for Aboriginal and Torres Strait Islander Health: Framework for action by governments* Canberra, <<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-oatsih-pubs-healthstrategy.htm>>.
- National Aboriginal and Torres Strait Islander Health Council 2008a, *A blueprint for action: pathways into the health workforce for Aboriginal and Torres Strait Islander people*, NATSIHC, Canberra, <<http://www.aida.org.au/pdf/pathways/Pathways.pdf>>.
- National Aboriginal and Torres Strait Islander Health Council 2008b, *Pathways into the health workforce for Aboriginal and Torres Strait Islander people: a blueprint for action*, NATSIHC, Canberra, <<http://www.aida.org.au/pdf/pathways/Pathways.pdf>>.
- National Aboriginal and Torres Strait Islander Health Council & Standing Committee on Aboriginal and Torres Strait Islander Health 2003, *National Aboriginal and Torres Strait Islander Oral Health Workshop: Workshop Report and Action Plan*, Commonwealth Department of Health and Ageing, Canberra <[http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-oatsih-pubs-oralhealth.htm/\\$FILE/oralhealth.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-oatsih-pubs-oralhealth.htm/$FILE/oralhealth.pdf)>.
- National Centre for Classification in Health 2004, *The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (4th Ed)*, NCCCH, Faculty of Health Sciences, The University of Sydney, Sydney, <<http://meteor.aihw.gov.au/content/index.phtml/itemId/325387>>.
- National Centre for Education and Training Statistics & Australian Bureau of Statistics 2008, *Health literacy in Australia*, ABS, Canberra.
- National Health and Medical Research Council 1986, *The Health Effects of Passive Smoking*, Canberra.
- National Health and Medical Research Council 1997, *The health effects of passive smoking: A scientific information paper*, Canberra.
- National Health and Medical Research Council 2000, *Nutrition in Aboriginal and Torres Strait Islander Peoples: An Information Paper*, Canberra, <<http://www.nhmrc.gov.au/publications/synopses/n26syn.htm>>.
- National Health and Medical Research Council 2001, *Australian Alcohol Guidelines: Health Risks and Benefits*, Canberra, <<http://www.nhmrc.gov.au/publications/synopses/ds9syn.htm>>.
- National Health and Medical Research Council 2003, *Dietary Guidelines for Children and Adolescents in Australia incorporating the Infant Feeding Guidelines for Health Workers*, Canberra, <<http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm>>.
- National Health Performance Committee 2001, *National Health Performance Framework Report: A report to the Australian Health Ministers' Conference*, Queensland Health, Brisbane, <<http://www.health.qld.gov.au/nathlthrpt/framework.asp>>.
- National Health Performance Committee 2004, *National Report on Health Sector Performance Indicators 2003*, AIHW cat. no. HWI 78, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10085>>.
- National Health Priority Action Council 2006, *National Chronic Disease Strategy*, Commonwealth Department of Health and Ageing, Canberra, <<http://health.gov.au/internet/main/publishing.nsf/Content/pq-ncds-strat>>.

- National Housing and Urban Research Institute 2010, *Indigenous housing*, AHURI, Brisbane, viewed 6 December 2010, <[http://www.ahuri.edu.au/themes/indigenous\\_housing/](http://www.ahuri.edu.au/themes/indigenous_housing/)>.
- National Indigenous Health Equality Council 2010a, *Child Mortality Target: Analysis and Recommendations*, NIHEC, Canberra.
- National Indigenous Health Equality Council 2010b, *Health workforce target: Analysis and recommendations: Part 1: Indigenous health workforce*, NIHEC, Canberra.
- National Public Health Partnership 2006, *Making the connections. Guidelines for effective approaches to Aboriginal and Torres Strait Islander public health*, NPHP, Melbourne.
- Nichol, KL, Margolis, KL, Wuorenma, J & Von Sternberg, T 1994, 'The efficacy and cost effectiveness of vaccination against influenza among elderly persons living in the community', *N Engl J Med*, vol. 331, no. 12, pp. 778–84.
- Norris, T, McIntyre, P & Menzies, R 2004, 'Role of GPs in adult Indigenous immunisation—a national survey [abstract].', *9th National Immunisation/1st PHAA Asia Pacific Vaccine Preventable Diseases Conference. Immunisation at the crossroads: challenges and strategies, 19–20 Aug 2004*, Public Health Association of Australia, Cairns.
- Northern Land Council & Central Land Council 1994, *Our Land, Our Life*, Casuarina, NT, Alice Springs, NT, viewed 27/3/2006, <<http://www.clc.org.au/media/publications/olol.asp>>.
- Northern Territory Licensing Commission 2008, *Liquor*, viewed 3/4/2006, <<http://www.nt.gov.au/justice/licenreg/liquor.shtml>>.
- NSW Health 2006, *NSW Aboriginal Maternal and Infant Health Strategy. Evaluation final report 2005*, NSW Health, Sydney.
- NSW Multicultural Health Communication Service, NSW Department of Health 2004, *Smoking and Pregnancy*, Sydney, viewed 23/2/06, <<http://www.health.nsw.gov.au/mhcs/topics/Smoking.html>>.
- Nusselder WJ, Looman CW 2004, 'Decomposition of differences in health expectancy by cause'. *Demography*, vol 41, no. 2, pp 315–334.
- O'Dea, K 1984, 'Marked improvement in carbohydrate and lipid metabolism in diabetic Australian aborigines after temporary reversion to traditional lifestyle', *Diabetes*, vol. 33, no. 6, pp. 596–603.
- O'Grady, K, Taylor-Thomson, D, Chang, A, Torzillo, P, Morris, P, Mackenzie, G, Wheaton, G, Bauert, P, De Campo, M, De Campo, J & Ruben, A 2010, 'Rates of radiologically confirmed pneumonia as defined by the World Health Organization in Northern Territory Indigenous children', *Medical Journal of Australia*, vol. 192, no. 10, p. 4.
- Office for Aboriginal and Torres Strait Islander Health 2001, *Recommendations for Clinical Care Guidelines on the Management of Otitis Media in Aboriginal and Torres Strait Islander Populations*, Commonwealth Department of Health and Ageing, Canberra.
- Office for Aboriginal and Torres Strait Islander Health 2004, *Defining the Domains: Aboriginal and Torres Strait Islander Health Performance Framework*, Commonwealth Department of Health and Ageing, Canberra.
- Otim, M, Anderson, I & Renhard, R 2002, *Aboriginal & Torres Strait Islander Hospital Accreditation Project: A Literature Review*, Discussion Paper no. 9, VicHealth Koori Health Research & Community Development Unit, Centre of the Study of Health & Society, University of Melbourne, Melbourne, <[http://www.onemda.unimelb.edu.au/docs/DP9\\_MO\\_IA\\_RR.pdf](http://www.onemda.unimelb.edu.au/docs/DP9_MO_IA_RR.pdf)>.
- Ou, L, Chen, J, Hillman, K & Eastwood, J 2010, 'The comparison of health status and health services utilisation between Indigenous and non-Indigenous infants in Australia', *Australian and New Zealand Journal of Public Health*, vol. 34, no. 1, pp. 50–6.
- Page, A, Tobias, M, Glover, J, Wright, C, Hetzel, D & Fisher, E 2006, *Australian and New Zealand atlas of avoidable mortality*, PHIDU, University of Adelaide, Adelaide.
- Panaretto, KS, Mitchell, MR, Anderson, L, Larkins, SL, Manassis, V, Buettner, PG & Watson, D 2007, 'Sustainable antenatal care services in an urban Indigenous community: the Townsville experience', *Med J Aust*, vol. 187, no. 1, pp. 18–22.
- Panaretto, KS, Smallwood, VE, Cole, P, Elston, J & Whitehall, JS 2002, 'Sudden infant death syndrome risk factors in north Queensland: a survey of infant-care practices in Indigenous and non-Indigenous women', *J Paediatr Child Health*, vol. 38, no. 2, pp. 129–34.
- Paradies, Y 2006, 'A review of psychosocial stress and chronic disease for 4th world indigenous peoples and African Americans', *Ethn Dis*, vol. 16, no. 1, pp. 295–308.
- Paradies, YC & Cunningham, J 2008, 'Development and validation of the Measure of Indigenous Racism Experiences (MIRE)', *Int J Equity Health*, vol. 7, p. 9.
- Paradise, JL, Feldman, HM, Campbell, TF, Dollaghan, CA, Rockette, HE, Pitcairn, DL, Smith, CG, Colborn, DK, Bernard, BS, Kurs-Lasky, M, Janosky, JE, Sabo, DL, O'Connor, RE & Pelham, WE, Jr. 2007, 'Tympanostomy tubes and developmental outcomes at 9 to 11 years of age', *N Engl J Med*, vol. 356, no. 3, pp. 248–61.
- Parker, E, Meiklejohn, B, Patterson, C, Edwards, K, Preece, C, Shuter, P & Gould, T 2006, 'Our Games Our Health: A Cultural Asset for Promoting Health in Indigenous Communities', *Health Promotion Journal of Australia*, vol. 17, no. 2, pp. 103–8.

- Parnaby, MG & Carapetis, JR 2010, 'Rheumatic fever in Indigenous Australian children', *Journal of Paediatrics and Child Health*, vol. 46, pp. 527–33.
- Passey, M, Fanaian, M, Lyle, D & Harris, MF 2010, 'Assessment and management of lifestyle risk factors in rural and urban general practices in Australia', *Australian Journal of Primary Health*, vol. 16, pp. 81–6.
- Pearse, J 2005, *Review of patient satisfaction and experience surveys conducted for public hospitals in Australia: A Research Paper for the Steering Committee for the Review of Government Service Provision*, Productivity Commission, Canberra, <<http://www.pc.gov.au/gsp/reports/consultancy/patientsatisfaction>>.
- Penm, E 2008, *Cardiovascular disease and its associated risk factors in Aboriginal and Torres Strait Islander peoples 2004–05*, Cardiovascular disease series no. 29. Cat. no. CVD 41 vols, Australian Institute of Health and Welfare, Canberra.
- Pilkington, J 2009, *Aboriginal Communities and the Police's Taskforce Themis: Case studies in remote Aboriginal community policing in the Northern Territory*, North Australian Aboriginal Justice Agency, Darwin.
- Powe, NR & Cooper, LA 2004, 'Diversifying the racial and ethnic composition of the physician workforce', *Ann Intern Med*, vol. 141, no. 3, pp. 223–4.
- Public Health Division, Victorian Department of Human Services 2001, *The Victorian Ambulatory Care Sensitive Conditions Study: Preliminary Analyses*, Melbourne, <<http://www.health.vic.gov.au/healthstatus/acsc/analyses.htm>>.
- Quilty, S, Levy, MH, Howard, K, Barratt, A & Butler, T 2004, 'Children of prisoners: a growing public health problem', *Australian and New Zealand Journal of Public Health*, vol. 28, no. 4, pp. 339–43.
- Raphael, B, Swan, P & Martinek, N 1998, 'Intergenerational Aspects of Trauma for Australian Aboriginal People', in Y Danieli (ed.), *International Handbook of Multigenerational Legacies of Trauma*, Plenum Press, New York: U.S., pp. p. 327–39.
- Riley, I, Williams, G, Shannon, C & authors, Co 2004, *Needs analysis of immunisation for Aboriginal and Torres Strait Islander people in Queensland, final report*, Centre for Indigenous Health, University of Queensland, Brisbane.
- Roberts-Thomson, K & Do, L 2007, 'Oral health status', in GD Slade, AJ Spencer and KF Roberts-Thomson (eds), *Australia's dental generations: the National Survey of Adult Oral Health 2004–06*, Dental statistics and research series no. 34, AIHW cat. no. DEN 165, Canberra, pp. 81–142.
- Rowley, KG, Gault, A, McDermott, R, Knight, S, McLeay, T & O'Dea, K 2000, 'Reduced prevalence of impaired glucose tolerance and no change in prevalence of diabetes despite increasing BMI among Aboriginal people from a group of remote homeland communities', *Diabetes Care*, vol. 23, no. 7, pp. 898–904.
- Rowley, KG, O'Dea, K, Anderson, I, McDermott, R, Saraswati, K, Tilmouth, R, Roberts, I, Fitz, J, Wang, Z, Jenkins, A, Best, JD & Brown, A 2008, 'Lower than expected morbidity and mortality for an Australian Aboriginal population: 10-year follow-up in a decentralised community', *Med J Aust*, vol. 188, no. 5, pp. 283–7.
- Royal Australian College of General Practitioners 2006, *Standards for General Practices (3rd Edition)*, RACGP, South Melbourne, Vic, <<http://www.racgp.org.au/standards>>.
- Royal Commission into Aboriginal Deaths in Custody 1991, *Final Report*, Australian Government Publishing Service, Canberra.
- Salomon, J, Mathers, C, Chatterji, S, Sadana, R, Ustun, T & Murray, C 2003, 'Quantifying individual levels of health: Definitions, concepts and measurement issues', in C Murray and D Evans (eds), *Health systems performance assessment: Debates, methods and empiricism*, WHO, Geneva, pp. 301–18.
- Sassi, F 2009, 'Health inequalities: a persistent problem', in J Hills, T Sefton and K Stewart (eds), *Towards a more equal society?*, The Policy Press, Bristol.
- Saunders, P & Davidson, P 2007, 'Rising poverty is bad for our health', *Medical Journal of Australia*, vol. 187, no. 9, pp. 530–1.
- Schoen, C, Osborn, R, Huynh, PT, Doty, M, Davis, K, Zapert, K & Peugh, J 2004, 'Primary care and health system performance: adults' experiences in five countries', *Health Aff (Millwood)*, vol. Suppl Web Exclusives, pp. W4-487–503.
- Senior, K & Chenhall, R 2008, 'Lukumbat marawana: a changing pattern of drug use by youth in a remote Aboriginal community', *Aust J Rural Health*, vol. 16, no. 2, pp. 75–9.
- Shahid, S, Finn, L, Bessarab, D, and Thompson, S. 2009. *Understanding, beliefs and perspectives of Aboriginal people in Western Australia about cancer and its impact on access to cancer services*, *BioMed Central Ltd*. 9: 132.
- Slack-Smith, L, Colvin, L, Leonard, H, Kilpatrick, N, Bower, C & Messer, L 2009, 'Factors associated with dental admissions for children aged under 5 years in Western Australia.', *Archives of Disease in Childhood*, vol. 94, no. 7, pp. 517–23.
- Slaytor, EK, Sullivan, EA & King, JF 2004, *Maternal deaths in Australia 1997–1999*, Maternal deaths series no. 1, AIHW cat. no. PER 24, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10018>>.
- Smylie, J & Adomako, P 2009, *Indigenous children's health report: Health assessment in action*, Keenan Research Centre, Toronto, <[http://www.stmichaelshospital.com/crich/indigenous\\_childrens\\_health\\_report.php](http://www.stmichaelshospital.com/crich/indigenous_childrens_health_report.php)>.

- Smylie, J, Crengle, S, Freemantle, J & Taualii, M 2010, 'Indigenous Birth Outcomes in Australia, Canada, New Zealand and the United States—an Overview', *The Open Women's Health Journal*, vol. 4, pp. 7–17.
- Social Health Reference Group 2004, *National Strategic Framework for Aboriginal and Torres Strait Islander Peoples' Mental Health and Social and Emotional Well Being 2004–2009*, National Aboriginal and Torres Strait Islander Health Council, and National Mental Health Working Group, Canberra, <<http://www.aodgp.gov.au/internet/main/publishing.nsf/Content/health-oatsih-pubs-wellbeing>>.
- South Australian Department of Health 2005, *Population health in South Australia: burden of disease and injury estimates, 1999-2001*. <<http://www.health.sa.gov.au/burdenofdisease/DesktopDefault.aspx>>
- Spurling, G, Hayman, N & Cooney, A 2009, 'Adult health checks for Indigenous Australians: the first year's experience from Inala Indigenous Health Service', *Medical Journal of Australia*, vol. 190, no. 10, pp. 562–4.
- Standing Committee for Aboriginal and Torres Strait Islander Health & Statistical Information Management Committee 2006, *National summary of the 2003 and 2004 jurisdictional reports against the Aboriginal and Torres Strait Islander health performance indicators*. AIHW. cat. no. IHW 16, AIHW, Canberra.
- Standing Committee on Aboriginal and Torres Strait Islander Health 2004, *Cultural Respect Framework for Aboriginal and Torres Strait Islander Health 2004–2009*, Australian Health Ministers' Advisory Council, Adelaide, <<http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-oatsih-pubs-crf.htm/>>.
- Standing Committee on Aboriginal and Torres Strait Islander Health 2006, *Aboriginal and Torres Strait Islander Health Performance Framework 2005*, Australian Health Ministers' Advisory Council, Canberra, <[http://www.health.gov.au/internet/wcms/publishing.nsf/Content/D2690BAFA3867FEDCA25722C001111C9/\\$File/Framework%20Document%20-%20online%20version.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/D2690BAFA3867FEDCA25722C001111C9/$File/Framework%20Document%20-%20online%20version.pdf)>.
- Stansfield, SA 2006, 'Social support and social cohesion', in M Marmot and R Wilkinson (eds), *Social Determinants of Health*, Oxford University Press, U.S.
- Starfield, B 1998, *Primary Care: Balancing Health Needs, Services, and Technology*, Oxford University Press, USA.
- Starfield, B & Shi, L 2004, 'The medical home, access to care, and insurance: a review of evidence', *Pediatrics*, vol. 113, no. 5 Suppl, pp. 1493–8.
- Statistical Information Management Committee 2004, *National Summary of the 2001 and 2002 Jurisdictional Reports Against the Aboriginal and Torres Strait Islander Health Performance Indicators*, AIHW cat. no. IHW 12, Canberra, <<http://www.aihw.gov.au/publications/index.cfm/title/10013>>.
- Steer, A & Carapetis, J 2009, 'Acute rheumatic fever and rheumatic heart disease in Indigenous populations', *Pediatric Clinics of North America*, vol. 56, no. 6, pp. 1401–19.
- Steering Committee for the Review of Government Service Provision 2005, *Report on Government Services 2005*, Productivity Commission, Canberra, <<http://www.pc.gov.au/gsp/reports/rogs/2005>>.
- Steering Committee for the Review of Government Service Provision 2007, *Overcoming Indigenous Disadvantage: Key Indicators 2007*, Productivity Commission, Canberra, <<http://www.pc.gov.au/gsp/reports/indigenous/keyindicators2007>>.
- Steering Committee for the Review of Government Service Provision 2009, *Overcoming Indigenous Disadvantage: Key Indicators 2009*, Productivity Commission, Canberra, <[http://www.pc.gov.au/\\_\\_data/assets/pdf\\_file/0003/90129/key-indicators-2009.pdf](http://www.pc.gov.au/__data/assets/pdf_file/0003/90129/key-indicators-2009.pdf)>.
- Stephenson, J, Bauman, A, Armstrong, T, Smith, B & Bellew, B 2000, *The Costs of Illness Attributable to Physical Inactivity in Australia: A preliminary study*, Commonwealth Department of Health and Aged Care, Canberra, <[http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pubhlth-publication-document-phys\\_costofillness-cnt.htm/\\$FILE/phys\\_costofillness.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pubhlth-publication-document-phys_costofillness-cnt.htm/$FILE/phys_costofillness.pdf)>.
- Stewart, LM, Henderson, CJ, Hobbs, MS, Ridout, SC & Knuiman, MW 2004, 'Risk of death in prisoners after release from jail', *Aust N Z J Public Health*, vol. 28, no. 1, pp. 32–6.
- Stewart, T, McDonald, R & Currie, B 2007, 'Acute rheumatic fever: adherence to secondary prophylaxis and follow up of Indigenous patients in the Katherine region of the Northern Territory', *Aust J Rural Health*, vol. 15, no. 4, pp. 234–40.
- Strategic Inter-Governmental Nutrition Alliance 2001, *National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan 2000–2010*, National Public Health Partnership, Melbourne, <[http://www.nphp.gov.au/publications/a\\_z.htm#n](http://www.nphp.gov.au/publications/a_z.htm#n)>.
- Strazdins, L, Shipley, M, Clements, M, O'Brien, LV & Broom, DH 2010, 'Job quality and inequality: Parents' jobs and children's emotional and behavioural difficulties', *Social Science & Medicine*, vol. 70, pp. 2052–60.
- Sullivan, EA, Hall, B & King, JF 2008, *Maternal deaths in Australia 2003–2005*, Maternal deaths series no. 3, AIHW cat. no. PER 42, Sydney, <<http://www.aihw.gov.au/publications/index.cfm/title/10470>>.
- Sullivan, P & Oliver, K 2007, *Governance, Indigenous and non-Indigenous, as a social determinant of Aboriginal health, in critical intersections: Aboriginal wellbeing and society*, AIATSIS, Canberra.

- Taylor, J & Bell, M 1999, *Changing places: Indigenous population movement in the 1990s*, Centre for Aboriginal Economic Policy Research (CAEPR) Discussion Paper No.189, Canberra, <<http://dspace.anu.edu.au/manakin/handle/1885/40174>>.
- Taylor L, Lim K 2000, *Quality of Reporting of Aboriginality to the NSW*, Midwives Data Collection NSW Public Health Bulletin 11(12): 206-210
- Thomas, DP, Briggs, V, Anderson, IP & Cunningham, J 2008, 'The social determinants of being an Indigenous non-smoker', *Aust N Z J Public Health*, vol. 32, no. 2, pp. 110–6.
- Thompson, N, Burns, J, Burrow, S & Kirov, E 2004, *Overview of Indigenous health 2004*, Australian Indigenous HealthBulletin vol. 4 no. 4, Australian Indigenous HealthInfoNet, Perth, viewed 11/11/05, <[http://www.healthinfonet.ecu.edu.au/html/html\\_bulletin/bull\\_44/reviews/thomson/reviews\\_thomson.pdf](http://www.healthinfonet.ecu.edu.au/html/html_bulletin/bull_44/reviews/thomson/reviews_thomson.pdf)>.
- Turrell, G & Mathers, CD 2000, 'Socioeconomic status and health in Australia', *Med J Aust*, vol. 172, no. 9, pp. 434–8.
- University of California San Francisco and Stanford University Evidence-based Practice Center 2001, *Refinement of the HCUP Quality Indicators (Technical Review 4): Paper prepared for the Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, AHRQ Publication No. 01-0035*, Stanford, California: U.S., <[http://www.qualityindicators.ahrq.gov/downloads/technical/qi\\_technical\\_summary.pdf](http://www.qualityindicators.ahrq.gov/downloads/technical/qi_technical_summary.pdf)>.
- Urbis 2009, *Evaluation of the healthy for life program: Final report 30 June 2009, prepared for the Department of Health and Ageing*, Urbis, Sydney.
- Vagholkar, S, Hermiz, O, Zwar, NA, Shortus, T, Comino, EJ & Harris, M 2007, 'Multidisciplinary care plans for diabetic patients: what do they contain?', *Aust Fam Physician*, vol. 36, no. 4, pp. 279–82.
- Valery, PC, Coory, M, Stirling, J & Green, AC 2006, 'Cancer diagnosis, treatment, and survival in Indigenous and non-Indigenous Australians: a matched cohort study', *Lancet*, vol. 367, no. 9525, pp. 1842–8.
- van der Poorten, D, Kenny, DT & George, J 2008, 'Prevalence of and risk factors for hepatitis C in Aboriginal and non-Aboriginal adolescent offenders', *Med J Aust*, vol. 188, no. 10, pp. 610–4.
- VicHealth Centre for Tobacco Control 2001, *National Tobacco Strategy 1999 to 2002–03 Occasional Paper: Environmental Tobacco Smoke in Australia*, Commonwealth Department of Health and Aged Care, Canberra, <[http://www.health.gov.au/internet/wcms/ Publishing.nsf/Content/health-pubhlth-publicat-document-env\\_ets-cnt.htm](http://www.health.gov.au/internet/wcms/ Publishing.nsf/Content/health-pubhlth-publicat-document-env_ets-cnt.htm)>.
- Vos, T, Barker, B, Begg, S, Stanley, L & Lopez, A 2009, 'Burden of disease and injury in Aboriginal and Torres Strait Islander Peoples: the Indigenous health gap', *International Journal of Epidemiology*, vol. 38, no. 2, pp. 470–7.
- Vos, T, Barker, B, Stanley, L & Lopez, A 2007, *The burden of disease and injury in Aboriginal and Torres Strait Islander peoples 2003*, School of Population Health, The University of Queensland, Brisbane.
- Wagner, EH, Austin, BT & Korff, MV 1996, 'Organizing Care for Patients with Chronic Illness', *The Milbank Quarterly*, vol. 74, no. 4, pp. 511–44.
- Wagstaff, A & van Doorslaer, E 2000, 'Income inequality and health: what does the literature tell us?', *Annu Rev Public Health*, vol. 21, pp. 543–67.
- Wallace, EM & Oats, JJ 2002, 'National guidelines for antenatal testing', *Med J Aust*, vol. 177, no. 9, p. 468.
- Weissman, JS, Gatsonis, C & Epstein, AM 1992, 'Rates of avoidable hospitalization by insurance status in Massachusetts and Maryland', *JAMA*, vol. 268, no. 17, pp. 2388–94.
- Westbury, ND 2002, *The importance of Indigenous governance and its relationship to social and economic development. Background issues paper*. , Indigenous Governance Conference, 3–5 April, Canberra.
- White, A, Wong, W, Sureshkumar, P & Singh, G 2010, 'The burden of kidney disease in Indigenous children of Australia and New Zealand, epidemiology, antecedent factors and progression to chronic kidney disease', *Journal of Paediatrics and Child Health*, vol. 46, pp. 504–9.
- Wilkinson, R & Marmot, M 2003, *Solid Facts Second Edition*, WHO, Copenhagen.
- Wilkinson, RG 1999, 'Putting the picture together: prosperity, redistribution, health and welfare', in M Marmot and R Wilkinson (eds), *Social Determinants of Health*, Oxford University Press, U.S.
- Williams, C & Jacobs, A 2009, 'The impact of otitis media on cognitive and educational outcomes', *Medical Journal of Australia*, vol. 191, no. 9, pp. s69–s72.
- Willis, M 2010, *Community safety in Australian Indigenous communities: Service providers' perceptions* Research and public policy series no. 110, Australian Institute of Criminology, Canberra, <<http://www.aic.gov.au/publications/current%20series/rpp/100-120/rpp110.aspx>>.
- Wilson, T, Condon, JR & Barnes, T 2007, 'Northern Territory indigenous life expectancy improvements, 1967–2004', *Aust N Z J Public Health*, vol. 31, no. 2, pp. 184–8.
- Winnunga Nimmityjah Aboriginal Health Service 2007, *The social determinants of Aboriginal prison health and the cycle of Incarceration and their implication for policy*. .

- Wolfson, M, Kaplan, G, Lynch, J, Ross, N & Backlund, E 1999, 'Relation between income inequality and mortality: empirical demonstration', *BMJ*, vol. 319, no. 7215, pp. 953–5.
- Women's Health Queensland Wide Inc. 2008, *Teenage Pregnancy*, viewed 28 May 2008, <<http://www.womhealth.org.au/studentfactsheets/teenagepregnancy.htm>>.
- Wong, MD, Shapiro, MF, Boscardin, WJ & Ettner, SL 2002, 'Contribution of major diseases to disparities in mortality', *N Engl J Med*, vol. 347, no. 20, pp. 1585–92.
- Wood, L, France, K, Hunt, K, Eades, S & Slack-Smith, L 2008, 'Indigenous women and smoking during pregnancy: knowledge, cultural contexts and barriers to cessation', *Soc Sci Med*, vol. 66, no. 11, pp. 2378–89.
- Woodward, R 2003, *Families of prisoners: Literature review on issues and difficulties*, Occasional Paper 10, Australian Government Department of Family and Community Services, Canberra, <<http://www.facs.gov.au/internet/facsinternet.nsf/research/ops-ops10.htm>>.
- World Health Organisation 2004, *WHO Policy Perspectives on Medicines*, <<http://www.who.int/medicines/publications/policyperspectives/en/>>.
- World Health Organisation 2007, *Health Services Coverage Statistics: Antenatal care coverage*, viewed 23/5/2008, <<http://www.who.int/healthinfo/statistics/indantenatal/en/index.html>>.
- World Health Organization 2004, *Chronic suppurative otitis media: Burden of Illness and Management Options* WHO, Geneva, <[http://www.who.int/dietphysicalactivity/factsheet\\_benefits/en/index.html](http://www.who.int/dietphysicalactivity/factsheet_benefits/en/index.html)>.
- World Health Organization 2006, *Defining sexual health. Report of a technical consultation on sexual health 28–31 January 2002*, WHO, Geneva.
- World Health Organization 2008, *Global strategy on diet, physical activity and health: Benefits of physical activity*, WHO, Geneva, viewed 9 August 2008, <[http://www.who.int/dietphysicalactivity/factsheet\\_benefits/en/index.html](http://www.who.int/dietphysicalactivity/factsheet_benefits/en/index.html)>.
- World Health Organization 2010, *Water Related Disease*, World Health Organization, Geneva, viewed 2 December 2010, <[http://www.who.int/water\\_sanitation\\_health/diseases/en/](http://www.who.int/water_sanitation_health/diseases/en/)>.
- Yeates, K, Cass, A, Sequist, T, McDonald, S, Jardine, M, Trpeski, L & Ayanian, J 2009, 'Indigenous people in Australia, Canada, New Zealand and the United States are less likely to receive renal transplantation', *Kidney International*, vol. 76, no. 6, pp. 659–64.
- Yehuda, R, Halligan, SL & Grossman, R 2001, 'Childhood trauma and risk for PTSD: relationship to intergenerational effects of trauma, parental PTSD, and cortisol excretion', *Dev Psychopathol*, vol. 13, no. 3, pp. 733–53.
- Zhao, Y, Connors, C, Wright, J, Guthridge, S & Bailie, R 2008, 'Estimating chronic disease prevalence among the remote Aboriginal population of the Northern Territory using multiple data sources', *Australian and New Zealand Journal of Public Health*, vol. 32, no. 4, pp. 307–13.
- Zubrick, SR, Silburn, SR, Lawrence, DM, Mitrou, FG, Dalby, RB, Blair, EM, Griffin, J, Milroy, H, De Maio, JA, Cox, A & Li, J 2005, *Western Australian Aboriginal Child Health Survey Volume 2: The Social and Emotional Wellbeing of Aboriginal Children and Young People*, Curtin University of Technology and Telethon Institute for Child Health Research (TICHR), Perth, <[http://www.ichr.uwa.edu.au/waachs/publications/volume\\_two](http://www.ichr.uwa.edu.au/waachs/publications/volume_two)>.
- Zubrick, SR, Silburn, SR, Shepherd, C, De Maio, JA, Griffin, JA, Dalby, RB, Mitrou, FG, Lawrence, DM, Hayward, C, Pearson, G, Milroy, H, Milroy, J & A., C 2006, *Western Australian Aboriginal Child Health Survey Volume 3: Improving the Educational Experiences of Aboriginal Children and Young People*, Curtin University of Technology and Telethon Institute for Child Health Research (TICHR), Perth, <[http://www.ichr.uwa.edu.au/waachs/publications/volume\\_three](http://www.ichr.uwa.edu.au/waachs/publications/volume_three)>.
- Zwar, NA, Hermiz, O, Comino, EJ, Shortus, T, Burns, J & Harris, M 2007, 'Do multidisciplinary care plans result in better care for patients with type 2 diabetes?', *Aust Fam Physician*, vol. 36, no. 1–2, pp. 85–9.

## Technical Appendix

This appendix provides more detailed information on data sources, caveats and statistical methods.

### Aboriginal and Torres Strait Islander peoples and non-Indigenous population descriptors

'Aboriginal and Torres Strait Islander peoples' is the preferred descriptor used throughout the report. 'People' is an acceptable alternative to 'peoples' depending on context, but in general, the collective term 'peoples' is used. The 'Indigenous Australians' descriptor is inclusive of all Aboriginal and Torres Strait Islander groups, and is used where it is impractical to use 'Aboriginal and Torres Strait Islander peoples' (e.g. in tables, charts, figures, and where the text requires the term to be repeated a number of times).

The 'non-Indigenous' descriptor is used where the data collection allows for the separate identification of people who are neither Aboriginal nor Torres Strait Islander. The label 'other Australians' is used to refer to the combined data for non-Indigenous people, and those for whom Indigenous status was not stated.

### Age-standardisation

Age-standardisation controls for the effect of age, to allow comparisons of summary rates between two populations that have different age structures. Age-standardisation is used throughout this report when comparing Aboriginal and Torres Strait Islander Australians with non-Indigenous Australians for a range of variables where age is a factor e.g. health-related measures. The main disadvantages with age-standardisation are that the resulting rates are not the real or 'reported' rates for the population. Age-standardised rates are therefore only meaningful as a means of comparison, and may hide important differences in distribution within a population, such as rates for particular ages. Lastly, for age-standardisation to be effective the relationship between age and the variable needs to be approximately consistent between the two populations.

### Main Sources

The data in this report are mainly drawn from national data collections and surveys. These include the following:

**The National Aboriginal and Torres Strait Islander Social Survey (NATSISS):** The 2008 NATSISS was conducted between August 2008 and April 2009. Information was collected by personal interview from approximately 13,300 Aboriginal and Torres Strait Islander Australians; 5,500 aged 0–14 years and 7,800 aged 15 years and over throughout Australia, including those living in remote areas. The NATSISS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians. The NATSISS uses the standard Indigenous status question to identify Indigenous households from which the sampling process is then undertaken. Information recorded in this survey is 'as

reported' by respondents, or from child proxies (usually parents), on behalf of selected children aged 0–14 years. Data may differ from that which might be obtained from other sources or by using other collection methodologies. Responses may also be affected by imperfect recall or individual interpretation of survey questions. Selected non-Indigenous comparisons are available from the 2007–08 National Health Survey and a range of other surveys. Further details can be obtained from ABS cat. no. 4714.0 ABS 2009. Time-series comparisons are available through from the 2002 NATSISS and the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS).

**National Aboriginal and Torres Strait Islander Health Survey (NATSIHS):** The 2004–05 NATSIHS included a sample of 10,439 Aboriginal and Torres Strait Islander Australians. This was considerably larger than the supplementary Indigenous samples in the 1995 and 2001 National Health Surveys (NHS) (3,681 in 2001). The NATSIHS sample was specifically designed to select a representative sample of Aboriginal and Torres Strait Islander Australians and thus overcome the problem inherent in most national surveys i.e. small and unrepresentative Indigenous samples. Information recorded in this survey is 'as reported' by respondents. Responses may be affected by imperfect recall or individual interpretation of survey questions. Any data that are self-reported are also likely to underestimate circumstances about which the respondent is unaware, or may be reluctant to report e.g. certain health conditions, weight, drug use. Computer assisted interviewing (CAI) was used in non-remote areas and paper forms were used in remote areas. Selected non-Indigenous comparisons are available through the National Health Survey (NHS). The NHS was conducted in major cities, regional and remote areas, but very remote areas were excluded from the sample. Further information on NATSIHS data quality issues can be found in the national publication ABS cat. no. 4715.0 ABS 2006b.

**Census:** The Census uses the standard Indigenous status question and it is asked for each household member.

There are 4 principal sources of error in Census data: respondent error, processing error, partial response and undercount. Quality management of the Census program aims to reduce error as much as possible, and to provide a measure of the remaining error to data users, to allow them to use the data in an informed way.

In 2006, the ABS enhanced the sample for the Post-Enumeration Survey to include remote areas. The measured undercount for Indigenous Australians was 11.5%.

The Census form may be completed by one household member on behalf of others. Incorrect answers can be introduced to the Census form if the respondent does not understand the question or does not know the correct information about other

household members. Many of these errors remain in the final data.

The processing of information from Census forms is now mostly automated. Quality assurance procedures are used during Census processing to ensure processing errors are kept at an acceptable level. Sample checking is undertaken during coding operations, and corrections are made where necessary.

When completing their Census form, some people do not answer all the questions which apply to them. In these instances, a 'not stated' code is allocated during processing, with the exception of non-response to age, sex, marital status and place of usual residence. These variables are needed for population estimates, so they are imputed using other information on the Census form, as well as information from the previous Census.

Other Census data issues relate to the accuracy of the Census count itself, e.g. whether people are counted more than once, or are undercounted.

The significant volatility in Indigenous census counts and the quality of data on births, deaths and migration of Indigenous persons do not support the use of the standard approach to population estimation. Due to the inherent uncertainties in estimating the Indigenous population, estimates are referred to as experimental and data which use these estimates should be interpreted with caution (e.g. life expectancy estimates, mortality rates). Given these uncertainties, changes in health outcomes such as mortality rates are difficult to assess over the long-term.

Following each Census, assumptions are made about past levels of mortality to produce back cast population estimates.

A comparison of mortality rates using 2001 Census-based estimates and 2006 Census-based estimates produce different results. A number of investigations were undertaken to seek to understand the results and recommend options for future reporting on trends. This analysis found significant problems with the 2001 based estimates, particularly with the older age groups. In this report, trend analysis is based on 2006 Census estimates of back cast and projections (Series B).

In 2011 the ABS will implement improvements to Census Indigenous enumeration procedures and will expand the scope of the Census Post Enumeration Survey to include very remote areas and discrete Indigenous communities.

**Community Housing and Infrastructure Needs Survey (CHINS):** The CHINS collects data about discrete Indigenous communities. In 2006, a total of 1,187 communities were surveyed, with a combined usual population of 92,960 Aboriginal and Torres Strait Islander peoples or 18% of the total estimated Indigenous population. The survey was also conducted in 2001 and 1999. The data are collected from key personnel in Indigenous communities and housing organisations knowledgeable about housing and infrastructure issues. This collection is not a population survey.

**National Perinatal Data Collection:** Birth notification forms are completed for all births of 20 weeks or more gestation, or a birthweight of 400 grams or more. The Perinatal National Minimum Data Set includes all births in Australia in hospitals, birth centres and the community. The state/territory of birth is provided for all births in each state/territory. State-level data are based on place where birth occurred, not place of usual residence. Complicated pregnancies from surrounding New South Wales may be referred to the Australian Capital Territory and hence there may be poorer outcomes attributed to Australian Capital Territory births. Because of this and the small numbers involved, care should be taken in interpreting data from the Australian Capital Territory (Laws & Sullivan 2004a9). A standard data item for Indigenous status is specified in the Perinatal National Minimum Data Set. However, at this stage not all states and territories use this standard wording for the Indigenous status question on their forms. This impacts on the quality and comparability of the data collected (ABS & AIHW 2005). All jurisdictions collect Indigenous status of the mother for each baby. Work is underway to include the Indigenous status of the baby in the Perinatal National Minimum Data Set. Studies in Australia linking perinatal data with birth registration data and hospital admissions show that Indigenous data are under-reported (Taylor L & Lim K 2000; Comino EJ, et al 2007; Kennedy B, et al 2009). In 2007, the AIHW completed an assessment of the quality of Indigenous status information in perinatal data in each state and territory. This involved a survey which was sent to the midwifery managers across Australia to determine how many hospitals in each jurisdiction obtain Indigenous status information of mothers giving birth from admission records and how many collect this information independently. The assessment also involved analysis of the variability in the number and proportion of mothers recorded as Indigenous in the perinatal data collection over time and across jurisdictions for the period 1991–2004. The outcomes of this assessment showed that Indigenous status data from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory are suitable for trends analysis and national reporting. Perinatal data from Tasmania, although improving, were deemed to be of insufficient quality. Although the most recent data in the Australian Capital Territory were of publishable quality, the data were not yet of sufficient stability to support trends analysis (AIHW: Leeds KL et al. 2007). All jurisdictions are working towards improving the quality of the Indigenous status data. States and Territories have agreed to improve Indigenous data collection procedures in key data collections including implementation of the *Best Practice Guidelines for the collection of Indigenous status in health data sets*. Data on Indigenous status are not reported for Tasmania prior to 2005 as the not stated category for Indigenous status was included with the non-Indigenous category. The not stated category for Indigenous status was high for Tasmania (around

75%) and low for the other jurisdictions, not more than 0.5% (Laws & Sullivan 2004b). The 'not stated' category for birthweight was found to be small nationally in the evaluation of the Perinatal National Minimum Data Set. Therefore, the exclusion of not stated for birthweight will not have a significant impact on these data.

AIHW will work with the States and Territories in the development of an enhanced Perinatal National Minimum Data Set to be operational by 2013. This will include nationally consistent data items on antenatal care, smoking and alcohol use during pregnancy, and Indigenous status of the baby.

**National Hospital Morbidity Data:** This is a data collection including all completed admitted patient episodes in public and private hospitals across Australia. The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and differing levels and patterns of service delivery. Some jurisdictions have slightly different approaches to the collection and storage of the standard Indigenous status question and categories in their hospital collections. The not stated category is missing from several collections. The incompleteness of Indigenous identification means the number of hospital separations recorded as Indigenous is an underestimate of hospitalisations involving Aboriginal and Torres Strait Islander people. For several years, Queensland, South Australia, Western Australia and the Northern Territory reported that Indigenous status in their hospital separations data was of acceptable quality (AIHW 2007). Between 2006 to 2008, the AIHW completed an assessment of the level of Indigenous under-identification in selected public hospitals in all states and territories. Results from this assessment indicate that New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory have adequate Indigenous identification (20% or less overall under-identification of Indigenous patients) in their hospital separations data. It has therefore been recommended that reporting of Indigenous hospital separations data be limited to aggregated information from New South Wales, Victoria, Queensland, Western Australia, South Australia and the Northern Territory. Tasmania and ACT data are presented at the State/Territory level and should be used with caution, but they are not aggregated with the other 6 jurisdictions. AIHW will commence another audit process with audits in all states and territories and invite full participation of jurisdictions in the process to assess improvements in the data quality.

Interpretation of results should take into account the relative quality of the data from the jurisdictions.

The proportion of the Indigenous population covered by the 6 jurisdictions is 96% (ABS & AIHW 2010). Hospitalisation data for these 6 jurisdictions should not be assumed to represent the hospitalisation experience in the Australian Capital Territory and Tasmania.

From the AIHW study it was possible to produce correction factors for the level of Indigenous under-identification in hospital data at the national level.

**National Mortality Database:** The count of Indigenous deaths for Indigenous Australians can be influenced by the accuracy of identification of Indigenous deaths, late registration of deaths, as a result of coronial inquiry, and changes to death forms and/or processing systems. Due to the small size of the Indigenous population these factors can significantly impact on trends over time and between jurisdictions.

All jurisdictions comply with the standard wording for the Indigenous status question and categories for their death registration forms. However, Victoria, South Australia, the Northern Territory and the Australian Capital Territory all have slightly different wording to the national standard for the instruction on those with both Aboriginal and Torres Strait Islander origin (ABS & AIHW 2005).

Almost all deaths in Australia are registered. However, the Indigenous status of the deceased is not always recorded/reported and/or recorded correctly. The incompleteness of Indigenous identification means the number of deaths registered as Indigenous is an underestimate of deaths occurring in the Aboriginal and Torres Strait Islander population (ABS 1997). As a result, the observed differences between Indigenous and non-Indigenous mortality are underestimates of the true differences.

While the identification of Indigenous Australians in deaths data is incomplete in all state and territory registration systems, 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia and the Northern Territory) have been assessed by the ABS and the AIHW as having adequate identification. Longer term mortality trend data are limited to 3 jurisdictions (Western Australia, South Australia and the Northern Territory) with 10 years of adequate identification of Indigenous deaths in their recording systems. The quality of the time-series data is also influenced by the late inclusion of a not stated category for Indigenous status in 1998. Prior to this time, the not stated responses were probably included with the non-Indigenous. The ABS calculated the identification rate of Indigenous deaths for the period 2006–2007 through data linkage between the Census and death registration records to examine differences in reporting of Indigenous status across the two datasets (ABS 2009b).

**Table 74 – Indigenous deaths identification rate, state/territory and Australia, 2006–2007**

State/territory	Identification Rate
NSW	0.87
Qld	0.94
WA	1.11
NT	1.09
Vic, SA, Tas, ACT, Overseas territories	0.65
Australia	0.92

Source: ABS 2009b

As part of the data development work funded under the National Indigenous Reform Agreement (NIRA) the ABS will link Census records with death registration records to assess the level of identification again in 2011.

States and Territories have agreed to the implementation of the *Best Practice Guidelines for the collection of Indigenous status in health data sets*.

**BEACH.** The Bettering the Evaluation And Care of Health (BEACH) survey collects information about consultations with GPs, including GP and patient characteristics, patient reasons for the visit, problems managed and treatments provided. The survey has been conducted annually since April 1998. Information is collected from a random sample of approximately 1,000 GPs from across Australia each year. Each GP provides details of 100 consecutive consultations.

Although the questionnaire contains an Indigenous identifier, it is unknown whether all GPs ask their patients this question. In a sub-study Supplementary Analysis of Nominated Data of approximately 9,000 patients, it was found that if the question on Indigenous status was asked within the context of a series of questions about origin and cultural background, 1.3% identified as Indigenous. This is twice the rate routinely recorded in BEACH, indicating that BEACH may under-estimate the number of Indigenous consultations.

Under the NIRA, governments have agreed to the implementation of the *Best Practice Guidelines for the collection of Indigenous status in health data collection*, which include recommended strategies for local service providers such as GPs and practice nurses to improve Indigenous identification data.

The Commonwealth's contribution to the National Partnership Agreement on Closing the Gap in Indigenous Health Outcomes is an \$805.5 million Indigenous Chronic Disease Package, which includes a number of measures that encourages GPs to identify their Aboriginal and Torres Strait Islander clients. Accredited general practices and Indigenous health services are eligible for financial incentives when they sign-on to the new Practice Incentives Program Indigenous Health Incentive (IHI), obtain consent

from their Aboriginal and Torres Strait Islander clients to be registered for chronic disease management through the IHI, and provide a targeted level of care for each registered patient. Participation in the PIP IHI also provides eligibility for other initiatives under the Indigenous Chronic Disease Package such as the Care Coordination and Supplementary Services Program.

#### **Data development**

There are well documented problems with the quality and availability of data about Aboriginal and Torres Strait Islander health issues. These limitations include the quality of data on all key health measures including mortality and morbidity, uncertainty about the size and composition of the Indigenous population and a paucity of available data on other health-related issues such as access to health services.

The following information has been provided by the jurisdictions to provide information on action being undertaken in relation to data collection.

#### **Australian Government**

The Australian Government is committed to improving the availability of good quality Indigenous health data. Through the National Advisory Group on Aboriginal and Torres Strait Islander Health Information Development (NAGATSIHID), the Australian Government is actively engaged with key stakeholders, State and Territory Governments, the ABS and the AIHW to improve Indigenous health statistics. The Health Performance Framework has established priorities for data development linked to policy objectives.

In July 2009, COAG committed to a range of activities to improve the quality of Indigenous data, including a Commonwealth commitment of \$46.4 million over four years to June 2013 under the NIRA (COAG 2008). This work covers the key datasets required for NIRA Indigenous reporting eg mortality, morbidity, perinatal data and population estimates. Jurisdictions have committed to undertaking the work outlined under Schedule F to the NIRA, in liaison with the Australian Institute of Health and Welfare (AIHW), the Australian Bureau of Statistics (ABS).

These data development projects include:

ABS will implement improvements to Census Indigenous enumeration procedures and will expand the scope of the Census Post Enumeration Survey to include very remote areas and discrete Indigenous communities.

ABS and AIHW to work in partnership with jurisdictions to 'lead analysis of the level of Indigenous identification in key datasets, including a baseline report and ongoing five-yearly studies to monitor identification over time'. From this analysis, the ABS and AIHW will provide a report in 2010 with recommendations about strategies for improving identification, and methods for assessing coverage rates.

States and Territories have agreed to adopt the standard ABS Indigenous status question and recording categories on data collection and information systems for key data sets.

States and Territories have agreed to improve Indigenous data collection procedures in key data collections including implementation of the Best Practice Guidelines:

The report on Best practice guidelines for the collection of Indigenous status in health data collections was published by the AIHW on 8 April 2010.

It is expected that jurisdictions will implement the guidelines in their different data sets during the period 2010 to 2012. Evaluation of implementation will begin in 2012–2013 and will be undertaken every 3 years.

The AIHW's National Indigenous Data Improvement Support Centre (NIDISC) has been established to support jurisdictions and service providers to implement the guidelines.

States and Territories have agreed to develop and implement a program to raise the Indigenous community's awareness about the importance of identifying as Indigenous.

ABS will link Census records with death registration records to assess the level of Indigenous identification.

The AIHW and ABS in partnership with the jurisdictions will lead the development of national best practice guidelines for data linkage and an examination of current and planned data linkage work relevant to Indigenous identification.

AIHW will work with the States and Territories in the development of an enhanced Perinatal National Minimum Data Set.

The expanded dataset is expected to be operational by 2013.

AIHW is developing a business case for the implementation of a nationally consistent pathology data collection, including Indigenous status.

The Commonwealth is working with the States and Territories to develop a national Key Performance Indicator (KPI) framework for Indigenous primary health care services.

The ABS has developed an ongoing 6-yearly Indigenous health survey program (with additional funding from the Department of Health and Ageing). They have also funded an ongoing 6-yearly Indigenous social survey program. The Community Housing and Infrastructure Needs Survey has been run every 5 years in conjunction with the 2001 and 2006 censuses, with funding from the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs and OATSIH.

The ABS continues to work on the Indigenous Administrative Data Project. This project aims to improve the level and quality of Indigenous identification in key administrative data sets held and

managed by Australian governments. In this capacity, and complementing the COAG-funded activities the ABS has been conducting various engagement and education activities; liaising with government departments about best practice in Indigenous data collection, and conducting data linkage programs to assess and improve Indigenous identification status.

The ABS continues to utilise an Indigenous Community Engagement Strategy to improve the collection and dissemination of statistics, in partnership with Indigenous communities. Through the use of Indigenous Engagement Managers in ABS offices across Australia, the ABS is building relationships with communities to improve the quality and relevance of Aboriginal and Torres Strait Islander statistics.

More information on ABS key directions in Aboriginal and Torres Strait Islander statistics can be obtained from ABS cat. no. 4700.0 ABS 2007.

Since the previous report, the AIHW has finalised reports on the assessment of the quality of Indigenous identification in labour force data collections, the National Cancer Registry, and the National Diabetes Register.

AIHW has redeveloped a web portal on Indigenous identification in the community services which provides information and resources related to improving Indigenous identification in health, community services and housing data sets.

A Voluntary Indigenous Identifier was introduced into the Medicare database from November 2002. By 1 November 2010, 289,350 people had identified as Aboriginal, Torres Strait Islander, or both. Work is underway to make use of this potentially very valuable data source.

As part of the *Healthy for Life* program, the AIHW is leading the refinement of indicators, data standards and analyses and reporting back to all services involved in the *Healthy for Life* program (about 100 services). The main areas covered by the current indicators and reports are maternal and child health and chronic disease management.

A project was undertaken by the AIHW in collaboration with the Centre for Health Research in Criminal Justice (CHRCJ), located within NSW Justice Health, as well as other stakeholders, to develop a national prisoner health data set to enable the monitoring of the health of prisoners. The project has involved an audit of current data collection on prisoner health in prisons; the development of a range of policy-relevant draft indicators for prisoners mapped to the National Health Performance Framework; and the development of detailed specifications for the data supporting these measures. Further AHMAC funding was provided to support the work program for 2008–09, including a national data collection. In 2010, the AIHW has released *The health of Australia's prisoners 2009* report. This report represents a major milestone on the road to a national data collection, including valuable data on

the health of Aboriginal and Torres Strait Islander prisoners.

### **Australian Capital Territory**

The ACT Department of Health continue to undertake a number of data quality improvement activities regarding Aboriginal and Torres Strait Islander data. These include:

- ACT Pathology project. The under-identification of Aboriginal and Torres Strait Islander patients in administrative data leads to a biased estimation of the true use of health services, which impacts on estimates of health expenditures and affects accurate planning and delivery of health services to Aboriginal and Torres Strait Islander people. ACT Health has entered an Aboriginal and Torres Strait Islander identifier as a mandatory field on ACT Pathology forms. Training has been conducted with Pathology staff on how best to ask clients to identify and a handout and brochure that encourages clients to identify has been made available in waiting areas. Improving identification on pathology forms has flow-on effects of improving identification in other data sets e.g. ACT Cancer Registry, Communicable Disease Register and hospital data.

- ACT Health PMI Hub project. To improve quality of Aboriginal and Torres Strait Islander identification in key vitals and administrative data sets, ACT Health has commenced collection of the Aboriginal and Torres Strait Islander identifier within the Patient Master Index (PMI), which will enable the identification status of a person to be shared throughout ACT Health IT systems. ACT Health is working to ensure that adherence to standards ensuring ethical and privacy considerations are taken into account.

- Data linking project. The aim of this project is to ascertain the level of under-identification of Aboriginal and/or Torres Strait Islander patients in ACT Health administrative datasets. The person's identification status data from the local Aboriginal Medical Service will be compared to the same person's status recorded in ACT Health administrative data. Ethics approval has been obtained and ACT Health is currently loading data sets into the master linkage key to proceed with linkages.

- Identification information and awareness program. ACT Health is developing a specific information and awareness program to support and encourage ACT Health staff to identify Aboriginal and Torres Strait Islander clients and Aboriginal and Torres Strait Islander patients to identify. The program was piloted with Pathology staff and included staff training on how best to ask clients to identify and providing handouts and brochures that encourage clients to identify in waiting areas.

### **New South Wales**

In New South Wales, Indigenous status is collected in a range of health datasets, including the NSW Midwives Data Collection (MDC), the NSW Admitted Patient Data Collection (APDC), the NSW Emergency

Department Data Collection (EDDC), the Non-admitted Patient Data Collection, the NSW Notifiable Conditions Information Management System (NCIMS), the NSW Health Survey Program, and the NSW Central Cancer Registry (CCR).

The asking of, and recording of, Indigenous status is mandatory for the core data collections listed above. The NSW Health 2005 policy (PD2005\_547), which is a reissue of a 2002 Policy, on identifying Indigenous status is mandatory in all facilities and Area Health Services. This policy is being reviewed and new projects aimed at improving the Aboriginal identification are being planned for implementation in 2011, 2012 and 2013 as part of the National Partnership Agreement Closing the Gap in Indigenous Health Outcomes.

A 2007 survey undertaken by NSW Health of nearly 3,000 admitted patients in 20 hospitals drawn from metropolitan, inner regional, outer regional and remote locations found New South Wales admitted patient data are 89% correct in relation to Indigenous status, ranging from 82% in metropolitan hospitals to 100% in remote hospitals. This survey was repeated in 2010. As at November 2010 the analysis has not yet been finally completed, however, the preliminary figures show a result similar to the 2007 survey.

In 2009 the NSW Department of Health initiated a 2-year project to investigate the feasibility of using record linkage to help correct the under-reporting of Aboriginal and Torres Strait Islander peoples on routinely collected NSW Health datasets. The project uses linked records of the following data collections: APDC, EDDC, MDC, the Registry of Births Deaths and Marriages (RBDM) birth and death registration data, the Australian Bureau of Statistics (ABS) Mortality data and the CCR. In total the linked dataset contains over 29.5 million records for over 6.6 million people. The aim of the project is to develop algorithms to enhance the reporting of Aboriginal and Torres Strait Islander Peoples for each data collection using information from the other linked datasets.

A range of communicable diseases are notified under the Public Health Act (1991) and captured in the NCIMS. The completeness of recording of Indigenous status in for each of these diseases in NCIMS varies and is influenced by the degree of public health follow-up of cases of each of the communicable diseases.

The NSW Department of Health is currently undertaking a pilot project linking the NCIMS data with data from the MDC, APDC and RBDM birth and death registration data. The aim of the project is to improve recording of Indigenous status through updating the data field, from records identified through the linkage, in an epidemiologic dataset. The project has received approval from the NSW Population & Health Services Research Ethics Committee and the Aboriginal Health & Medical Research Council Ethics Committee. Data linkage is now complete and analysis of the linked data is underway.

## **Northern Territory**

The Department of Health has rolled out a number of e-health initiatives across the Northern Territory that will have major implications for the use and collection of data. These improvements assist in the provision of seamless care for health consumers. Brief outlines for these initiatives are as follows:

eHealthNT Shared Electronic Health Record (SEHR) – as at 31 December 2010 the SEHR ensures that access to important health information is available with consent 24 hours per day, 7 days per week for 37,500 patients (including 67% of Indigenous people living in rural and remote communities in the NT) at any of the 104 participating health centres (including correctional facilities), GP clinics and public hospitals. The SEHR is used by over 2500 authorised clinical users, every month sending >58,500 healthcare event summaries (up from >45,000 in 09/10) and accessing on >10,000 occasions (up from >3,500 in 09/10), as part of providing healthcare. The SEHR is proving to be of major benefit for mobile populations, and people from rural and remote accessing services in regional towns or cities, by ensuring up-to-date information is easily accessible at the point of care, whether that is at a remote health centre operated by the Department or an Aboriginal Community Controlled Health Service or at a public hospital in a regional or major urban centre.

Secure Electronic Messaging Service SEMS – ensures that specific information regarding clinical referrals can be communicated electronically securely between service providers. This assists in a seamless care in relation to managing transition from GPs/Health Centres to appointments with specialists or hospital outpatient clinics. Electronic medications and discharge summary information is forwarded by hospitals to communities of residence, so that information is available locally for consumers on their return to country.

Primary Care Information System (PCIS)—in 2009–10 the Department completed the rollout of PCIS to the 22 remaining remote health centres, making a total of 54 Departmental health centres transitioned to using fully electronic health records (eliminating the use of paper records) integrated with the eHealthNT SEHR service and SEMS for eReferrals and eDischarge. As at 31 December 2010 PCIS had expanded its coverage to include health services in the two (2) NT Prisons and one (1) Juvenile Detention facility. PCIS includes a number of tools to assist in patient care, eg automatic alerts for service providers about patients to be recalled for follow-up treatments/services, providing a technological advantage to making service delivery easier. PCIS facilitates extensive coded clinical data collection for each service episode with the capacity to capture all required national Aboriginal and Torres Strait Islander health performance indicator data.

Aboriginal Health Key Performance Indicator (AHKPI) project – initiated by the Aboriginal Health Forum (AHF) to develop to structure a collection and reporting of 19 agreed Key Performance Indicators

that cover both DHCS Remote Health Centres and Aboriginal Community Controlled Health Services. The project is managed cooperatively by the NTG, the Department of Health and Ageing and AMSANT under the auspices of the AHF Banner and maintains the NT Aboriginal Health KPI collection covering the Government and Non-Government sectors to improve the quality and robustness of data for use in service planning and management through continuous quality improvement.

In 2010–11 the Department commenced the Health eTowns Program jointly funded with the Australian Government under the Digital Regions Initiative, which will develop the following over the next two (2) financial years, 10/11 and 11/12:

Telehealth Project – a Telehealth network supporting remote service delivery in 17 of the 20 Territory Growth Towns, making it possible for patients and clinicians to access the expertise of specialists and allied health professionals in their community and supporting patient recovery by enabling patient in hospital to remain connected with their families in remote communities.

## **Queensland**

Over a two year period from 2009 to 2011, Queensland Health has undertaken a project to improve the identification of Aboriginal and Torres Strait Islander people accessing services. The initial aim was to improve identification rates in admitted patient data in public hospitals. Synthetic estimate of the proportion of patients identifying as Aboriginal and/or Torres Strait Islander in admitted patient data is used as a key performance indicator in District Chief Executive Officer service level agreements. The state-wide project focuses on understanding issues and implementing solutions at both state-wide and local level. The state-wide project has analysed cultural, systems and administrative influences on identification. The project's approach is to develop state-wide resources including audit tools, cultural and educational material, information technology solutions, policy and procedures. The project also resourced and supported a number of projects within Health Service Districts. At the time of writing, most Health Service Districts had, or were in the process of undertaking local projects aimed at understanding the cultural and administrative barriers to patient attendance and identification. Local solutions are in the process of development and implementation to address local findings.

The assessment of the Queensland prevalence of risk factors such as smoking, under consumption of fruit and vegetables, alcohol consumption and physical inactivity will be obtained from the 2011 Australian Health Survey. No information is available for risk factor prevalence in sub-state areas.

The burden of disease and injury of Indigenous Queenslanders has been reassessed in 2009 and released within a suite of reports on the internet.

Queensland Health is committed to improving Indigenous identification in communicable disease reporting. The Communicable Diseases Branch of Queensland Health routinely monitors Indigenous identification completeness for notifiable conditions; and is participating in national initiatives, through the Communicable Diseases Network Australia (CDNA), to bring about improvements.

Queensland hospital separations data are known to have more complete indigenous identification than the Queensland Notifiable Conditions System (NOCS). In 2007 a large data linkage exercise, which matched records from disease notifications with an extract of records from hospitalisations within Queensland, was undertaken. Notifications in NOCS with no Indigenous status were updated with the Indigenous status from the hospital record. However, this resulted in only a seven percent improvement in Indigenous status completeness in NOCS. More efficient ways to improve indigenous identification completeness need to be developed and will be progressed in Queensland Health.

### **South Australia**

#### *Improving Aboriginal Identification*

ABS has been funded through SA Health's COAG investment to develop a training package for recording the 'Indigenous identifier' in health data collections; as well as training staff who manage data and/or perform data entry about the importance of collecting the Indigenous identifier information; the correct way of asking the standard question and recording the response; and strategies for dealing with special circumstances, such as determining the Indigenous status of children and patients who are unconscious. The training targets frontline staff working across hospital sites in metropolitan Adelaide and regional communities, as well as various mainstream primary care services throughout SA. This training approach has been informed by the AIHW's Best Practice Guidelines for Collecting Indigenous Status. SA Health has also indicated support to feed its initiative into the AIHW and ABS National Data Linkage Project on Indigenous identification. The Department continues to operate a case mix payment system which applies a 30% loading to Indigenous hospital separations, and this provides an incentive for improved Indigenous identification.

SA Pathology does not currently provide a field for Indigenous status on their pathology request form. The Department of Health and SA Pathology are working together to address this issue: a project scope is under development, which includes a review of downstream impacts on affected registries such as Cancer and modifications to SA Pathology's information and technology system to record and receive this information. Importantly, SA Pathology will be taking a legislative approach to enable amendments to their Pathology request forms to include Indigenous status; and 'Aboriginal Identifier' training for relevant staff in SA Pathology will follow. SA Pathology (trading as IMVS Pathology) provides a comprehensive

diagnostic pathology service delivered via a network of 19 state-wide laboratories and more than 50 patient collection centres. It is the sole provider of pathology in the Public Hospital sector and a major provider to the private GP and Specialist market.

In 2007, SA participated in a national Audit of Indigenous Identification in Public Hospitals project, coordinated by the AIHW. Surveys were conducted in metropolitan and regional hospitals across SA, and the results contributed to reports from other jurisdictions to calculate adjustment factors to be applied to hospital separations data for Expenditure on Health reporting. A follow-up audit is being conducted in 2011. The audit will independently verify the Indigenous Status of a sample of patients in selected metropolitan and country hospitals through face to face interviews. The results will be matched against data held in hospital systems, to assess the quality of identification by hospital staff. More than 1,500 patient interviews will be conducted during the audit. Results from the audit will be used to determine correction factors for adjusting national Indigenous performance indicator data for under identification.

#### *Aboriginal Life Expectancy Measures*

SA Health is required under the South Australian Strategic Plan (SASP) and under COAG targets, to monitor Aboriginal life expectancy. However, ABS has not been able to produce Aboriginal life expectancy figures for smaller jurisdictions such as South Australia due to small population numbers of Aboriginal people in the 2006 Census. SA Health has been informed of a project being undertaken by AIHW on "An Enhancement Mortality Database for Estimating Indigenous life expectancy: A feasibility study of South Australia". The AIHW study focuses on a one point time period for estimate figures for SA Aboriginal life expectancy at birth for the period 2001–2006. The findings are currently in draft form and not for circulation. Before knowing the AIHW approach SA Health has been undertaking its own project on Aboriginal Life Expectancy Measure by using life table material from the Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples 2003 study with a view to developing and refining work using linked data. The 'burden of disease framework' has provided SA Health the ability to provide some level of life expectancy estimates for Aboriginal South Australians at state and smaller area where possible (South Australian Department of Health, 2005). Four important developments have occurred since May 2010:

- SA Health internally circulated initial healthy life expectancy estimates for Aboriginal South Australians. These estimates were based on the Burden of Disease and Injury in Aboriginal and Torres Strait Islander Peoples 2003 and The burden of disease and injury in Australia, 2003 (AusBoD) which provide a base for the SA Burden of Disease (SABoD) Series. The estimates inform Target T2.5 "Aboriginal healthy life expectancy" in the SA

Strategic Plan (SASP). The Plan and its targets are currently being reviewed.

- AIHW completed a feasibility study into data linkage methods that facilitate the calculation of South Australia level Indigenous life expectancy estimates (AIHW 2010e). While the estimates are not publicly available yet, they include a 95% confidence range of values for life expectancy at birth. The SABoD estimates are toward the upper end of the range in the AIHW report.
- SA NT DataLink is now operational and provides a statistical data linkage service within SA. Current, relevant de-identified datasets available include public hospital inpatient records and most metropolitan public hospital emergency departments. There are also good prospects of death and other important collections becoming available to that process. This has potential to become a sustainable environment for accessing data relevant to healthy life expectancy calculation. The possibility of imputation of Indigenous identification across linked datasets is a particular strength of data linkage projects.
- The first SA Aboriginal Health Survey is being undertaken. The survey includes questions on health risk factors, health conditions and health related quality of life. There are two major parts of the ongoing healthy life expectancy work in South Australia: mortality (life expectancy) and morbidity (health related quality of life, or the amount and severity of illness experienced). The following summarises the particular activities underway and other pathways available to support continuing work in these areas.

#### *Mortality - Life Expectancy*

To improve identification of Aboriginal deaths in SA, a revised proposal to link South Australian public hospital inpatient records with death records through SA NT DataLink is anticipated in the second half of 2011. This is contingent on the data collections becoming available and the longer-term nature of the statistical linkage system developed. This approach would provide a means by which SA can be more self-reliant in monitoring Aboriginal life expectancy (both across time and within the state). This work is being pursued in the context of a wider, routine approach to monitoring population health outcomes using a burden of disease framework to provide for greater consistency and comparability, and as an important intellectual base for jurisdiction level work. The coaching and support of those involved in the AusBoD Study has been integral to SA carrying out current activities.

#### *Morbidity - the amount and severity of illness*

The availability of population morbidity estimates among Aboriginal South Australians via SABoD is a significant step but also an area requiring ongoing improvement. The SA Aboriginal Health Survey will provide relevant, localised, general information about the amount, experience and distribution of morbid conditions and risk factors among Aboriginal people. Some questions also measure functional health status.

Each of these information areas can contribute to health expectancy calculations (applying methods from Nusselder & Looman, 2004; Committee on Leading Health Indicators for Healthy People, 2011). The existing work and new survey results provide an opportunity to examine how the two sources of information harmonise, or how consistent they are with each other, in describing the amount and severity of illness experienced by Aboriginal South Australians. SA Health is investigating ways to ensure that its local level work does not diverge from the national work previously begun as it could potentially lessen the comparability of results from other jurisdictions. As with the mortality work, it would be preferable if analysis and development was part of a national program. Such an approach would add to the scientific rigour of the work and its relevance to policy applications and supporting decision-making.

#### *Data Sets*

Having identified the need for improvements in the way that the health sector describes and measures primary health care activities, SA has established an Out-of-Hospital Services Minimum Data Set, which includes the National Data Dictionary definition of Indigenous status, represents the agreed core elements that are collected for describing out-of-hospital care services in SA. A central repository of out-of-hospital services data has been established covering: community health, community mental health, public dental services, drug and alcohol services, child and family services, district nursing services, palliative care. It is now possible to track the use of the above services by Indigenous people.

#### *Data Sharing*

The Aboriginal Health Council of SA (AHCSA) has been funded for data sharing initiatives under SA Health's COAG investment. The spirit of the funding agreement is to enhance and influence cross sectoral Aboriginal Health planning and priority setting through data sharing between the Aboriginal community controlled health sector and SA Health. AHCSA is the peak community body on Aboriginal health matters in South Australia and provides secretariat services to ten member Aboriginal Community Controlled Health Organisations (ACCHOs). AHCSA's funding enables the agency to undertake two key data projects, the first being the engagement of a Patient Information Management System's (PIMS) Officer for the term of the COAG National Partnership Agreement. The AHCSA project officer is responsible for developing a set of standard PIMS procedures and complementary templates to support standardisation and consistency of data across the Aboriginal Community Controlled Health Sector. AHCSA's second initiative involves the engagement of a short-term consultant to conduct Data Sharing Needs Analysis across the Aboriginal Community Health Sector. AHCSA will take lead in facilitating and negotiating the participation of ACCHOs in data sharing with SA Health. The consultant will have the

responsibility of identifying and formalising an appropriate set of data for collection across ACCHOs. The AHCSA consultant has responsibility for:

- Consulting with relevant SA Health personnel to ascertain what health-related data they consider would be useful to obtain from ACCHOs (and for what reasons), and what data SA Health would be amenable to provide to ACCHOs (and for what reasons);
- Consulting with relevant personnel from ACCHOs to ascertain what health-related data they consider would be useful to obtain from SA Health (and for what reasons); and what data ACCHOs would be amenable to provide to SA Health (and for what reasons);
- Monitoring national and state developments in the area of e-Health, on AHCSA's behalf, and prepare a short e-Health situational analysis for AHCSA;
- Preparing a report on potential data-sharing arrangements between SA Health and ACCHOs.

### **Tasmania**

The collection of Indigenous status is mandatory in core Tasmanian health data collections such as admitted, non admitted and perinatal data collections. Notwithstanding this, there is room for improvement and Tasmanian Government agencies are working with Australian Government agencies to improve Indigenous identification in key administrative datasets. Whilst this work is focussing on hospital and deaths administrative data, it will also address improvements to a broad range of data collections. Implementation of the Best Practice Guidelines for the collection of Indigenous status in health data sets forms part of this body of work.

The Department of Health and Human Services has employed an Aboriginal Health Development Officer. This position sits within the Aboriginal Health Unit in Population Health Priorities. One of the requirements of this position is to develop and deliver Cultural safety training. One component of this training package focuses on improving the collection of Indigenous data throughout the Agency. This training package has been successfully delivered since June 2006.

### **Victoria**

#### *Data collection*

In Victoria, Aboriginal status is a mandatory field in all major health datasets. The Victorian Admitted Episodes Dataset (VAED), the Victorian Emergency Minimum Dataset (VEMD), and the Victorian Perinatal Data Collection (VPDC) contain good-quality data on Aboriginal identification. Aboriginal identification is also collected through the Alcohol and Drug Information System (ADIS), the Notification of Infectious Diseases System (NIDS) and community health direct care database.

The Aboriginal population of Victoria forms a small percentage within a large mainly urban population. Correct identification of Aboriginal people is difficult in all datasets.

#### *Measures to improve data*

In July 2004, the Improving Care for Aboriginal and Torres Strait Islander Patients (ICAP) program was implemented. The program combined 2 previously separate funding streams: the Aboriginal Hospital Liaison Officer program and the Weighted Inlier Equivalent Separation (WIES) copayment for admitted Aboriginal patients. At this time the WIES copayment was increased from 10% to 30%. Amongst other objectives, ICAP encourages an outcome focus leading to improved identification and health care for Aboriginal patients. The number of Aboriginal patients identified by Victorian public hospitals has risen steadily since 2004.

Victorian hospitals include two additional fields in the standard Aboriginal status question: 'Question unable to be asked' and 'Patient refused to answer'. The addition of these fields has enabled the Department of Health to identify instances of misuse of either field very quickly.

Changes in access to data systems have also meant that more frequent monitoring of Aboriginal hospital separations is possible, and errors can be discovered and rectified.

In January 2009 the Victorian Perinatal Data Collection (VPDC) allowed the recording of the Indigenous status of babies as separate from the mother. This will accommodate the large percentage of Aboriginal babies born in Victoria who have an Aboriginal father and non-Aboriginal mother. At the same time the VPDC also included antenatal care and maternal tobacco smoking.

The Department of Health and PapScreen Victoria have developed a system for recording and reporting the Aboriginal status of women participating in Pap screens. A pilot study has been completed and was successful in training nurses to collect Aboriginal status.

The Department of Health is planning to conduct a Victorian Aboriginal and Torres Strait Islander population health survey in 2011. The sample size will be 1000 Aboriginal people.

AIHW has completed a pilot project matching data on Aboriginal deaths recorded in several databases. Although Victorian data is not included in the measures concerned with mortality, the AIHW project has allowed an estimate of Aboriginal life expectancy in Victoria. Work will continue on this project.

The Victorian Aboriginal Child Mortality Study, based at the University of Melbourne, will bring together birth and death information from a number of data sources to give an accurate report of the number of Aboriginal babies born between 1988 and 2008, and the number and causes of death for Aboriginal children who died during this period.

### **Western Australia**

In Western Australia, Aboriginal status is collected in a range of health data collections, including the

admitted patient data collection, the emergency department data collection, the outpatient care data collection, the Notifiable disease Data Collection, the WA Health and Well Being Surveillance System, the Midwives Data Collection, the Breast screening Data Collection, the Mental health Information system and the Cancer Registry. It is also stored on ABS Mortality data held by the Department of Health.

The WA Health and Wellbeing Surveillance System asks respondents if they are of Aboriginal or Torres Strait Islander origin. Less than 0.2% reply 'do not know' or refuse to answer the question and the proportion who say that they are Aboriginal ranged from between 3.4% in 2007 to 2.0% in 2009. The average proportion over the last five years was 2.4% which is about 0.9% less than the proportion of Aboriginal people in the WA population. Reports from the HWSS do not disaggregate results by Aboriginality as they are unlikely to be representative of the Aboriginal population in WA on a yearly basis, due to the method used to collect the data.

Over the last decade the number of death records with unknown Aboriginal status registered by the WA Office of Registry of Birth, Deaths and Marriages has represented a substantial proportion of cases. For deaths of unknown Aboriginality, status is determined through data linkage by comparing the Aboriginality of the records of the same individuals in other data sources. Mortality measures are reported by the Department of Health, Western Australia using the enhanced Aboriginal status field.

Reporting of Aboriginality in Midwives Notification System is based on the mothers Aboriginality; therefore the number of Aboriginal births recorded is likely to be underestimated. There has been recent Agreement to commence the collection of Aboriginal status of the baby on the WA Midwives Notification of Case Attended form from 1 July 2012.

Western Australia has agreed to undertake a further project in 2011, funded by the Australian Government Department of Health and Ageing, to improve Aboriginal identification among hospital patients.

The Data Integrity Directorate is hoping to recruit a Quality Assurance Coordinator who can arrange refresher training for hospital staff in collecting data on Aboriginal identification.

The Directorate has completed an exercise to compare Aboriginal status from the Midwives Notification System with Aboriginal status on the associated hospital records. The study found that there were about 15% less Aboriginal births recorded among birth registrations than among the Midwives collection of births data. This is because reporting of Aboriginal Status in birth registration data is non-compulsory.

The elective surgery wait list data collection also includes Aboriginal status and this collection is linked to admitted patient records for further verification of Aboriginal status.

There is a collaborative project between Australian Bureau of Statics (ABS) and Department of Health to investigate methods for deriving improved Aboriginal status measures by linking administrative data collections. Data collections are included from Department of Health, Department of Education, Department of the Attorney General and from the ABS. A joint Department of Health and ABS report will be released by July 2011.

## **HEALTH STATUS AND HEALTH OUTCOMES (TIER 1)**

### **1.01 Low birthweight infants**

Data on birthweight is collected as part of the Perinatal National Minimum Data Set. It includes live births of 20 weeks gestation or more, or of 400 grams or more birthweight. Low birthweight is defined as less than 2,500 grams. Data relate to the Indigenous status of the mother only and therefore underestimates Indigenous births. Unless otherwise stated, Indigenous and non-Indigenous data excludes births where the mother's Indigenous status is not stated. In 2007, there were 282 births with a 'not stated' Indigenous status (0.1%) in the National Perinatal Data Collection. Earlier years data are not available for Tasmania, as the 'not stated' category for Indigenous status was unable to be distinguished from the 'non-Indigenous' until 2005.

Figure 3: The time series data includes non-Indigenous mothers and mothers for whom Indigenous status was not stated. Excludes Tasmania and the Australian Capital Territory, as data from these jurisdictions are not considered stable enough to be included in trend analyses, mainly because of small population size and some issues with data quality over the reporting period.

Table 6: Data are presented in 3-year groupings because of small numbers each year. These groupings represent three calendar years. State-level data are based on place where birth occurred, not place of usual residence. Cross-border issues need to be considered here. ACT percentages are influenced by both small numbers and high proportions of non-ACT residents who gave birth in the Australian Capital Territory, and must be interpreted with caution. In 2005–2007, the ACT resident proportion was 13.3% for low birthweight Indigenous babies and 6.3% for non-Indigenous babies.

### **1.02 Top reasons for hospitalisation**

Data for this measure come from the AIHW's analysis of the National Hospital Morbidity Database. Data are from public and most private hospitals. Data exclude private hospitals in the Northern Territory. 'Other Australians' includes hospitalisations of non-Indigenous people and those for whom Indigenous status was not stated. Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) excluded from analysis, unless otherwise stated. Rates have been directly age-standardised using the 2006 Australian standard population unless otherwise stated. Rates for Indigenous are calculated using population estimates

based on the 2006 Census (SERIES B). Rate ratio is the proportion of Indigenous to Other Australians. Principal diagnosis categories are based on the ICD-10-AM fifth edition (National Centre for Classification in Health 2006). Data related to principal diagnosis are reported by state/territory of usual residence of the patient hospitalised, and are for New South Wales, Victoria, Western Australia, South Australia, the Northern Territory and Queensland only. These six jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital.

Figure 5: Care types 7.3, 9 & 10 (Newborn – unqualified days only; organ procurement; hospital boarder) included in analysis because of changes in coding since earlier years.

Figures 5 and 7: Rates have been directly age-standardised using the 2001 Australian standard population.

Figure 7 and 8: Rates and rate ratios for 'Pregnancy and child birth' are for females only. 'Other' includes: diseases of the musculoskeletal system and connective tissue; neoplasms; diseases of the nervous system; certain conditions originating in the perinatal period; diseases of the ear and mastoid process; diseases of the eye and adnexa; diseases of the blood and blood-forming organs and certain disorders involving the immune system; congenital malformations, deformations and chromosomal abnormalities; and factors influencing health status and contact with health services (except dialysis). Total includes hospitalizations for which no principal diagnosis was recorded.

### 1.03 Hospitalisation for injury and poisoning

Data for this measure comes from AIHW's analysis of the National Hospital Morbidity Database. Refer to notes for measure 1.02 regarding this data. Cause of injury is based on the first reported external causes where the principle diagnosis was 'injury, poisoning and certain other consequences of external causes'; ICD-10-AM codes V01–Y98.

Table 7: 'Persons' includes hospitalisations for which sex was indeterminable or not stated. Percentage refers to the proportion of male, female and total hospitalisations for injury and poisoning of Indigenous persons in the period 2006–07 to 2007–08. Rates were directly age-standardised using the Australian 2001 standard population. ICD-10-AM codes are: Assault (X85–Y09), Falls (W00–W19), Exposure to inanimate mechanical forces (W20–W49), Complications of medical and surgical care (Y40–Y84), Transport accidents (V01–V99), Intentional self-harm (X60–X84), Exposure to animate mechanical forces (W50–W64), and Accidental poisoning by and exposure to noxious substances (X40–X49). 'Other accidental exposures' includes accidental drowning and submersion (W65–W74), accidental threats to breathing (W75–W84), overexertion, travel and privation (X50–X57), and accidental exposure to other and unspecified factors (X58–X59). 'Exposure to electric current/smoke/fire/animals/nature' includes

exposure to electrical current, radiation and extreme ambient air temperature and pressure (W85–W99), smoke, fire and flames (X00–X09), contact with heat and hot substances (X10–X19), contact with venomous animals and plants (X20–X29), and exposure to forces of nature (X30–X39). 'Other external causes' includes event of undetermined intent (Y10–Y34), legal intervention and operation of war (Y35–Y36), sequelae of external causes of morbidity and mortality (Y85–Y89), and supplementary factors classified elsewhere (Y90–Y98). 'Total' includes injuries where no external cause was reported.

Table 8: Excludes private hospitals in the Northern Territory, Tasmania and the Australian Capital Territory. Data are reported by state/territory of usual residence of the patient hospitalised. Age-standardised rates for New South Wales, Victoria, Queensland, Western Australia, South Australia, the Northern Territory and Australia have been age-standardised by 5 year age group to 75+ using the direct method using the Australian 2001 standard population.

### 1.04 Hospitalisation for pneumonia

Data for this measure mainly comes from AIHW's analysis of the National Hospital Morbidity Database. Refer to notes for measure 1.02 regarding this data. Exceptions are noted below. ICD-10-AM codes J12–J18.

Data for Figure 14 comes from the AIHW analysis of National Notifiable Disease Surveillance System. The level of under-reporting can vary by disease, jurisdiction and by time. The method of surveillance can vary between jurisdictions with different requirements for notification by medical practitioners, laboratories and hospitals. The case definitions for surveillance also vary among jurisdictions. These can also change over time.

Figure 14: Calendar year reporting. Data are presented in 3-year groupings because of small numbers each year. Age-specific rates are calculated using the average Indigenous June population for the relevant years. Data are reported for New South Wales, Victoria, Queensland, Western Australia, South Australia, Tasmania and the Northern Territory (2008 Northern Territory data is preliminary). These three jurisdictions are considered to have adequate levels of Indigenous identification in these data. They do not represent a quasi-Australian figure. 'Other Australians' includes notifications for non-Indigenous Australians and those for whom Indigenous status was not stated.

Table 9: Refer to notes on Table 8 in measure 1.03.

### 1.05 Circulatory disease

Refer to notes for measure 1.02 regarding hospitalisation data. ICD-10-AM codes I00–I99.

Table 10: Rates were directly age-standardised using the Australian 2001 standard population. ICD-10-AM codes are: Ischaemic heart disease (I20–I25), Acute

myocardial infarction (I21), Subsequent myocardial infarction (I22), Pulmonary heart disease and other forms of heart disease (I26–I52), Cerebrovascular disease (I60–I69), Stroke (I60–I64), Acute rheumatic fever and chronic rheumatic heart disease (I00–I09), and Hypertension disease (I10–I15). Table 10: Percentage refers to proportion of male, female and total hospitalisations of Indigenous persons in the period 2006–07 to 2007–08. ‘Other diseases of the circulatory system’ includes disease of arteries, arterioles and capillaries, diseases of veins, lymphatic vessels and lymph nodes and other unspecified disorders of the circulatory system.

Table 11: Data are reported by state/territory of usual residence of the patient hospitalised. Refer to notes on Table 8 in measure 1.03.

### **1.06 Acute rheumatic fever and rheumatic heart disease**

Data for this measure comes from the Northern Territory Rheumatic Heart Disease Program.

Figure 17: Crude rates calculated using the 2006 estimated resident Indigenous population for the Top End, Central Australia and total Northern Territory.

Table 12: Age-specific rates calculated using the 2006 estimated resident Indigenous population for the Northern Territory. Rate ratio is the ratio of indigenous to non-indigenous.

### **1.07 High blood pressure**

Table 13: Remote data are not available for the 1995 National Health Survey.

Figure 18: Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05 and the National Health Survey 2004–05 consisting of persons ever told has condition, still current and long-term, and ever told has condition, current and not long-term. The females in all age groups, the male ‘35–44’ age group and the standardized total represents statistically significant differences in the Indigenous/non-Indigenous comparisons. The estimate for the female ‘25–34’ age group has a relative standard error of 25% to 50% and should be used with caution. Total is age-standardised.

Figure 19: Refer to notes for measure 1.02 regarding hospitalisation data. ICD-10-AM codes I10–I15.

### **1.08 Diabetes**

Figure 20: Self-reported data from the National Aboriginal and Torres Strait Islander Health Survey 2004–05. Total is age-standardised. Differences in the Indigenous/non-Indigenous comparisons are all statistically significant.

Figures 21 and 22: Refer to notes for measure 1.02 regarding hospitalisation data. ICD-10-AM codes E10–E14.

Table 15: Data is from the AIHW analysis of BEACH survey of general practice. Diabetes problems are classified according to ICPC-2 codes (Classification Committee of the World Organization of Family

Doctors (WICC) 1998). ICPC-2 codes T90, T89, W85. These survey results are likely to undercount the number of Indigenous Australians visiting doctors. Combined financial year data for five years. Data for Indigenous and other Australians have not been weighted. Rates are directly age-standardised rate per 100 encounters. ‘Other’ includes non-Indigenous patients and patients for whom Indigenous status was not stated. Ratio is the Indigenous rate divided by rate for non-Indigenous. ‘Gestational diabetes’ rates and ratio are for females only,

### **1.09 End stage renal disease**

Data for this measure come from the Australian and New Zealand Dialysis and Transplant Registry. Indigenous identification in the Registry is based on self-identification in hospital records. However, because of the heightened awareness of the extent of renal disease in Indigenous Australians and the prolonged and repeated contact with renal units in hospitals, it is believed that Indigenous identification in the Registry is more complete than in general hospital data. Uses calendar year reporting. Total rates are directly age-standardised using the Australian 2001 Standard population. ‘Other Australians’ includes registrations for non-Indigenous people and those for whom Indigenous status was ‘not stated’. Rate ratio is the Indigenous rate divided by the rate for other Australians.

Figure 24 and 25, and Table 17: Data are presented in 3-year groupings because of small numbers each year.

Figure 25: ‘Australia’ total includes cases where remoteness category was not known.

Table 17: ACT rates are based on very small numbers and would be expected to fluctuate from year to year.

### **1.10 Decayed, missing, filled teeth**

Table 18: Excludes children who do not have teeth. ‘Total has teeth or gum problems’ will be less than the sum of the components as a child can have more than one tooth or gum problem. Total excludes not known responses.

Table 19: The estimate for ‘4–6 year olds’ are estimated as the average of the mean for 4, 5 and 6 year olds and are not age-standardised. Similar methodology is used to estimate the mean for ‘8–10 year olds’ and ‘12–14 year olds’.

Figure 27: The estimate for the Aboriginal and Torres Strait Islander peoples ‘15–34’ age group has a relative standard error of 25% to 50% and should be used with caution. Excludes those with no natural teeth.

### **1.11 HIV/AIDS, hepatitis C and sexually transmissible infections**

Refer to notes in measure 1.04 for notes on the National Notifiable Disease Surveillance System. Rates have been directly age-standardised using the 2001 Australian population. Uses calendar year reporting. Data are presented in two-year or three-

year groupings due to small numbers each year. 'Other Australians' includes notifications for non-Indigenous Australians and those for whom Indigenous status was 'not stated'.

Figures 30 and 32: Chlamydia data are reported for Western Australia, South Australia, Tasmania and the Northern Territory. Syphilis and Gonorrhoea data are reported for Victoria, Queensland, Western Australia, South Australia, Tasmania and the Northern Territory. Hepatitis data are reported for New South Wales, Victoria, Western Australia, South Australia, Tasmania and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in the respective data. They do not represent a quasi-Australian figure. 2008 data for Northern Territory is preliminary.

Figure 30: Age-specific rates are calculated using the average Indigenous June population for the relevant years.

Figure 31: AIDS data excludes 2008 data from NSW, data not available due to incompleteness.

### 1.12 Children's hearing loss

Figure 33: Refer to notes for measure 1.02 regarding hospitalisation data. ICD-10-AM codes H60–H95.

Table 21: Data for the National Aboriginal and Torres Strait Islander Health Survey 1995 are available for non-remote regions only. The estimate for Remote areas and the 2001 non-remote data for Males have a relative standard error between 25% and 50% and should be used with caution.

### 1.13 Disability

Figure 34: Includes psychological disability. Therefore this variable is only appropriate for comparison with other surveys where the population is limited to non-remote areas, where questions on mental illness were included. Totals are directly age-standardised.

Table 22: Excluding psychological disability. 'Total with a disability or long-term health condition' includes disability type not specified. Note that more than one disability type may be reported and thus the sum of the components may add to more than the total.

Figure 36: Australia total includes Other Territories for the non-indigenous data No Usual Address for the indigenous data.

### 1.14 Community Functioning

Table 23: Unless otherwise indicated percentages are of the estimated total Aboriginal and Torres Strait Islander population aged 15 years and over.

### 1.15 Perceived health status

Figure 41: Data is age-standardised.

Figure 42: Includes chronic long-term conditions and injury only. The indigenous estimate for 0 and 1 'fair/poor' long-term conditions and the non-indigenous estimate for 0 'fair/poor' long-term condition has a relative standard error of between 25% and 50% and should be used with caution.

### 1.16 Social and emotional wellbeing

The data for Figure 44 comes from the AIHW National Mortality Database. Data are reported for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only. These five states and territories are considered to have adequate levels of Indigenous identification in mortality data. Data for these five jurisdictions over-represent Indigenous populations in less urbanised and more remote locations. Mortality data for the five jurisdictions should not be assumed to represent the experience in the other jurisdictions. Queensland and New South Wales has only had adequate and reliable identification of Indigenous deaths in their recording systems since 1998 and 2007 respectively and may be excluded from time series figures.

Although most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous all-causes mortality rate. It should also be noted that different causes of death may have different levels of completeness of identification of Indigenous deaths that differ from the 'all cause' under-identification (coverage) estimates. Due to changes in the level of accuracy of Indigenous identification in the births and deaths data over time, caution should be used in interpreting changes in Indigenous mortality rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates because of these data quality issues.

While most deaths of Indigenous Australians are registered, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the Indigenous infant deaths and depending on the under coverage in births may either underestimate or overestimate the rates. It is also difficult to exactly identify the difference between the Indigenous and non-Indigenous mortality rates due to these data quality issues. Deaths prior to 2007 are by year of registration and state/territory of usual residence. Deaths from 2007 onwards are by reference year and state/territory of usual residence. Registration year prior to 2007 is equivalent to reference year from 2007 onwards. Causes of death data for 2007 have been revised and are subject to further revisions. 2008 data have been subject to a process improvement which has increased the quality of these data. Causes of death data for 2008 are preliminary and subject to a revisions process. See Causes of Death, Australia, 2008 (cat. No. 3303.0) Technical Note 1: 2008 COD Collection—Process Improvement and Technical Note 2: Revisions Process for further information.

Some data are presented in 2-year, 3-year, 4-year or 5-year groupings because of small numbers each year. Unless otherwise stated, rates have been directly age-standardised using the 2006 Australian standard population. 'Non-indigenous' includes deaths of non-Indigenous people and those for whom Indigenous status was not stated, unless otherwise stated. Rate ratio is the Indigenous rate divided by rate for non-Indigenous.

Figure 43: The rates for total persons were directly age-standardised, while the rates for each age group are crude rates.

Figure 44: ICD-10 codes: F00–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48. These data exclude registered deaths where the Indigenous status is not stated. Rates are age-specific death rates per 1,000 using the midpoint populations for the relevant years. The completeness of identification of Indigenous deaths can vary by age.

Figure 45: Average number of stressors per person is based on all persons reporting stressor(s).

Table 24: Level of psychological distress is based on the Kessler-5 (K5) measure of psychological distress. Overall levels of distress are based on frequency responses to the following five questions about feelings in the last 4 weeks: About how often did you feel nervous?; About how often did you feel without hope?; About how often did you feel restless or jumpy?; About how often did you feel everything was an effort?; and About how often did you feel so sad that nothing could cheer you up? 'Low/moderate' includes persons who said they had not had any of these feelings in the last 4 weeks (score of 5). 'Owner' comprises persons living in a dwelling that was owned without a mortgage, owned with a mortgage or being purchased under a rent/buy scheme. 'Highest year of school completed' excludes persons who were attending secondary school.

Figures 46 and 47 and Table 25: Refer to notes for measure 1.02 regarding hospitalisation data.

Table 25: Includes hospitalisations for which sex was indeterminate or not stated. Directly age-standardised using the Australian 2001 standard population. Total mental health-related conditions include Mental & behavioural disorders due to psychoactive substance use (F10–F19), Schizophrenia, schizotypal and delusional disorders (F20–F29), Mood disorders (F30–F39), Neurotic, stress-related disorders (F40–F49), Disorders of adult personality and behaviour (F60–F69), Behavioural and emotional disorders (F90–F98), Organic, including symptomatic, mental disorders (F00–F09), Behavioural syndromes assoc. with physiological disturbances (F50–F59), Unspecified mental disorder (F99), Mental retardation (F70–F79), Disorders of psych. development (F80–F89) and other. Other includes ICD-10-AM codes relating to mental health: G30, G47.0, G47.1, G47.2, G47.8, G47.9, O99.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0.

### 1.17 Life expectancy at birth

Figure 48 and Table 26: Due to significant changes in methodology, estimates of life expectancy at birth for 2005–07 are not comparable to previously published estimates. 'Australia' includes all states and territories.

Figure 49: Life expectancy estimates for Aboriginal and Torres Strait Islander peoples and all Australians

are for 2005–2007. Life expectancy estimates for Canada are for 2001. First Nations refers to the total North American Indian population including both Registered Indians and Non-Status Indians. Registered Indians are individuals who are registered under the Indian Act. Métis refers to individuals with mixed Aboriginal and European ancestry. Inuit are the original inhabitants of Arctic Canada. Life expectancy estimates for Maoris and the total New Zealand population are for 2005–2007.

### 1.18 Median age at death

Refer to notes for measure 1.16 regarding mortality data.

The median age at death represents the age at which exactly half the deaths registered (or occurring) in a given time period were deaths of people above that age and half were deaths below that age. Care should also be exercised when analysing Indigenous median age at death, as differences in identification by age may lead to biased summary indicators such as median age at death.

Table 27: The incompleteness of Indigenous identification means that the number of deaths registered as Indigenous is an underestimate of the actual number of deaths which occur in the Aboriginal and Torres Strait Islander population. Variations in median age at death by Indigenous status, sex and jurisdiction should be interpreted with care as they are sensitive to differential data quality. Data exclude registered deaths where Indigenous status was not stated.

Figures 51 and 52: Data presented in this table may differ from data presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

### 1.19 Infant mortality rate

Refer to notes for measure 1.16 regarding mortality data. Rates are per 1,000 live births.

Figure 53: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses. The average of births over 1993–95 in Western Australia was used for births in Western Australia in 1991 and 1992 as there were errors in the number of births recorded in these years. Figure 54: Data exclude 34 registered infant deaths where Indigenous status was not stated over the period 2007–08 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

Tables 28 and 29: Data exclude 104 registered infant deaths where Indigenous status was not stated over the period 2004–08 in New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined.

Table 29: 'Infant' includes persons with an age at death of under 1 year. Different causes of death may

have levels of completeness of identification of Indigenous deaths that differ from the all-cause under-identification (coverage) estimates. Data presented for SIDS are a subset of data presented for signs, symptoms and ill-defined conditions presented in this table. 'Other conditions' include: neoplasms, diseases of blood and blood-forming organs, endocrine, nutritional and metabolic diseases, mental and behavioural disorders, diseases of the nervous system, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the digestive system, diseases of the musculoskeletal system and connective tissues, diseases of the genitourinary system, and diseases of the skin and subcutaneous tissue. ICD codes are: Certain conditions originating in the perinatal period (P00–P96), Signs, symptoms & ill-defined conditions (R00–R99), SIDS (R95), Congenital malformations (Q00–Q99), Diseases of the respiratory system (J00–J99), Injury & poisoning (V01–Y99), Infectious and parasitic diseases (A00–B99), and Diseases of the circulatory system (I00–I99).

### 1.20 Perinatal mortality

Data for this measure come from the ABS Deaths Registration Database. The ABS Deaths Registration Database contains details of all deaths registered in Australia including information on fetal (stillbirths) and neonatal deaths (deaths occurring in live births up to 28 days of age) by age of the baby, sex, state/territory of birth, Indigenous status and cause of death (ICD-10). Also refer to notes for measure 1.16 regarding mortality data.

Perinatal deaths are all fetal deaths (at least 20 weeks gestation or at least 400 grams birthweight) plus all neonatal deaths (death of a live-born baby within 28 days of birth). Perinatal death rates are calculated per 1,000 all births for the calendar year.

Table 30: Includes all fetuses and babies delivered weighing at least 400 grams or, if birthweight is unavailable, at gestational age of 20 weeks or more. Data based on state of usual residence of mother. Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. It is important to note that cells with a zero value have not been affected by confidentialisation. 'Other conditions' includes all other causes of death not already included in the table.

### 1.21 Sudden infant death syndrome

Refer to notes for measure 1.16 regarding mortality data. SIDS—Sudden Infant Death Syndrome, ICD-10 code: R95. SIDS data in this table is for deaths under 1 year of age. Rates are per 1,000 live births.

Figure 57: The completeness of identification of Indigenous deaths can vary by age. Deaths and rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses.

Figure 58 and Table 31: Data exclude 10 registered infant deaths where Indigenous status was not stated over the period 2004–2008 in NSW, Queensland, Western Australia, South Australia and the Northern Territory combined. Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. It is important to note that cells with a zero value have not been affected by confidentialisation.

Figure 58: Rates are crude rates per 1,000 live births.

Table 31: Rates per 1,000 live births have been directly age-standardised using the 2001 Australian standard population

### 1.22 All-causes age-standardised deaths rates

Refer to notes for measure 1.16 regarding mortality data. These data exclude 5,756 registered deaths where the Indigenous status is not stated.

Figures 59, 60, and Table 32: Rates have been directly age-standardised using the 2001 Australian population.

Figure 59: Rates presented in this table may differ from those presented in the 2006 edition of this report for comparable years because of a change from using year of occurrence of death to year of registration of death for mortality analyses. Non-Indigenous estimates are available for census years only for the WA, SA and NT data for 1998–2008. In the intervening years, Indigenous population figures are derived from assumptions about past and future levels of fertility, mortality and migration. In the absence of non-Indigenous population figures for these years, it is possible to derive denominators for calculating non-Indigenous rates by subtracting the Indigenous population from the total population. Such figures have a degree of uncertainty and should be used with caution, particularly as the time from the base year of the projection series increases. Preliminary 2007 and 2008 mortality data from ABS used.

### 1.23 Leading causes of mortality

Refer to notes for measure 1.16 regarding mortality data.

Tables 33 and 34: Data for lung cancer, cervical cancer and digestive organ cancers are a subset of the data presented for all cancers; data for diabetes are a subset of data presented for all endocrine, metabolic and nutritional disorders in this table. Data for cervical cancer are for females only. 'Other causes' includes: diseases of the blood and blood-forming organs and certain disorders involving the immune system, mental & behavioural disorders, diseases of the eye and adnexa, diseases of the ear and mastoid process, diseases of the skin & subcutaneous tissue, diseases of the musculoskeletal system and connective tissue, diseases of the genitourinary system (excluding kidney diseases), pregnancy, childbirth & the puerperium, congenital malformations, deformations and chromosomal abnormalities, symptoms, signs and abnormal clinical findings not elsewhere classified. ICD codes are:

Circulatory diseases (I00–I99), External causes (V01–Y98), Cancer (C00–D48), Lung cancer (C34), Cervical cancer (C53), Digestive organ cancers (C15–C26), Endocrine, metabolic & nutritional disorders (E00–E89), Diabetes (E10–E14), Respiratory diseases (J00–J99), Digestive diseases (K00–K93), Conditions originating in perinatal period (P00–P96), Nervous system diseases (G00–G99), Kidney diseases (N00–N29), and Infectious & parasitic diseases (A00–B99).

Table 33: Rates exclude 5,030 registered deaths where the Indigenous status is not stated. Data cells with small values have been randomly assigned to protect the confidentiality of individuals. As a result, some totals will not equal the sum of their components. It is important to note that cells with a zero value have not been affected by confidentialisation.

Table 34: Census year non-Indigenous and Indigenous estimates are sourced from Experimental Estimates of Aboriginal and Torres Strait Islander Australians (cat. no. 3238.0.55.001). Data based on reference year. Total deaths are number of Indigenous deaths between 2004 and 2008 inclusive. Expected deaths are calculated by applying the cause specific mortality rate for the non-Indigenous standard population to the Indigenous population of the reference period. Excess deaths are calculated by subtracting the expected deaths from the observed deaths. Percent excess is calculated as excess deaths by cause/total excess deaths \*100.

Figure 62: A high proportion of the cells within this table have been randomised to ensure confidentiality of data. ABS recommends cells with small values be interpreted with caution. Other causes includes all other external causes of death not presented elsewhere in this table. ICD-codes are: Intentional self-harm (X60–X84), Transport accidents (V01–V99), Accidental poisoning by and exposure to noxious substances (X40–X49), Assault (X85–Y09), and Accidental falls (W00–W19).

Table 35: Data excludes 1,784 deaths for circulatory diseases and 973 deaths for neoplasms where the Indigenous status was not stated. Directly age-standardised using the Australian 2001 standard population. Data presented for acute myocardial infarction are a subset of data presented for ischaemic heart disease; data presented for stroke are a subset of data presented for cerebrovascular disease in this table. Data presented for bronchus & lung cancer are a subset of data presented for all respiratory and intrathoracic organs; data presented for cervix cancer are a subset of data presented for all cancers of the female genital organs in this table.

Figure 63: Preliminary 2007 and 2008 cause of death data. Rates have been directly age-standardised using the 2001 Australian standard population. Indigenous rate used 2006 Series B Indigenous experimental population estimates as denominator. Other population for 2006 calculated by subtracting 2006 Indigenous population from 2006 Total population.

#### 1.24 Maternal mortality

Maternal deaths of Aboriginal and Torres Strait Islander women expressed as a rate per 100,000 Indigenous confinements and rate ratio. Data for this measure come from the publications *Maternal Deaths 1997–1999* and *Maternal Deaths 2003–2005*, published by the AIHW National Perinatal Statistics Unit Slaytor et al. 2004; Sullivan et al. 2008.

In line with international conventions, the maternal mortality rate is calculated using direct and indirect deaths, excluding incidental deaths and uses the total number of confinements of at least 20 weeks gestation or 400 gram birthweight as the denominator.

Information identifying Indigenous status has been available since 1970 but only for cases classified as direct maternal deaths. Information identifying Indigenous status for indirect and incidental deaths has been collected only since 1991. It has therefore been possible to calculate the maternal mortality rate for Aboriginal and Torres Strait Islander women since 1991.

Maternal deaths where Indigenous status was ‘unknown’ have been included in rates with non-Indigenous deaths prior to the 1997–99 triennium. All calculations of maternal mortality by Indigenous status from the 1997–99 triennium exclude deaths where Indigenous status is unknown. In 1997–99, Indigenous status was reported for 77 (89%) of the 87 maternal deaths.

Figure 64 and Table 36: Rates per 100,000 confinements calculated using direct and indirect deaths only. For 1991–93 and 1994–96, the non-Indigenous maternal mortality rate includes non-Indigenous deaths and deaths where Indigenous status is unknown. For subsequent years, deaths where Indigenous status is unknown have been excluded. Ratios are the Indigenous maternal mortality rate divided by non-Indigenous maternal mortality rate. Excludes incidental deaths.

#### 1.25 Avoidable and preventable deaths

Refer to notes for measure 1.16 regarding mortality data.

Figure 65: Preliminary 2007 and 2008 mortality data.

Figure 66: This figure presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable Mortality. It presents primary, secondary and tertiary weighted data as defined in Table 3 of the Report of the New South Wales Chief Health Officer. Directly age-standardised using the Australian 2001 standard population. Primary, secondary and tertiary weightings by cause do not always add to 100%, therefore primary, secondary and tertiary death counts may not add to the number of Avoidable deaths. Unavoidable Mortality is all causes other than those specified as Avoidable Mortality.

Table 37: This table presents data for Avoidable Mortality as defined in Table A1 in Appendix 1.1 of the Australian and New Zealand Atlas of Avoidable

Mortality. Directly age-standardised using the Australian 2001 standard population. Other includes all avoidable mortality not specifically detailed in the table.

## **DETERMINANTS OF HEALTH (TIER 2)**

### **2.01 Access to functional housing with utilities**

The data for this measure comes from the Community Housing and Infrastructure Needs Survey (CHINS). It collects information on a variety of topics from discrete Aboriginal and Torres Strait Islander communities throughout Australia and on Indigenous organisations that provide rental housing to Indigenous people. Only discrete Indigenous communities are covered. The data are collected from key personnel in Indigenous communities and housing organisations that are knowledgeable about housing and infrastructure issues.

Table 38: Victoria and Tasmania included in Australia for confidentiality reasons.

Figure 69: 'Washing people' comprises households lacking a working bath or shower. 'Washing clothes/bedding' comprises households lacking washing machine and/or laundry tub. 'Storing/preparing food' comprises households with working stove/oven/cooking facilities and a kitchen sink and a working refrigerator. 'Sewerage facilities' comprises households with a working toilet. Excludes households for which information about working facilities was not reported.

### **2.02 Overcrowding in housing**

Data are based on the 2001 and 2006 Census. Households are considered overcrowded if one or more additional bedroom is required to satisfy the Canadian National Occupancy Standard. Proportions have been calculated on all occupied private dwellings excluding those where number of bedrooms was not stated and includes not stated state/territory if the categorisation is not based on state/territory. Persons exclude visitors.

Categorisation in the 2002 and 2008 National Aboriginal and Torres Strait Islander Social Surveys is based on the Canadian National Occupancy Standard for housing appropriateness. Denominator excludes persons in households for which housing utilisation could not be determined.

Survey of Income and Housing 2007–08 data for non-Indigenous persons excludes those in households in collection districts defined as very remote, accounting for about 23% of the population in the NT. Table 39: 'Australia' includes other territories. 'Private' renter includes dwellings being rented from a real estate agent, parent/other relative or other person, dwellings being rented through a 'Residential park (includes caravan parks and marinas)', 'Employer-government (includes Defence Housing Authority)' and 'Employer-other employer' (private). 'Other tenure types' includes dwellings being purchased under a rent/buy scheme, occupied rent-free, occupied under a life tenure type and other tenure type nfd. 'Total' includes tenure type not stated.

### **2.03 Environmental tobacco smoke**

Table 40: 'No' category for 'Whether any regular smokers smoke at home indoors' includes households in which there were no current daily smokers.

Figure 74 and 75: Excludes households in which the smoking status of members was not stated.

### **2.04 Year 3, 5 and 7 literacy and numeracy**

Table 41, Figures 76 and 77: Equating the 2008 NAPLAN results with the 2009 results is a complex procedure and involves some degree of statistical error. For this reason, there may be minor fluctuations in the average NAPLAN test results from year to year when, in reality, the level of student achievement has remained essentially the same. It is only when there is a meaningful change in the results from one year to the next, or when there is a consistent trend over several years, that statements about improvement or decline in levels of achievement can be made confidently. Some caution is required when interpreting changes in the performance across 2008 and 2009.

### **2.05 Years 10 and 12 retention and attainment**

Data for this measure come from the AIHW analysis of ABS National Schools Statistics Collection. Retention rate is the Year 10 or 12 students as a proportion of the corresponding cohort from the first year of secondary schooling (Year 7/8). Attainment rate is the proportion of Year 11 students who went on to achieve a Year 12 certificate.

Figure 78 and Table 42: While most students are recorded, it is likely that some are not accurately identified as Indigenous. Therefore, these statistics are likely to underestimate the number of Aboriginal and Torres Strait Islander students. In addition, the standard Indigenous status question has not yet been implemented in some jurisdictions. The following factors have not been taken into account in these statistics: students repeating a year of education, migration and other net changes to the school population, enrolment policies (including year starting high school which contributes to different age/grade structures between states and territories), inter-sector transfer and interstate movements of students. In small jurisdictions, relatively small changes in student numbers can create apparently large movements in retention rates.

Table 42: The inclusion or exclusion of part-time students can also have a significant effect on apparent retention rates, especially in South Australia, Tasmania and the Northern Territory which have relatively large proportions of part-time students. Data for Western Australia have been affected by changes in scope and coverage over time. Some Australian Capital Territory rates exceed 100%, largely reflecting the movement of students from non-government to government schools in Years 11 and 12, and of New South Wales residents from surrounding areas enrolling in Australian Capital Territory schools. In 2009, changes to the processing of Northern Territory enrolment data will affect

comparisons with previous years of all numbers drawing on student data for the Northern Territory.

## **2.06 Educational participation and attainment of Aboriginal and Torres Strait Islander adults**

Figure 81: 'Technical or Further Education Institution' includes TAFE/technical college, business college, and industry skills centre.

Figure 82: 'Completed year 9 or below' includes persons never attended school. Excludes those still attending secondary school.

Figure 83: Qualifications are as classified to the ABS Classification of Qualifications. 'Bachelor degree or above' includes bachelor degree, doctorate, masters, graduate diploma, graduate certificate.

Figure 84: The data comes from the National Centre for Vocational Education Research. Non-identification rates for Indigenous students in these data are high. Care also needs to be taken when comparing data across jurisdictions for load pass rates, as average module durations vary across jurisdictions. Percentages are calculated using the Indigenous and non-Indigenous estimated resident populations for 2006. Includes statements of attainment.

## **2.07 Employment status including CDEP participation**

Figures 85: 'Participation rate' is the ratio of the total of persons who are employed and unemployed, to the civilian population in the same group including those who are employed, unemployed and not in the workforce. 'Employed as a proportion of total population' is the total of those persons who are employed (CDEP or non-CDEP) as a proportion of the civilian population in the same group. The unemployment rate is the ratio of those persons who are unemployed to the total of persons who are employed and unemployed.

Figure 86 and 88: Excludes 'Labour force status not stated' (except in Total Age-standardised).

## **2.08 Income**

Figure 89: Equivalised gross household income quintile boundaries for Indigenous persons are: first (0 to \$435); second (\$436 to \$686); third (\$687 to \$952); fourth (\$953 to \$1380); and fifth (\$1,381 or more). Equivalised gross household income quintile boundaries for non-Indigenous persons are: first (0 to \$423); second (\$424 to \$666); third (\$667 to \$925); fourth (\$926 to \$1,341); and fifth (\$1,342 or more). Difference between rates for Indigenous and non-Indigenous persons are not statistically significant for these categories.

Figure 90: Gross weekly equivalised cash income of household quintile boundaries are: lowest quintile less than \$329.20; second quintile \$554.80–\$685.50; third quintile \$812.10–\$951.80; fourth quintile \$1,131.40–\$1,380.20; highest quintile \$1,784.80 or more for 2008 NATSISS. Figure 92: mean weekly equivalised gross household incomes for 1994 and 2002 have been adjusted for inflation using CPI.

## **2.09 Housing tenure type**

Table 44, 45, and Figure 93: Persons aged 18 years and over. Home owners 'being purchased' includes with a mortgage and participants in rent/buy schemes. Renters 'private and other landlord types' includes real estate agents, unrelated persons, relatives, owner/managers of caravan parks, employers and other landlords. 'Total renters' includes landlord type not known and boarders. 'Other' includes persons living under life tenure schemes, those living rent-free and participants in rent/buy schemes.

Table 45: 'Total' includes tenure type not stated.

## **2.10 Index of disadvantage**

Figure 95: The population of some states/territories was unable to be split into exact quintiles based on the SEIFA index of advantage/disadvantage, in all except one of these cases the best approximate quintiles were calculated. Approximate population quintiles based on the SEIFA Index of Advantage/Disadvantage were unable to be calculated for Tasmania because of the population spread.

## **2.11 Dependency Ratio**

Data for this measure was derived from ABS population estimates based on the 2006 Census of Population and Housing.

## **2.12 Single-parent families**

Figures 100, 101 and 102: Number of persons for family households excludes unrelated individuals living in the family household, Visitors only and Other not classifiable households. Dependent children are children under 15 years of age and full-time dependent students aged 15–24 years.

## **2.13 Community safety**

Refer to notes for measure 1.16 regarding mortality data for Figures 103 and 104. Causes of injury are based on the first reported external cause as 'assault' ICD-10-AM codes X85–Y09, where the principal diagnosis was 'injury and poisoning' (S00–T98).

Tables 47 and 48: In the 2008 NATSISS, Indigenous persons were asked about 24 separate stressors, and in the 2007–08 NHS, non-Indigenous persons were asked about 14 separate stressors.

## **2.14 Contact with the criminal justice system**

Table 49: 'Persons' includes sex not stated. The ratio of Indigenous to non-Indigenous imprisonment is calculated by dividing the Indigenous age-standardised rate by the non-Indigenous age-standardised rate. Numbers and rates for New South Wales exclude Australian Capital Territory prisoners held in New South Wales. Rates for Australian Capital Territory include Australian Capital Territory prisoners held in New South Wales as well as Australian Capital Territory prisoners held in the Australian Capital Territory.

## **2.15 Child protection**

Figure 107: Population estimates are based on the 2006 census, refer to Appendix table A1.26 in the 2008–09 Child Protection Australia report for the specific populations used in the calculation of rates. The rate for Indigenous and non-Indigenous children

and rate ratio has not been reported for Tasmania due to the high proportion of children for whom Indigenous status was unknown. Tasmania has been excluded from the Australian total rates and rate ratio.

Table 50: South Australia can only provide the number of children in out-of-home care when the Department is making a financial contribution to the care of a child. Tasmania is not able to include children in care where a financial payment has been offered but has been declined by the carer. However, the number of carers declining payment is likely to be very low. Population estimates are based on the 2006 census, refer to Appendix table A1.26 in the 2008–09 Child Protection Australia report for the specific populations used in the calculation of rates. Rate ratios are calculated by dividing the un-rounded rate of Indigenous children who were in out-of-home care by the un-rounded rate of non-Indigenous children who were in out-of-home care. The resulting number shows a comparative representation per 1,000 children.

Table 51: In Western Australia and Victoria, a small number of children are placed with externally managed foster carers who are also their relative and have been recorded in the foster care category. South Australia can only provide the number of children in out-of-home care where the Department is making a financial contribution to the care of a child. Tasmania is not able to adhere to the AIHW definition of OOHC for 2008–09 to include children in care where a financial payment has been offered but has been declined by the carer. However, the number of carers declining a financial payment is likely to be very low. In the Northern Territory, children placed with family members have all been included in the 'Indigenous relative/kin' category. This table does not include Indigenous children who were living independently or whose living arrangements were unknown. Percentages in tables may not add to 100 due to rounding. Children in family group homes are reported as in residential care.

## 2.16 Transport

Table 52: 'Total' for use of public transport in last 2 weeks includes persons who were housebound. Main reason for not using public transport were asked of people who had not used public transport in last 2 weeks but who had access to public transport in their area. 'No suitable services' includes no services available at night/convenient and available for destination. 'Personal reasons' includes concerns about personal safety, treated badly/discrimination and health reasons. 'Total' for main reason for not using public transport excludes not known responses.

## 2.17 Indigenous people with access to their traditional lands

## 2.18 Tobacco Use

Figure 114: Smokers comprises current daily smokers and persons who smoked less than daily. Difference between 1994 and 2008 is statistically significant. Difference between 2002 and 2008 is statistically significant.

## 2.19 Tobacco smoking during pregnancy

Refer to notes for measure 1.01 regarding perinatal data.

Figure 116: State-level data are based on place where birth occurred, not place of usual residence. Cross-border issues need to be considered here, e.g. a high proportion of births in Australian Capital Territory hospitals are for mothers resident in New South Wales. For South Australia, 'smoked' includes women who quit before the first antenatal visit. For Northern Territory, smoking status was recorded at the first antenatal visit. Proportions are directly age-standardised using the Australian female population aged 15–44 years who gave birth in 2007. Data are not available for Victoria. Because of differences in definitions and methods used for data collection, care must be taken when comparing across jurisdictions. Mother's tobacco smoking status during pregnancy is self-reported.

Figure 117: Age-standardised data based on directly age-standardised proportions using the population of women aged 15–44 years who gave birth in all states as the standard

Table 54: Live births only for 'Low Birthweight' and 'Apgar score', Excludes Victoria.

## 2.20 Risky and high risk alcohol consumption

Figures 118 to 120: Alcohol risk level based on Australian Alcohol Guidelines 2000. 'Abstainers' are defined as persons who consumed No alcohol in last 12 months. 'Short-term Risk' which includes 'Drank at risky/high risk levels in last 12 months' and 'Drank at risky/high risk levels at least once a week' is based on responses to questions in 2004–05 National Health Survey/NATSIHS about frequency of consumption of specified number of drinks in previous year. The number of drinks was based on the NHMRC guidelines for risky and high risk short-term alcohol consumption for males and females. 'Drank at risky/high risk levels in last 12 months' is defined as Persons who consumed alcohol at specified risky/high risk levels in the short-term on at least one occasion in the last 12 months. 'Drank at risky/high risk levels at least once a week' is defined as Persons who consumed alcohol at specified risky/high risk levels in the short-term at least once a week in the last 12 months. Risk level based on consumption in week prior to interview.

Figure 121: Refer to notes for measure 1.16 regarding mortality data. Excludes a total of 59 deaths for which Indigenous status was 'not stated'. Rates are directly age-standardised using the Australian 2001 Standard population.

## 2.21 Drug and other substance use including inhalants

Table 55: The substance use questions in the 2008 NATSISS are comparable to those used in the 2002 NATSISS. However, when comparing between 2002 and 2008 it should be noted that there were changes in the proportion of people who did not accept the substance use form (6 per cent non-response in the

2002 NATSISS compared with 9 per cent for the 2008 NATSISS). 'Analgesics and sedatives for non-medical use' includes pain killers, tranquilisers and sleeping pills. 'Total used substances in last 12 months' includes heroin, cocaine, petrol, LSD/synthetic hallucinogens, naturally occurring hallucinogens, ecstasy/designer drugs, and other inhalants, and includes methadone in 2008. Sum of components may be more than total as persons may have reported more than one type of substance used. Used substances in the last 12 months 'Total' includes 'whether used in last 12 months' not known. 'Not stated' comprises people who accepted the substance use form but did not state if they had ever used substances.

### 2.22 Level of physical activity

Figure 124: 'Age-standardised' rates are directly age-standardised proportions.

Figure 125: 'Total' includes level of physical activity not stated.

### 2.23 Dietary behaviours

Figure 126: Recommended usual daily vegetable intake is defined as '5 or more serves per day'. Recommended usual daily fruit intake is defined as '2 or more serves of fruit per day'. Low usual daily vegetable intake is defined as '1 or less serves per day including not eating vegetables at all'. Low usual daily fruit intake is defined as '1 or less serves per day including not eating fruit at all'. Recommended usual daily vegetable intake not available for 2001 as there was no category for 5 serves or more.

Figure 127: Information for some persons aged 15–17 years was provided by a parent or guardian.

Table 56: 'Usual type of milk consumed' total includes 'usual type of milk' not known. 'Salt added after cooking' total includes 'frequency salt is added after cooking' not known.

### 2.24 Breastfeeding practices

Table 57: 'Ever breastfed' includes not known if child currently breastfed. 'Total' excludes children for whom breast feeding status was not known.

### 2.25 Unsafe sexual practices

Figure 130: **Refer to notes in measure 1.04 for notes on the National Notifiable Disease Surveillance System.** Rates have been directly age-standardised using the 2001 Australian population.

Figures 131 and 132: Refer to notes for measure 1.01 regarding perinatal data.

Figure 132: Excludes not stated Indigenous status.

### 2.26 Prevalence of overweight and obesity

Figures 133, 134 and 135: Proportions exclude those for whom BMI was unknown or not stated (39,583 or 15% for Indigenous and 1,175,132 or 8% for non-Indigenous).

Figure 135: Directly age-standardised proportions to the Australian 2001 standard population.

## HEALTH SYSTEM PERFORMANCE (TIER 3)

### 3.01: Antenatal care

Data for this measure come from the state/territory-based Perinatal Collections ('Midwives Collections').

It collects data on women who gave birth in the period, whether resulting in a live or still birth, if the birthweight is at least 400 grams or the gestational age was 20 weeks or more. Indigenous and non-Indigenous data exclude births where the mother's Indigenous status is not stated. Jurisdiction-level data are based on place where birth occurred, not place of usual residence. Cross-border issues need to be considered here, e.g. a high proportion of births in Australian Capital Territory hospitals are for New South Wales mothers. Data not available from the Australian Capital Territory, Victoria, Western Australia and Tasmania. Note that WA has revised its midwives notification form and data should be available from 2010.

Figure 136: Rate is for NSW, Queensland and South Australia combined. In 2007 NSW collected data for a new variable 'was antenatal care received', which provides a more accurate picture of the use of antenatal sessions. Prior to 2007 data for the number of women attending antenatal sessions in NSW was restricted to those whose 'duration of pregnancy at first antenatal session was recorded'. In order to maintain consistency in the time series data using the pre-2007 definition is used. South Australia data excludes women where number of antenatal care sessions attended is unknown.

Figure 137: Data for New South Wales and Northern Territory only. Data not collected in Queensland or South Australia.

Figure 139: Data for Queensland, South Australia and Northern Territory only. Data not collected in New South Wales.

### 3.02 Immunisation

Figure 140 and Table 58 is based on the Australian Childhood Immunisation Register (ACIR) which is managed by Medicare Australia and holds information on childhood immunisation coverage. All children under seven years of age who are enrolled in Medicare, are automatically included on the ACIR. Children who are not eligible to enrol in Medicare can be added to the ACIR when details of a vaccination are received from a doctor or immunisation provider. Coverage estimates for Aboriginal and Torres Strait Islander children include only those who identify as such and are registered on the ACIR. Children identified as Indigenous on the ACIR may not be representative of all Aboriginal and Torres Strait Islander children, and thus coverage estimates should be interpreted with caution. Children for whom Indigenous status was not stated are included with the 'non-Indigenous' under the 'other' category. Vaccination coverage is a measure of the proportion of people in a target population who have received the recommended course of vaccinations at a particular age. Vaccination coverage data from the ACIR and the NATSIHS are not directly comparable because of the differences in the cohort used, population coverage, data collection method, method

of calculating 'fully immunised' and vaccines included.

Figure 140: Three-month cohort used—cohort for 'aged one year' is born between 1 July and 30 September 2008, cohort for 'aged two years' is born between 1 July and 30 September 2007, and cohort for 'aged five years' is born between 1 July and 30 September 2004.

### 3.03 Early detection and early treatment

Figure 142: Child health checks commenced in May 2006. Data provided are for the period 1 July 2008 to 30 June 2009. Rates are calculated using the average of 2008 and 2009 Indigenous population projections for those aged 0–14 years. The adult health checks were introduced in May 2004 as a biennial assessment. Data provided are for the period 1 July 2008 to 30 June 2009. Rates are calculated using the average of 2008 and 2009 Indigenous population projections for those aged 15–54 years.

Figure 143: Data provided are for the period 1 July 2008 to 30 June 2009. Rates are calculated using the average of 2008 and 2009 Indigenous population projections for those aged 55 years and over and the total Australian population estimates for those aged 75 years and over.

Figure 144: The data is from BreastScreen Australia for women who attend for a screening mammogram at a BreastScreen Australia service. Indigenous status data are only available at the national level as numbers are too small to provide meaningful comparison between jurisdictions.

Figure 145: Should exclude data from women who have had a hysterectomy, however this data was not collected in the NATSIHS.

### 3.04 Chronic disease management

Figure 147: The data comes from the Service Activity Reporting Data Collection. The SAR collects data from approximately 150 Australian Government-funded Aboriginal and Torres Strait Islander primary health-care services and is held at the Department of Health and Ageing (DoHA). It is estimated that these services provide GP services to around 40% of the Indigenous population. From 2006–07 the SAR response category 'Management of chronic illness' was replaced by the three categories 'Management of diabetes', 'Management of cardiovascular disease' and 'Management of other chronic illness'. 'Management of chronic illness' represents the percentage of services that provided or facilitated access to any one of those three categories. 2008–09 OSR data counts all auspice services individually when calculating rates, therefore caution should be exercised when comparing rates with earlier data collection periods.

Figure 148: Indigenous adults aged 15 years and over who are regular clients of the HFL service. Data for clients with Type 2 diabetes were provided by 68 services (11 urban services, 33 regional services and 24 remote services) and data for clients with coronary heart disease were provided by 68 services (12 urban

services, 32 regional services and 24 remote services). Services used their own definition of regular client. Finalised data from one service for clients with coronary heart disease was excluded on the basis that the numbers were inconsistent with other data provided and for this indicator the service wrote 'Recording paper-based notes not always accurate.'

### 3.05 Differential access to key hospital procedures

Tables 59 and 60 and Figure 150: Refer to notes for measure 1.02 regarding hospitalisation data.

Table 59: Proportions are directly age-standardised using the age and cause specific rates of other Australians.

Table 60: Includes procedures where the category was not stated. Figure 150: Per cent refers to the proportion of hospitalisations with coronary heart disease as the principal diagnosis receiving either coronary angiography or coronary revascularisation.

### 3.06 Ambulatory care sensitive hospital admissions

Refer to notes for measure 1.02 regarding hospitalisation data.

Figure 152: Directly age-standardised using the Australian 2001 standard population.

Figure 153: ICD-10-AM codes J10 J11 J13 J14 J153 J154 J157 J159 J168 J181 J188 A35 A36 A37 A80 B05 B06 B161 B169 B180 B181 B26 G000 M014 J45 J46 I50 I110 J81 E101 E102 E103 E104 E105 E106 E107 E108 E110 E111 E112 E113 E114 E115 E116 E117 E118 E130 E131 E132 E133 E134 E135 E136 E137 E138 E140 E141 E142 E143 E144 E145 E146 E147 E148 J20 J41 J42 J43 J44 J47 I20 I240 I248 I249 D501 D508 D509 I10 I119 E40 E41 E42 E43 E550 E643 E86 K522 K528 K529 N390 N10 N12 N11 N136 K250 K251 K252 K254 K255 K256 K260 K261 K262 K264 K265 K266 K270 K271 K272 K274 K275 K276 K280 K281 K282 K284 K285 K286 L03 L04 L08 L980 L88 L983 N70 N73 N74 H66 H67 J02 J03 J06 J312 K02 K03 K04 K05 K06 K08 K098 K099 K12 K13 K35 K36 K37 O15 G40 G41 R56 R02. Note some of these codes are for principal diagnosis only, some are for principal or additional diagnosis, and some are principal diagnosis with the exclusion of some procedure codes. For more information on coding used, refer to AIHW and National Health Performance Committee 2004, The national report on health sector performance indicators 2003.

### 3.07 Health promotion

Table 61: Data for this measure comes from the Health expenditure data. Estimates of the level of Indigenous under-identification were used to adjust some reported expenditure. In some states and territories, a single state wide average under-identification adjustment factor was applied. In others, differential under-identification factors were used, depending on the region in which the particular service(s) were located. In some jurisdictions, no

Indigenous under-identification adjustment was considered necessary.

Table 62: Refer to notes in Figure 147 in 3.04 for notes on the Service Activity Reporting Data Collection. Two hundred and one of the 205 respondent Aboriginal and Torres Strait Islander primary health-care services provided valid data about health-related activities provided by the service. The percentages in the table are calculated as a proportion of these 201 services.

Figure 155: Data from five combined BEACH years April 2004–March 2005 to April 2008–March 2009 inclusive. Directly age-standardised rate using the total number of encounters for the period as the standard. Other includes non-Indigenous patients and patients for whom Indigenous status was not stated. ICP-2 codes defining Advice/education codes A45002, B45002, D45002, F45002, H45002, K45002, L45002, N45002, P45002, R45001, S45002, T45002, U45002, W45004, X45002, Y45002, Z45002. ICP-2 codes defining Counselling/advice treatment A45016, A45019, A45020, A45021, A45030, A48004, L45004, R45004, T45004, T45009. ICP-2 codes defining Counselling/advice nutrition/weight T45005, T45007, T58002, A45006. ICP-2 codes defining Counselling/advice smoking P58008, P45005. ICP-2 codes defining counselling/ advice alcohol P45005, P58009. ICP-2 codes defining counselling/ advice exercise A45004, A58005. ICP-2 codes defining counselling/ advice lifestyle P45008, P58012. ICP-2 codes defining family planning A98002, A98003, W14002, W45006, W45007, W45008, W58001, W58005, W58007, W58012, W58013, Y14001, Y45006, Y45007, Y58005, Y58006. ICP-2 codes defining counselling/ advice relaxation P45007, P58011, P58017.

Figure 156: Communities with a population of 50 or more, or a reported usual population of fewer than 50 but which were not linked to a parent community or resource agency. The total communities includes 'whether selected health promotion program conducted' not stated and excludes communities where distance to nearest hospital not stated.

### 3.08 Discharge against medical advice

Refer to notes for measure 1.02 regarding hospitalisation data.

Figures 157 and 160: Percentage of hospital separations (excluding mental and behavioural disorders) in the period 2006–07 to 2007–08.

Figure 158: Proportions are age-standardised.

Figure 159: Proportions are age-standardised. Excludes private hospitals in Tasmania, the Northern Territory and the Australian Capital Territory. Data are based on state/territory of usual residence.

Figure 160: ICD-10-AM codes are: Injury, poisoning and certain other consequences of external causes (S00–Y98), Diseases of the respiratory system (J00–J99), Symptom, signs and abnormal clinical and laboratory findings, n.e.c. (R00–R99), Diseases of the

digestive system (K00–K93), Complications of pregnancy, childbirth and the puerperium (O00–O99), Diseases of the skin and subcutaneous tissue (L00–L99), Diseases of the circulatory system (I00–I99), Endocrine, nutritional and metabolic diseases (E00–E90), Factors influencing health status and contact with health services (Z00–Z99), Certain infectious and parasitic diseases (A00–B99), and Diseases of the nervous system (G00–G99). 'Other' includes: neoplasms, certain conditions originating in the perinatal period, diseases of the ear and mastoid process, diseases of the eye and adnexa, diseases of the genitourinary system, diseases of the musculoskeletal system, diseases of the blood and blood-forming organs and certain disorders involving the immune system, and congenital malformations and deformations and chromosomal abnormalities. 'Total' includes hospitalisations for which no principal diagnosis was recorded and excludes mental and behavioural disorders (F00–F99).

### 3.09 Access to mental health services

Figure 160: These survey results are likely to undercount the number of Indigenous Australians visiting doctors. Combined financial year data for five years. Data for Indigenous and other Australians have not been weighted. Rates were directly age-standardised per 100. 'Other' includes non-Indigenous patients and patients for whom Indigenous status was not stated. ICP-2 codes: P01–P13, P15–P20, P22–P25, P27–P29, P70–P82, P85–P86, P98–P99.

Figure 161: The data for this figure comes from the AIHW National Community Mental Health Care Database (NCMHCD). The quality of the Indigenous identification in this database varies by jurisdiction and should be interpreted with caution. Rates were directly age-standardised using the Australian 2001 standard population. 'Other Australians' includes service contacts for non-Indigenous clients and those for whom Indigenous status was not stated (around 7% of all contacts).

Figures 162 and 163: Refer to notes for measure 1.02 regarding hospitalisation data.

Figure 163: ICD-10-AM codes F00–F99, G30, G47.0, G47.1, G47.2, G47.8, G47.9, 099.3, R44, R45.0, R45.1, R45.4, R48, Z00.4, Z03.2, Z04.6, Z09.3, Z13.3, Z50.2, Z50.3, Z54.3, Z61.9, Z63.1, Z63.8, Z63.9, Z65.8, Z65.9, Z71.4, Z71.5, Z76.0. Directly age-standardised using the Australian 2001 standard population. Australian hospitalisation numbers and rates have been adjusted for Indigenous under-identification using a national adjustment factor of 0.89. This factor was derived from a study undertaken by the AIHW in 2007 which assessed the level of Indigenous under-identification in hospital data in all states and territories by comparing information gathered from face-to-face interviews in public hospitals with results from hospital records. By applying this factor, the number of Indigenous hospitalisations was increased by 11% and these additional hospitalisations then subtracted from the

number of hospitalisations for Other Australians. Rates include hospitalisations for which sex was not stated.

### **3.10 Aboriginal and Torres Strait Islander people in the health workforce**

'n.p.' refers to not published (data cannot be released due to quality issues and confidentiality). Numbers less than 10 are considered too unreliable for general use due to the impact of randomisation of small cell values to avoid the release of confidential data. Occupation classification is based on 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO) codes. Classification codes for 1996 and 2006 were mapped to fit that of 2006. Table 11 includes a detailed breakdown of occupations. Average period change determined using regression analysis. Per cent change between the reporting periods 1996 and 2006 based on the average annual change over the period. Rate per 10,000 measures the health workforce available (numerator) to service the population (denominator). Denominator used in rates is the 2006 total population by Indigenous status minus those where occupation is not stated. Rate difference is non-Indigenous rate minus the Indigenous rate. Both 2001 and 2006 figures for 'Registered Nurses' include Midwifery and Nursing Professionals nfd. 'Other medical practitioners' includes specialists and surgeons. Health Promotion Officers could not be identified separately in 2001 and 1996 due to different occupation classifications. These were included in Community Workers in 2001 and 1996 and not included in the table. For some occupations, such as Nurses, Medical Practitioners, and Pharmacists, there are slight differences between the 2006 figures in this table and those in the Health and Community Services Labour Force 2006, and the Aboriginal and Torres Strait Islander Health Labour Force Statistics and Data Quality Assessment reports. These discrepancies are due to the impact of aggregating randomised data from data sets with different small cell distributions and the use of different occupation classifications (in the case of the second report).

### **3.11: Competent governance**

Table 65: The data for this table comes from the Office of the Registrar of Indigenous Corporations. In 2008–09, compliance analysis was able to be completed for 84 companies incorporated under the ACA Act and registered with ORIC. This table excludes 2 deregistered companies and 4 companies unable to be matched for compliance analysis. Table 66: Refer to notes in Figure 147 in 3.04 for notes on the Divisions of Service Activity Reporting Data Collection.

### **3.12 Access to services by types of service compared to need**

Figures 165 and 166: Indigenous rates should be interpreted with caution due to small population numbers in some jurisdictions. This also impacts on comparisons between jurisdictions and over time. Medicare data presented by Indigenous status have been adjusted for under-identification in the Medicare Australia Voluntary Indigenous Identifier (VII)

database. The methodology for this adjustment was developed and verified by the AIHW and the Department of Health and Ageing for assessment of MBS and PBS service use and expenditure for Indigenous Australians. For an explanation of the methodology, see Expenditure on health for Aboriginal and Torres Strait Islander people 2006-07. Rates are age standardised to the Australian population as at 30 June 2001.

Figures 167, 168 and 170. Data are age-standardised.

Figures 167 and 170: Total who took at least one health-related action—those who were admitted to hospital in last 12 months, doctor consultation in last 2 weeks, visited casualty/outpatient in last 2 weeks or consulted with other health professional in last 2 weeks. Some estimates have a relative standard error of between 25% and 50% and should be used with caution.

Table 67: 'Needed to go to dentist in last 12 months' are for persons aged 2 years and over.

Figure 169: Refer to notes for measure 1.02 regarding hospitalisation data. Directly age-standardised using the Australian 2001 standard population. 'Outer regional' includes remote Victoria. 'Remote' excludes remote Victoria.

### **3.13 Access to prescription medicines**

Figure 171: 'Benefit-paid pharmaceuticals' includes the Repatriation Pharmaceutical Benefits Scheme (RPBS) as well as the PBS.

Figure 172: 'PBS' does not include RPBS benefits for Veterans.

### **3.14 Access to after-hours primary care**

Figure 175 and Table 68: The data comes from the National Non-Admitted Patient Emergency Department Care Database. The Non-admitted Patient Emergency Department Care data are required to be reported for hospitals categorised as peer group A or B in the previous year's Australian hospital statistics. In addition, data are provided for some smaller hospitals by some states and territories. The coverage of the National Non-admitted Patient Emergency Department Care Database is estimated at about 76% of records for 2006–07 and 78% for 2007–08. Therefore these data will only cover a sub-set of after-hours emergency episodes of care. The identification of Indigenous patients is not considered complete and varies among jurisdictions. It is considered acceptable only for Western Australia and the Northern Territory.

Table 68: After hours is defined by the MBS definition (excluding consideration of public holidays): on Sunday, before 8am or after 1pm on a Saturday, or at any time other than 8am to 8pm on a weekday. Excludes patients who were admitted or arrived at the hospital by ambulance.

### **3.15 Regular GP or health service**

Table 69: 'Total' includes persons aged 18 years and over and includes refusal to answer and 'not stated'.

### 3.16 Care planning for clients with chronic diseases

Table 70: Clients are Indigenous adults aged 15 years and over who are regular clients of the HFL service. In a small number of services there is likely to be double counting of clients, as clients are reported to have had both an MBS and Alternative GPMP. Valid data for this indicator were provided by 59 services (11 urban services, 27 regional services and 21 remote services). Services used their own definition of regular client.

Table 70: Clients are Indigenous adults aged 15 years and over who are regular clients of the HFL service. Chronic diseases include Type 2 Diabetes and Coronary Heart Disease. For Type II diabetes, valid data were provided by 49, 50 and 56 services, for the reporting periods ending in June 2007, June 2008 and June 2009 respectively. For coronary heart disease, valid data were provided by 49, 49 and 56 services, for the reporting periods ending in June 2007, June 2008 and June 2009 respectively.

### 3.17 Accreditation

Figure 179: Data are from public hospitals only. Data are reported for New South Wales, Victoria, Queensland, Western Australia, South Australia and Northern Territory only. These 6 jurisdictions are considered to have adequate levels of Indigenous identification, although the level of accuracy varies by jurisdiction and hospital. Hospitalisation data for these jurisdictions should not be assumed to represent the hospitalisation experience in the other jurisdictions. 'Other patient episodes' includes hospitalisations for non-Indigenous people and those for whom Indigenous status was 'not stated'. Remoteness category based on residence of patient.

Figure 180: Aboriginal and Torres Strait Islander proportions are based on ABS population estimates used in the Annual Survey of Divisions of General Practice. There is double counting of some services where general practices reside on the border of two divisions. In that case two divisions may service the same practice. GPA+ data is for the period 2009-2010. AGPAL data is as of February 2010.

### 3.18 Aboriginal and Torres Strait Islander people training for health-related disciplines

The data for Table 72 and Figure 181 comes from the DEST Higher Education Schools Statistics Collection. Approximately 3% of students in this data collection have a 'not stated' Indigenous status. At the moment these are recorded as non-Indigenous, although plans are under way to separately record the 'not stated' responses.

Table 73: Classification based on ABS narrow fields of education. The 'total' data take into account the coding of Combined Courses to two fields of education. As a consequence, counting both fields of education for Combined Courses means that the totals may be less than the sum of all fields of education. Health-related courses includes Medical studies, nursing, pharmacy, dental studies, optical science, public health, radiography, rehabilitation therapies. Rate is calculated using 2008 Australian population aged 15-64. 2008 data are preliminary.

Table 73: Classification based on qualification field of education classification. The number of qualifications completed in 2008 are based on preliminary data and will be revised upwards in the next collection.

### 3.19 Expenditure on Aboriginal and Torres Strait Islander health compared to need

Refer to note in measure 3.07 for notes on the Health Expenditure Data.

Figure 182: Constant prices were calculated using the health price indexes from AIHW 2004a, p68. There were substantial changes in estimating methods between the first (1995-96) and second (1998-99) reports.

Figure 183: Includes 'Other health services, n.e.c.'

Figure 184: By ASGC remoteness area of patient residence.

Figure 186: 'Other' excludes expenditure on research, health administration and other health services n.e.c.

### 3.20 Recruitment and retention of clinical and management staff (including GPs)

Figures 187 and 188: Refer to notes in Figure 147 in 3.04 for notes on the Divisions of Service Activity Reporting Data Collection.

Figure 187: Number of funded FTE vacancies divided by the total FTE positions multiplied by 100.

Figure 189: Uses the RRMA categorization: rural, remote and metropolitan areas.

## Figures

Figure 1 – Aboriginal and Torres Strait Islander Health Performance Framework (HPF)	
Figure 2 – Age distribution of Australian population, by Indigenous status and sex, 2010	3
Figure 3 – Low birthweight babies per 100 live births, by Indigenous status of mother, Australia 1991–2007	15
Figure 4 – Live-born low birthweight babies per 100 live births, by Indigenous status of mother and remoteness, 2005–2007	15
Figure 5 – Age-standardised hospitalisation rates (excluding dialysis) by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08 ; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08	17
Figure 6 – Age-specific hospitalisation rates (excluding dialysis) by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	17
Figure 7 – Age-standardised hospitalisation rates by principal diagnosis and Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	17
Figure 8 – Hospitalisation rate ratios (Aboriginal and Torres Strait Islander to other Australians) by principal diagnosis in NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	17
Figure 9 – Age-standardised hospitalisation rates for injury and poisoning, Aboriginal and Torres Strait Islander peoples and other Australians, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08	19
Figure 10 – Age-specific hospitalisation rates for a principal diagnosis of injury and poisoning, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	19
Figure 11 – Age-standardised hospitalisation rates for pneumonia by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	21
Figure 12 – Age-specific hospitalisation rates for a principal diagnosis of pneumonia, by Indigenous status and sex, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008	21
Figure 13 – Hospitalisation rates for pneumonia, Children aged 0–4 years by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	21
Figure 14 – Invasive pneumococcal disease notification rate, by age group and Indigenous status, NSW, Vic., Qld, WA, SA, Tas. and NT, 2006–2008	21
Figure 15 – Age-standardised hospitalisation rates for a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander and other peoples in Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	23
Figure 16 – Age-specific hospitalisation rates for a principal diagnosis of circulatory disease, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006 – June 2008	23
Figure 17 – Acute Rheumatic Fever incidence, NT Indigenous Australians by time period, Top End of Northern Territory and Central Australia, 2006–2009	25
Figure 18 – Persons reporting high blood pressure, by Indigenous status, sex and age, 2004–05	27
Figure 19 – Age-specific hospitalisation rates for a principal diagnosis of hypertensive disease, by Indigenous status and sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	27
Figure 20 – Percentage of persons reporting diabetes/high sugar levels, by Indigenous status and age, 2004–05	29
Figure 21 – Age-standardised hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status Qld, WA, SA and NT, age-standardised, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	29
Figure 22 – Age-specific hospitalisation rates for a principal diagnosis of diabetes, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	29
Figure 23 – Age-standardised registration rates for end stage renal disease, by Indigenous status, 1991 to 2008	31
Figure 24 – Incidence of end stage renal disease by Indigenous status and age group, 2006–2008	31
Figure 25 – Age-standardised incidence of end stage renal disease by Indigenous status and remoteness, 2006–2008	31
Figure 26 – Age-specific hospitalisation rates for dental problems, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	33
Figure 27 – Mean number of decayed, missing or filled teeth by Indigenous Status, 2004–06	33
Figure 28 – Persons aged 15 years and over with no natural teeth (complete tooth loss), by Indigenous status, 2004–06	33
Figure 29 – Notification rate for 4 infectious diseases, Aboriginal and Torres Strait Islander peoples, WA, SA and NT, 1994–1996 to 2006–2008	35
Figure 30 – Notification rate for four infectious diseases by Indigenous status <sup>(a)</sup> , selected states, 2006–2008	35
Figure 31 – Notification rate for HIV and AIDS, Aboriginal and Torres Strait Islander peoples, NSW, Vic., Qld, WA, SA and NT, 1998–2000 to 2007–08	35
Figure 32 – Notification rate for four infectious diseases, by Indigenous status, all states, excluding ACT <sup>(a)</sup> , 2006–2008	35
Figure 33 – Hospitalisation rates for Aboriginal and Torres Strait Islander and other children aged 0–14 years from diseases of the ear and mastoid, Qld, WA, SA and NT, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	37
Figure 34 – Disability status by Indigenous status and age group, Indigenous persons aged 15 years and over living in non-remote areas of Australia, 2008 <sup>(a)</sup>	39

Figure 35 – Proportion of persons with core activity need for assistance, by Indigenous status and age group, 2006	39	Figure 53 – Infant mortality rates, Aboriginal and Torres Strait Islander infants and other Australians, WA, SA and NT, 1991–2008, NSW, Qld, WA, SA and NT, 2001–2008	55
Figure 36 – Proportion of Aboriginal and Torres Strait Islander people with core activity need for assistance, by jurisdiction and remoteness, 2006	39	Figure 54 – Indigenous infant mortality rates per 1,000 live births, Qld, WA, SA and NT, 1996–1998, 1999–2001, 2002–2004, 2005–2006 and 2007–08	55
Figure 37 – Community functioning score by remoteness, proportions, Indigenous Australians aged 0–14 years, Australia 2008	41	Figure 55 – Perinatal mortality rate by Indigenous status, NSW, Qld, WA, SA and NT, 1999 to 2008	57
Figure 38 – Community functioning score by remoteness, proportions, Indigenous Australians aged 15 years and over, Australia 2008	41	Figure 56 – Perinatal mortality rate for Aboriginal and Torres Strait Islander children, NSW, Qld, WA, SA and NT 1999–2003 and 2004–2008	57
Figure 39 – Self-assessed health status (age-standardised percentage) by Indigenous status, persons aged 15 years and over, Australia 2008	45	Figure 57 – SIDS mortality rates per 1,000 live births, Aboriginal and Torres Strait Islander and other Australian infants, WA, SA and NT, 1991–1993 to 2006–2008	59
Figure 40 – Self-assessed health status by Indigenous status and age group, persons aged 15 years and over, Australia 2008	45	Figure 58 – SIDS mortality rates per 1,000 live births, by age (months) and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	59
Figure 41 – Self-assessed health status, Indigenous Australians aged 15 years and over, by remoteness, Australia 2008	45	Figure 59 – Age-standardised mortality rates by Indigenous status, WA, SA and NT, 1991–2008, NSW, Qld, WA, SA and NT, 2001–2008	61
Figure 42 – Self-assessed health status by Indigenous status and number of long-term health conditions, age-standardised, Australia 2004–05	45	Figure 60 – Age-specific mortality rates per 100,000 and rate ratios, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2004–2008	61
Figure 43 – Proportion of people who reported high or very high levels of psychological distress, by Indigenous status and age group, persons aged 18 years & over, 2008	48	Figure 61 – Age distribution of percentage of deaths by sex and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	61
Figure 44 – Mental health-related mortality rates per 100,000, by Indigenous status, age group and sex, NSW, Qld, WA, SA and NT, 2004–2008	48	Figure 62 – Deaths of Indigenous Australians from external causes of injury and poisoning, by age, NSW, Qld, WA, SA and NT, 2004–2008	64
Figure 45 – Proportion of people reporting selected stressors, by remoteness area, Indigenous persons aged 18 years and over, 2008	48	Figure 63 – Age-standardised mortality rates for selected causes of death, by Indigenous status <sup>(a)</sup> , WA, SA, NT, 1991–2008 <sup>(b)</sup> ; NSW, Qld, WA, SA, NT, 2001–2008	65
Figure 46 – Hospitalisation rates from mental health-related conditions by Indigenous status, Qld, WA, SA and NT, age-standardised, 2001–02 to 2007–08; NSW, Vic. Qld, WA, SA, NT 2004–05 to 2007–08	49	Figure 64 – Maternal mortality rates and rate ratios by Indigenous status, 1991–1993 to 2003–2005	67
Figure 47 – Age-specific hospitalisation rates for a principal diagnosis of mental health-related conditions, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	49	Figure 65 – Age-standardised mortality rates for avoidable causes of death, Indigenous and other Australians aged 0–74 years, WA, SA, NT, 1991–2008	69
Figure 48 – Life expectancy at birth, Indigenous and non-Indigenous population 2005–2007, by sex and state/territory	51	Figure 66 – Avoidable mortality (by subcategory) and unavoidable mortality, by Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2002–2008	69
Figure 49 – Life expectancy at birth for males and females in Australia, Canada and New Zealand, by Indigenous status, various years	51	Figure 67 – Proportion of discrete Indigenous communities, with reported usual population 50 or more, experiencing interruptions to electricity supply greater than 24 hours in the previous 12 months, by remoteness, 1999, 2001 & 2006	74
Figure 50 – Median age at death, by Indigenous status and sex, WA, SA and NT, 1991–2008	53	Figure 68 – Proportion of discrete Indigenous communities, with reported usual population 50 or more, experiencing 10 or more sewerage system overflows or leakages in previous 12 months, by remoteness, 1999, 2001 and 2006	74
Figure 51 – First quartile, median and third quartile of age at death, Indigenous males, WA, SA and NT, 1991–2008	53	Figure 69 – Proportion of Indigenous households reporting lack of working facilities for each of the first 4 Healthy Living Practices by remoteness, 2008	74
Figure 52 – First quartile, median and third quartile of age at death, Indigenous females, WA, SA and NT, 1991–2008	53	Figure 70 – Proportion of people aged 18 years and over living in overcrowded households, by Indigenous status, 2002, 2008 Indigenous Australians, 2001, 2006 Other Australians	77
		Figure 71 – Proportion of persons 15 years and over living in overcrowded households, based on the Canadian	

National Occupancy Standard, by Indigenous status and remoteness, 2008	77	Figure 91 – Percentage of Aboriginal and Torres Strait Islander persons aged 18 years and over who were in the lowest quintile of equivalised gross weekly household income quintiles, 2008	91
Figure 72 – Proportion of persons aged 15 years and over living in overcrowded households according to the Canadian National Occupancy Standard, by Indigenous status and state/territory, 2008	77	Figure 92 – Mean gross weekly equivalised household income, Indigenous Australians aged 18 years and over, by state/territory, 1994,2002 and 2008	91
Figure 73 – Proportion of children aged 0–14 years who live in households with current daily smoker(s), by remoteness and Indigenous status, 2004–05, 2008 and 2007–08	79	Figure 93 – Tenure type by remoteness, proportion of Indigenous persons and households, 2008	93
Figure 74 – Children aged 0–14 years living with current daily smoker(s), by Indigenous status and remoteness, 2008 and 2007–08	79	Figure 94 – Population distribution by SEIFA advantage/disadvantage decile, by Indigenous status, 2006	95
Figure 75 – Children aged 0–14 years living with current daily smokers inside the household, by Indigenous status and remoteness, 2008 and 2007–08	79	Figure 95 – Population distribution by SEIFA advantage/disadvantage quintiles, Indigenous population by state/territory and total population (Indigenous and non-Indigenous, 2006)	95
Figure 76 – Proportion of Indigenous students achieving literacy and numeracy benchmarks to corresponding proportion of all students, 2009	81	Figure 96 – Population profile by Indigenous status, age and sex, 2010	97
Figure 77 – Proportion of Year 3, 5, 7 and 9 students achieving the reading, writing and numeracy benchmarks, by remoteness area and Indigenous status, 2009	82	Figure 97 – Total Dependency Ratios, by remoteness and Indigenous status, 2006	97
Figure 78 – Apparent Year 10 retention rates, by Indigenous status, 1998–2009	85	Figure 98 – Youth Dependency Ratio, by Indigenous status, 2006–2010	97
Figure 79 – Apparent Year 12 retention rates, by Indigenous status, 1998–2009	85	Figure 99 – Aged Dependency Ratio, by Indigenous status, 2006–2010	97
Figure 80 – Year 11 to Year 12 retention, by Indigenous status and sex, 2004 to 2009	85	Figure 100 – Household and family composition, Indigenous population, 2006	99
Figure 81 – Educational institution currently attended, by Indigenous status and age group, persons aged 15 years and over, 2008	87	Figure 101 – Selected family types as a proportion of all families, by Indigenous family <sup>(a)</sup> status, 2006	99
Figure 82 – Highest level of school completed, by Indigenous status, persons aged 18 years and over, 2002 and 2008	87	Figure 102 – Proportion of dependent children living in Aboriginal & Torres Strait Islander <sup>(a)</sup> and non-Indigenous families by family type, 2006	99
Figure 83 – Highest non-school qualifications, by Indigenous status and age group, persons aged 25–64 years, 2008	87	Figure 103 – Age-standardised hospitalisation rates for principal diagnosis of assault by Indigenous status, Qld, WA, SA and NT, 2001–02 to 2007–08	101
Figure 84 – Total completions in the VET sector for persons aged 15 years and over, by Indigenous status, 1996 to 2008	87	Figure 104 – Hospitalisation rates for principal diagnosis of assault, by Indigenous status and age, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008	101
Figure 85 – Labour force status of persons aged 15–64 years, by Indigenous status, 2008 and 2007-08	89	Figure 105 – Age-standardised rate of persons in prison, by Indigenous status 2000 to 2009	103
Figure 86 – Persons aged 15–64 years: labour force participation, by Indigenous status and age, 2008 and 2007-08	89	Figure 106 – Crude rate of deaths of Aboriginal and Torres Strait Islander persons in prison custody, 1998 to 2008	103
Figure 87 – Labour force status, by remoteness, Indigenous persons aged 15–64 years, 2008	89	Figure 107 – Children aged 0–16 years who were the subject of a substantiation: rate per 1,000 children, by Indigenous status and jurisdiction, 2008–09	105
Figure 88 – Labour force status of persons aged 15–64 years, by Indigenous status, 2001, 2004–05 and 2008 and 2007-08	89	Figure 108 – Number of Indigenous children aged 0–17 years on care and protection orders as at 30 June 1998 to 20 June 2009	105
Figure 89 – Proportion of persons aged 18 years and over in each equivalised gross weekly household income quintile, by Indigenous status, 2008	91	Figure 109 – Proportion of households without access to a working motor vehicle, by Indigenous status and remoteness, 2008 (Indigenous) and 2006 (non-Indigenous)	107
Figure 90 – Persons aged 18 years and over in the lowest quintile of equivalised gross weekly household income, by Indigenous status and remoteness, 2008	91	Figure 110 – Difficulty with transport, by Indigenous status, and remoteness, persons aged 18 years and over, 2008 (Indigenous) and 2006 (non-Indigenous)	107
		Figure 111 – Access to homelands/traditional country, by remoteness area, Indigenous Australians aged 15 years and over*, 2008	109
		Figure 112 – Self-assessed health status by whether Aboriginal and Torres Strait Islander persons recognised/did not recognise homelands/traditional country, Australia, 2008	109

Figure 113 – Presence of neighbourhood/community problems by whether Aboriginal and Torres Strait Islander persons recognised/ did not recognise homelands/ traditional country, Australia, 2008	109	Figure 130 – Notification rate for gonorrhoea, chlamydia and syphilis, Aboriginal and Torres Strait Islander peoples, WA, SA and NT, 1994–1996 to 2006–2008	125
Figure 114 – Proportion of Aboriginal and Torres Strait Islander people aged 15 years and over reporting they are a current smoker, 1994, 2002 and 2008	111	Figure 131 – Rate per 1000 women aged less than 20 years who gave birth, by Indigenous status, 2005–2007	125
Figure 115 – Proportion of population aged 15 years and over reporting they are a current smoker by Indigenous status and age, 2008	111	Figure 132 – Aboriginal and Torres Strait Islander women aged less than 20 years who gave birth as a proportion of total women who gave birth, by remoteness, 2005–2007	125
Figure 116 – Proportion of mothers who smoked during pregnancy, by Indigenous status and selected jurisdictions, 2007	113	Figure 133 – Proportion of Aboriginal and Torres Strait Islander adults who were overweight or obese, 1995, 2001 and 2004–05	127
Figure 117 – Proportion of mothers who smoked during pregnancy, by Indigenous status and age of mother, 2007	113	Figure 134 – Proportion of adults who were overweight or obese, by Indigenous status and age, 2004–05	127
Figure 118 – Alcohol risk levels by Indigenous status, persons aged 18 years and over, age-standardised, Australia 2004–05	115	Figure 135 – Proportion of adults (age-standardised) by weight characteristics and Indigenous status, 2004–05	127
Figure 119 – Persons aged 18 years and over who drank at short-term risky/high risk levels at least once a week, age-standardised, 2004–05	115	Figure 136 – Proportion of mothers who attended at least one antenatal care session, by Indigenous status NSW, Qld, SA, 1998–2007	131
Figure 120 – Aboriginal and Torres Strait Islander adults who drank at short-term risky/high risk levels at least once a week, by jurisdiction, 2004–05	115	Figure 137 – Proportion of mothers whose first antenatal care session occurred in the first trimester, by Indigenous status and remoteness, NSW and NT, 2007	131
Figure 121 – Age-standardised rates for deaths related to alcohol use, NSW, Qld, WA, SA and NT, 2004–2008	115	Figure 138 – Proportion of mothers who attended at least one antenatal care session, by Indigenous status, by jurisdiction, NSW, Qld, SA and NT, 2007	131
Figure 122 – Indigenous persons aged 15 years and over, level of physical activity, non-remote areas, 2001 and 2004–05	119	Figure 139 – Relationship between antenatal care sessions attended and proportion of low birthweight babies, by Indigenous status, Qld, SA and NT, 2007	131
Figure 123 – Persons aged 15 years and over reporting a sedentary level of physical activity, by Indigenous status, sex and age group, non-remote areas, 2004–05	119	Figure 140 – Proportion of children fully vaccinated at age 1 year, 2 years and 6 years, NSW, Vic., SA, WA and NT combined, by Indigenous status, 2001 to 2009	133
Figure 124 – Persons aged 15 years and over, level of physical activity, by Indigenous status, non-remote areas, 2004–05	119	Figure 141 – Proportion of Aboriginal & Torres Strait Islander persons aged 50 years and over and non-Indigenous persons aged 65 years and over: immunisation status 2004–05	133
Figure 125 – Persons aged 15 years and over reporting excellent, very good or good health status by Indigenous status and level of physical activity, non-remote areas, age-standardised, 2004–05	119	Figure 142 – Rate per 100 persons in target group receiving Medicare Benefits Schedule Health Checks, Aboriginal and Torres Strait Islander people aged 0–14 years and 15–54 years, 2008–09	135
Figure 126 – Percentage of Indigenous Australians aged 12 years and over, by usual daily intake of vegetables and fruit, non-remote areas, 2001 and 2004–05	121	Figure 143 – Rate per 100 persons in target group receiving Medicare Benefits Schedule Health Assessments, Aboriginal and Torres Strait Islander people aged 55 years and over, all Australians aged 75 years and over, 2008–09	135
Figure 127 – Age-standardised proportion of persons aged 15 years and over who ran out of food and couldn't afford to buy more at some time over the last year, 2004–05	121	Figure 144 – Participation rates for BreastScreen Australia, Women 50–69 years by Indigenous status, 1999–2000 to 2007–08	135
Figure 128 – Aboriginal and Torres Strait Islander children aged less than 3 years and currently breastfeeding, by age and remoteness, 2008	123	Figure 145 – Aboriginal and Torres Strait Islander women aged 18 years and over who had regular pap smear tests by remoteness, 2004–05	135
Figure 129 – Children in non-remote areas aged less than 3 years: age at which first given solid food regularly, by Indigenous status 2004–05	123	Figure 146 – Percentage of patients on General Practice Diabetes Registers receiving HbA1c and Cholesterol tests in the last 12 months with results recorded on the register, 2007–08	137
		Figure 147 – Percentage of respondent Aboriginal and Torres Strait Islander primary health care services that provided management of Chronic Disease, 2004–05 to 2008–09	137

Figure 148 – Percentage of Aboriginal and Torres Strait Islander regular clients of Healthy for Life Services receiving recommended care 1 January to 30 June 2009	137	WA, SA and NT, 2001–02 to 2007–08 ; NSW, Vic., Qld, WA, SA and NT, 2004–05 to 2007–08	147
Figure 149 – Percentage of Aboriginal and Torres Strait Islander people with diabetes Type 2 receiving recommended care, 12 remote primary care services, Northern Territory, 2003–04 to 2005–06	137	Figure 164 – Age-standardised hospitalisation rates for principal diagnosis of mental health-related conditions by Indigenous status by state/territory, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	147
Figure 150 – Proportion of hospitalisations with a procedure performed, by Indigenous status and state/territory (excluding care involving dialysis), July 2006 to June 2008	139	Figure 165 – Age-standardised MBS claim rate, by Indigenous status, Australia, 2009–10	153
Figure 151 – Use of coronary procedures for those hospitalised with coronary heart disease, NSW, Vic, Qld, WA, SA and NT, July 2006 to June 2008	139	Figure 166 – Age-standardised MBS claim rate for specialist services, by remoteness, Australia, 2009–10	153
Figure 152 – Age-standardised hospitalisation rates for ambulatory care sensitive hospital admissions, Qld, WA, SA and NT, 2001–02 to 2007–08 plus NSW, 2004–05 to 2007–08	141	Figure 167 – Proportion of people who accessed health care, by type of health care, within the last 12 months (hospital) or last 2 weeks (other health care), by Indigenous status, and number of self-reported number long-term health conditions, Australia 2004–05	154
Figure 153 – Top 10 ambulatory care sensitive hospital admissions, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	141	Figure 168 – Cumulative per cent changes to Aboriginal and Torres Strait Islander primary health care services, 1999–2000 to 2007–08	155
Figure 154 – Hospitalisation rates for ambulatory care sensitive hospital admissions, by Indigenous status and age group, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	141	Figure 169 – Age-standardised hospitalisation rates by Indigenous status and remoteness, NSW, Vic, Qld, WA, SA and NT, July 2007 to June 2009	155
Figure 155 – Proportion of clinical treatments provided by GPs, age-adjusted, by Indigenous status, 2004–05 to 2008–09	143	Figure 170 – Proportion of people aged 15 years and over who accessed health care, by type of health care, within the last 12 months (hospital) or last 2 weeks (other health care), by Indigenous status, and self-reported health status, age-standardised, Australia 2004–05	155
Figure 156 – Discrete Indigenous communities located 10 kilometres or more from a hospital: Selected health promotion programs conducted in community, 2006	143	Figure 171 – Average pharmaceutical expenditure per person, Australia, 2006–07	157
Figure 157 – Discharges from hospital against medical advice, by Indigenous status and age group (excluding mental and behavioural disorders), Australia, July 2006 to June 2008	145	Figure 172 – Average health expenditure per person by the Australian Government on the Pharmaceutical Benefits Scheme, constant prices, by Indigenous status, 1998–99, 2001–02, 2004–05 and 2006–07	157
Figure 158 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by jurisdiction, 2006–07 to 2007–08	145	Figure 173 – Average health expenditure per person by the Australian Government on the Pharmaceutical Benefits Scheme, Indigenous Australians, by remoteness, 2006–07	157
Figure 159 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by Indigenous status and remoteness, 2006–07 to 2007–08	145	Figure 174 – Rate of GP encounters, by whether the GP has after-hours arrangements in place, by Indigenous status of the patient, April 2004 to March 2009	159
Figure 160 – Age-standardised proportion of hospitalisations ending in discharge against medical advice, by Indigenous status and principal diagnosis, Australia, July 2006 to June 2008	145	Figure 175 – Non-admitted patient emergency care episodes for triage categories 4 (semi-urgent) and 5 (non-urgent) by time of day and Indigenous status, Australia, 2006–07 to 2007–08	159
Figure 161 – Age-standardised rate per 100 encounters, mental health-related problems managed by GPs, by Indigenous status of the patient, 2004–05 to 2008–09	147	Figure 176 – Whether the person usually goes to same GP/medical service, by age group, Aboriginal and Torres Strait Islander peoples 2004–05	161
Figure 162 – Community mental health care service contacts per 1,000 population, by Indigenous status, 2007–08	147	Figure 177 – Where usually go if problem with health, by remoteness area, Aboriginal and Torres Strait Islander peoples 2004–05	161
Figure 163 – Age-standardised hospitalisation rates from mental health-related conditions, Qld,		Figure 178 – Proportion of people with asthma reporting that they have a written asthma action plan by Indigenous status and age group, non-remote areas, 2004–05	163
		Figure 179 – Proportion of hospital admitted patient episodes in accredited hospitals, by Indigenous status, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	165
		Figure 180 – Proportion of general practices accredited <sup>(a)</sup> by Divisions of General Practice, by proportion of the population that is Indigenous <sup>(b)</sup> , 2009–10	165

<b>Figure 181 – Indigenous Australian university student enrolments and completions in health-related courses, 2001–2008</b>	<b>167</b>
<b>Figure 182 – Estimated per person health expenditure ratio of Indigenous to non-Indigenous Australians, Australia, 1998–99, 2001–02, 2004–05, 2006–07</b>	<b>169</b>
<b>Figure 183 – Estimated state and territory health expenditure per person, by Indigenous status, 2006–07</b>	<b>169</b>
<b>Figure 184 – Estimated health expenditure on selected health services per person for Aboriginal and Torres Strait Islander, by remoteness, 2006–07</b>	<b>170</b>
<b>Figure 185 – Expenditure by the Australian Government on Indigenous-specific health programs, 1995–96 to 2009–10</b>	<b>170</b>
<b>Figure 186 – Average health expenditure per person for primary health care and secondary/tertiary health care services, by Indigenous status, Australia, 2006–07</b>	<b>170</b>
<b>Figure 187 – Proportion of selected staff vacancies in Aboriginal health care services, by remoteness area, 2008-2009</b>	<b>173</b>
<b>Figure 188 – Full-time equivalent health staff and administrative and support staff vacancies, Aboriginal and Torres Strait Islander primary health care organisations, by length of time vacant, 30 June 2008</b>	<b>173</b>
<b>Figure 189 – Proportion of GPs in practice by length of service and remoteness, November, 2008</b>	<b>173</b>

## Tables

Table 1 – Estimated resident population by state/territory and Indigenous status, 2010	3	Table 16 – Total patients with end stage renal disease, by Indigenous status and treatment, 31 December 2008	31
Table 2 – Estimated resident population by remoteness area and Indigenous status, 2006	3	Table 17 – Incidence of end stage renal disease in Aboriginal and Torres Strait Islander people, by jurisdiction, 2006–2008	31
Table 3 – Relationship between selected socioeconomic factors and selected health behaviours and overweight and obesity, by Indigenous status (c), 2004–05	6	Table 18 – Number and proportion of Indigenous children aged 0–14 years <sup>(a)</sup> with reported teeth or gum problems, by type of dental or gum problem, 2008	33
Table 4 – Relationship between selected socioeconomic factors and reported heart/circulatory disease, diabetes and fair/poor health status, by Indigenous status, persons aged 15 years and over 2004–05	7	Table 19 – Mean number of decayed, missing and filled deciduous and permanent teeth, by age and Indigenous status, NSW (2000), SA (2003) and NT (2002)	33
Table 5 – Relationship between selected health behaviours and overweight and obesity and reported heart/circulatory disease, diabetes and fair/poor health status, by Indigenous status <sup>(a)</sup> , 2004–05	8	Table 20 – Proportion of Indigenous children aged 0–14 years reporting ear/hearing problems, by type of problem, 2008	37
Table 6 – Low birthweight babies per 100 live births, by Indigenous status of mother and state/territory, 1998–2000, 2001–2003, 2003–2005 and 2005–2007	15	Table 21 – Diseases of the ear and mastoid reported for Aboriginal and Torres Strait Islander children aged 0–14 years, by remoteness and sex, 1995 <sup>a</sup> , 2001, 2004–05 and 2008	37
Table 7 – Age-standardised hospitalisations for external causes of injury and poisoning for Aboriginal and Torres Strait Islander peoples by sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	19	Table 22 – Disability type <sup>(a)</sup> , by age group, Indigenous persons aged 15 years and over living in non-remote areas of Australia, 2008	39
Table 8 – Age-standardised hospitalisations for external causes of Injury and Poisoning for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	19	Table 23 – Selected variables contributing to community functioning for Aboriginal and Torres Strait Islander peoples, Australia 2008 and 2002	42
Table 9 – Age-standardised hospitalisations for principal diagnosis of pneumonia for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	21	Table 24 – Proportion of people who reported psychological distress, by level of psychological distress, by selected population characteristics, Indigenous persons aged 18 years and over, 2008	49
Table 10 – Age-standardised hospitalisations for circulatory disease by principal diagnosis for Aboriginal and Torres Strait Islander peoples by sex, NSW, Vic., Qld, WA, SA and NT, July 2006–June 2008	23	Table 25 – Age-standardised hospitalisations of Indigenous persons for principal diagnosis of mental health-related conditions, by type of condition and sex, NSW, Vic., Qld, WA, SA and NT, July 2006 to June 2008	49
Table 11 – Age-standardised hospitalisations with a principal diagnosis of circulatory disease for Aboriginal and Torres Strait Islander peoples by sex and jurisdiction, July 2006–June 2008	23	Table 26 – Life expectancy at birth, Indigenous and non-Indigenous population, by sex and selected state/territory, 2005–2007	51
Table 12 – Rheumatic Heart Disease prevalence (31 December 2009) by age groups for Aboriginal and Torres Strait Islander people in the Northern Territory	25	Table 27 – Median age at death, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2004–2008	53
Table 13 – Aboriginal and Torres Strait Islander people reporting high blood pressure or hypertension, by sex and remoteness, 1995, 2001 and 2004–05	27	Table 28 – Infant mortality rates per 1,000 live births, by Indigenous status, NSW Qld, WA, SA and NT, 2004–2008	55
Table 14 – Percentage Aboriginal and Torres Strait Islander peoples reporting diabetes/high sugar levels, by remoteness, 1995, 2001 and 2004–05	29	Table 29 – Causes of infant death by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	55
Table 15 – Diabetes problems managed by GPs, by Indigenous status of patient, 2004–05 to 2008–09	29	Table 30 – Proportion of deaths for perinatal babies by underlying cause of death and Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	57
		Table 31 – SIDS mortality rates per 1,000 live births and rate ratios, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	59
		Table 32 – All-causes mortality, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	61
		Table 33 – Age-standardised mortality rate (per 100,000), by selected causes of death, by Indigenous status, NSW, Qld, WA, SA and NT, 2004–2008	63
		Table 34 – Main causes of excess Indigenous deaths, by sex, NSW, Qld, WA, SA and NT, 2004–2008	63

Table 35 – Detailed causes of death for circulatory disease, cancers and respiratory disease, Aboriginal and Torres Strait Islander peoples, NSW, Qld, WA, SA and NT, 2004–2008	64	Table 56 – Selected dietary habits, by remoteness, Indigenous persons aged 12 years and over, Australia, 2004–05	121
Table 36 – Number of maternal deaths and maternal mortality rates, by Indigenous status, 1991–1993 to 2003–2005	67	Table 57 – Aboriginal and Torres Strait Islander children aged 0–3 years: Breastfeeding status by State/Territory, 2008	123
Table 37 – Avoidable mortality, by cause of death and Indigenous status, persons aged 0–74 years, NSW, Qld, WA, SA and NT, 2004–2008	69	Table 58 – Proportion of children fully vaccinated at 1 year, 2 years and five years of age, by Indigenous status and state/territory, as at 31 December 2009	133
Table 38 – Main source of drinking water, discrete Indigenous communities, by state/territory, 2006	73	Table 59 – Proportion of separations with a procedure reported, by principal diagnosis and Indigenous status, Australia, July 2006 to June 2008	139
Table 39 – Proportion of overcrowded Indigenous households, using the Canadian National Occupancy Standard, by tenure type and by state and territory, 2006	77	Table 60 – Proportion of separations with a procedure reported, by type of procedure and Indigenous status, Australia, July 2006 to June 2008	139
Table 40 – Children aged 0–14 years living in households with current daily smoker(s), by Indigenous status of children, 2008 and 2007–08	79	Table 61 – Expenditure for selected public health activities, by Indigenous status, 2006–07	143
Table 41 – Proportion of students achieving reading, writing and numeracy benchmarks, by Indigenous status, 2008–2009	81	Table 62 – Proportion of funded Aboriginal and Torres Strait Islander primary health care services that undertook selected preventative health care and screening activities, 2008–09	143
Table 42 – Apparent retention rates, by Indigenous status, jurisdiction and sex, 2009	85	Table 63 – Aboriginal and Torres Strait Islander people employed in selected health-related occupations, 1996, 2001 and 2006	149
Table 43 – Labour force status of Indigenous persons aged 15–64 years, by remoteness, 2008	89	Table 64 – Number and proportion of health corporations incorporated under the CATSI Act 2006 by compliance, 2008–09	151
Table 44 – Tenure type, households and persons, by Indigenous status, 2008	93	Table 65 – Number and proportion of Aboriginal and Torres Strait Islander primary health-care services participating <sup>(a)</sup> in mainstream processes, 2008–09	151
Table 45 – Tenure type, Indigenous households and persons, 1994, 2002 and 2008	93	Table 66 – Number and proportion of governing committee/board use, Aboriginal and Torres Strait Islander primary health-care services and substance-use services, 2008–09	151
Table 46 – Total and Youth and Aged Dependency Ratios, by remoteness and Indigenous status, 2006	97	Table 67 – Whether needed to go to a dentist, doctor, other health professional or hospital, reasons didn't go, by remoteness area, Aboriginal and Torres Strait Islander peoples, 2004–05	154
Table 47 – Issues of community safety, percentage of persons aged 18 years and over, by Indigenous status, 2008 (Indigenous), 2006 (non-Indigenous)	101	Table 68 – Non-admitted patient emergency care episodes after hours, by Indigenous status, 2006–07 to 2007–08	159
Table 48 – Issues of community safety, percentage of Indigenous persons aged 18 years and over, by remoteness, 2008	101	Table 69 – Aboriginal and Torres Strait Islander peoples perceptions of treatment when seeking health care, 2004–05	161
Table 49 – People in Prison Custody by Indigenous status, sex and state/territory 30 June 2009	103	Table 70 – Number and proportion of Indigenous regular clients of services funded through the <i>Healthy for Life</i> program with a chronic disease who have a current <i>General Practitioner Management Plan</i> and/or an equivalent alternative, by type of chronic disease and remoteness, at 30 June 2009	163
Table 50 – Children (0–17 years) in out-of-home care by Indigenous status and state and territory, at 30 June 2009	105	Table 71 – Number and proportion of Indigenous regular clients of services funded through the <i>Healthy for Life</i> program with a chronic disease who have a current MBS item 723 Team Care Arrangement, by type of chronic disease, at 30 June 2007, 2008 and 2009	163
Table 51 – Aboriginal and Torres Strait Islander children in out-of-home care: Indigenous status and relationship of carer to child, by state and territory, at 30 June 2009	105	Table 72 – Student enrolments and completions in health-related courses in the Tertiary Education sector, 2008	167
Table 52 – Use of public transport, by remoteness, Indigenous persons aged 18 years and over, 2008	107		
Table 53 – Estimated proportion of Aboriginal and Torres Strait Islander peoples that are current smokers by sex, age, remoteness area and jurisdiction, 2004–05 and 2008	111		
Table 54 – Smoking during pregnancy by Indigenous status and baby outcomes, NSW, Qld, WA, SA, Tas., ACT and NT, 2007	113		
Table 55 – Aboriginal and Torres Strait Islander peoples aged 15 years and over in non-remote areas: Substance use by sex, 2002 and 2008	117		

**Table 73 – Vocational education and training (VET)  
sector students enrolled and completed health-  
related courses, 2008** 167

**Table 74 – Indigenous deaths identification rate,  
state/territory and Australia, 2006–2007** 192