The health of the people of New South Wales

Report of the Chief Health Officer, 2000

Better Health *Good Health Care*

NSW HEALTH

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NSW Health Department
May 2000

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Foreword

Monitoring and reporting on the health of our population is a basic responsibility of NSW Health. It is the means by which we measure the health system's performance at the broadest level and identify, highlight and target emerging health issues. As such, it is fundamental to the rational planning and development of population-based and clinical health programs and services. Indeed, a recent national study which identified 'core' public health functions ranked disease surveillance, monitoring morbidity and mortality, and monitoring the determinants of health among the top five such functions.

Communicable disease surveillance has a well-established and important role in monitoring the population's health. This is illustrated by recent trends in notifications of measles in NSW. September 1999 was the first month since 1991 in which there were no reports of measles in NSW. These surveillance data show that the epidemic of measles that was expected last year may have been averted through a combination of the 1998 Measles Control Program and increasing immunisation rates.

Population health monitoring now extends to cover chronic and non-communicable conditions, and a wide range of health determinants. However, areas remain where coverage is incomplete and developmental work must still be done. Examples include our need for improved systems to monitor the harms associated with illicit drug use, and for further epidemiological and microbiological research to inform our public health response to positive tests for *Cryptosporidium* in water.

Despite its undisputed importance, population health monitoring and surveillance (and I use these terms interchangeably) tends to be regarded as a 'background' or even 'back room' activity. The components and characteristics of 'good' population health monitoring—and indicators to measure how well it is done—have not been generally agreed.

I would like to think, though, that this report (the third in a series that began in 1996) embodies some of the characteristics of 'good' population health monitoring. The Chief Health Officer's Report has proven a timely, comprehensive, flexible and popular vehicle for presenting health information to a wide range of potential users. For this edition, particular efforts have been made to improve the Report's coverage in three key strategic areas for NSW Health: the health of Aboriginal and Torres Strait Islander peoples, social determinants of health, and health and the environment.

The Chief Health Officer's Report is accompanied by a Web version, a unique feature of this report. Over time, new, more detailed or updated content will be added to the Web version to ensure that readers always have access to the most current information in the interval between hard copy editions. Both versions of the Report depend heavily on data sets and analytic tools made available through our Health Outcomes Information Statistical Toolkit (HOIST) data warehouse—another 'back room' activity, which is now bearing remarkable fruit.

I would like to thank the staff of the Epidemiology and Surveillance Branch for the excellent job they have done in putting the Report together, and to acknowledge also the contributions, help and support given by numerous colleagues throughout NSW Health and beyond. Feedback on previous editions of the Report has been important in improving the scope, content and presentation. I welcome your comments on this third edition.

Andrew Wilson

Deputy Director-General Public Health and Chief Health Officer

May 2000

About this report

This report is the third in a series that began in 1996. It provides a comprehensive overview of the health of the people of NSW, presents trends in key health indicators, demonstrates health differentials, and highlights emerging health priorities and new health data sources. It is intended for a wide variety of users, including health professionals and health consumers.

This edition of the report contains information on around 200 health indicators. Many of these have been retained and updated from the 1997 Report. Other indicators from 1997 have been dropped, to allow the addition of new content on emerging priorities, while keeping the size of the report manageable.

The latest available data are presented wherever possible, including a range of previously unpublished data from the 1997 and 1998 NSW Health Surveys.

Content

This report has four sections: Determinants of health, Overall health status, Health of specific populations and Health priority areas.

Each of the four sections of the report is divided into several chapters.

Section One, Determinants of health: includes chapters on the NSW population, social determinants of health, the environment, and health-related behaviours. The social determinants of health chapter includes new indicators of income, education and family structure analysed by Health Area. The chapter on the environment has been considerably expanded since the last Report and includes previously unpublished information about water quality. The health-related behaviours chapter presents previously unpublished data from the 1997 and 1998 NSW Health Surveys, and includes new information on deaths and illness attributable to smoking, alcohol use, and use of illicit drugs.

Section Two, Overall health status: presents information about life expectancy, death rates, causes of death, self-rated health, health care use, and causes of hospitalisation.

Section Three, Health of specific populations: examines differentials in health among population groups. Chapters examining the health of Aboriginal and Torres Strait Islander peoples, overseas-born people and socioeconomic groups have been substantially revised and improved since the 1997 edition of the report. This Section also includes a new chapter on rural and remote health, which introduces the use of the Accessibility/ Remoteness Index for Australia (ARIA) classification, and a chapter on the health of NSW mothers and babies.

Section Four, Health priority areas: presents recent information on key health issues including cardiovascular diseases, diabetes mellitus, cancer, asthma, injury and poisoning, mental health, oral health and communicable diseases.

Sources and methods

This report uses data from a wide variety of sources. Most data sets were accessed and analysed via the Health Outcomes Information Statistical Toolkit (HOIST) data warehouse. Descriptions of the data sets, details of the analytic methods used, and guidance on how to interpret charts, are given in the Methods chapter (page 265).

Web version

A Web version of this report can be accessed at http://www.health.nsw.gov.au/public-health/chorep/index.html. This includes downloadable versions of the charts and data tables. It is intended to update the Web version regularly, in between hard copy editions of the report.

Contents

Appendices

Executive Summary

NSW population

In 1998, the estimated NSW population was 6,333,515. About half the population was over 35 years of age. More than three-quarters of the NSW population lived in urban areas.

Social determinants

In NSW in 1996, one in five households had a weekly income of less than $300. More than 579,000 people were receiving the aged pension, about 270,000 were receiving disability or sickness benefits, and 289,000 were receiving unemployment benefits. The unemployment rate among NSW males rose from 7.0 per cent in 1989 to 13.3 per cent in 1993 and then declined to 6.5 per cent in 1999. Among females, the rate rose from 7.5 per cent to 11.3 per cent and declined to 7.8 per cent over the same period. In 1996, 51 per cent of males and 61 per cent of females had no post-school qualifications. One in ten NSW families were single-parent families.

The environment

Air quality in the Sydney region has improved. Over the period 1994–1997, the goal for atmospheric nitrogen dioxide concentration was not exceeded although ozone levels were more variable. The number of days in Sydney when atmospheric fine particles exceeded the desired goal declined between 1979 and 1992, with some fluctuations since then, while concentrations of lead in air have declined steadily. The first representative survey of air quality in NSW homes found elevated levels of fine particles in homes where smoking occurred, and in those with wood burning heaters.

The bacteriological quality of Sydney and Hunter water supplies has improved in recent years, with consistently low levels of faecal and total coliform counts reported. In July 1998, *Cryptosporidium* oocysts and *Giardia* cysts were detected at high levels in Sydney water, prompting the issue of a series of 'boil-water' alerts. Surveillance data suggest that the contamination did not pose a major risk to human health.

Health-related behaviours

In the 1997 NSW Health Survey, two-thirds of men and less than half of women reported adequate levels of physical activity. In the 1997 and 1998 Surveys, 50 per cent of men and 35 per cent of women reported being overweight or obese, an increase from the 1989/90 figures of 44 and 30 per cent, respectively. In the same surveys, women were more likely to report eating adequate amounts of fruit and using low or reduced fat milk, while men were more likely to report eating adequate amounts of breads and cereals. Around 20 per cent of men and women reported drinking alcohol at hazardous or harmful levels, while 27 per cent of men and 21 per cent of women reported current smoking. Smoking rates have been relatively static in NSW over the past five years.

In 1996, less than half of NSW secondary school students reported usually protecting themselves from the sun by staying in the shade or indoors in the middle of the day, covering up in clothes, wearing a hat, or wearing sunglasses. Around 20 per cent of students of both sexes reported having smoked in the previous week, and 34 per cent of boys and 29 per cent of girls reported drinking alcohol in the previous week. In the same year, 39 per cent of boys and 31 per cent of girls reported ever having used cannabis.

In NSW in 1998, 324 males and 63 females died from opiate overdose. The male death rate from this cause has more than doubled in the past 10 years.

Mortality and life expectancy

In NSW, between 1965 and 1998, life expectancy at birth increased from 67.1 to 76.5 years for men and from 73.7 to 81.9 years for women. Life expectancy at age 65 years also increased over the same period, from 77.3 to 82.0 years for men and from 80.8 to 85.2 years for women. The age-adjusted death rate in NSW decreased by 44 per cent over the period 1972–1998, from 1,070 to 602 per 100,000 population. In 1998, most deaths of children aged 0–4 years occurred in the first two years of life, and were due to perinatal conditions and congenital anomalies. The most common causes of death in people aged 15–64 years were cancer, circulatory diseases and injury and poisoning. Circulatory diseases were the most common causes of death in people aged 65 years and over, followed by cancers and respiratory diseases.

Illness

At the 1997 and 1998 NSW Health Surveys, 'fair' or 'poor' health were reported with similar frequency by males (15 per cent) and females (16 per cent). Around 20 per cent of men and 28 per cent of women reported visiting a general practitioner in the previous two weeks. Fourteen per cent of men and 12 per cent of women reported visiting an Emergency Department in the previous 12 months, while 12 per cent of men and 15 per cent of women reported being admitted to hospital for at least one night in the previous 12 months.

Overseas-born people

More than one-quarter of NSW residents at the 1996 Census were born overseas. Twenty per cent of people spoke a language other than English at home. The most common non-English languages were Chinese, Arabic, Italian and Greek. In the period 1993–1998, NSW residents born in overseas countries experienced lower death rates than Australian-born residents.

At the 1997 and 1998 NSW Health Surveys, men and women born in many overseas countries were less likely to report 'excellent' or 'very good' health compared with NSW residents overall. Men and women born in New Zealand, and men born in Vietnam and Lebanon were more likely to be smokers than NSW residents generally. Men and women born in New Zealand also had higher rates of harmful or hazardous alcohol consumption. In 1997 and 1998, NSW children born in many overseas countries had more teeth affected by decay than did their Australian-born counterparts.

Aboriginal and Torres Strait Islander peoples

At the 1996 Census, the indigenous population in NSW numbered 109,925—more than one-quarter of the national indigenous population. Forty per cent of the NSW indigenous population was aged less than 15 years compared with 21 per cent of the non-indigenous population, while less than three per cent of the indigenous population was aged 65 years and over, compared with 13 per cent of the non-indigenous population. In the period 1990–1998, rates of prematurity, low birth-weight and perinatal mortality were one-and-a-half to two times higher among babies of indigenous mothers compared to babies of non-indigenous mothers.

At the 1997 and 1998 NSW Health Surveys, there were higher reported rates of smoking and hazardous or harmful alcohol consumption in the indigenous as compared to the non-indigenous people of NSW. The surveys also showed a higher level of psychosocial distress, as measured by a standard questionnaire, among indigenous people compared with non-indigenous people.

Mothers and babies

In 1998, 85,499 births were registered in NSW. The crude birth rate declined from 15.5 to 13.5 per 1,000 population between 1992 and 1998. In the same period, the total fertility rate (the number of live-born babies a woman is expected to have over her lifetime) declined from 1.89 to 1.76 children. The trend toward delayed childbirth continues in NSW, with the proportion of mothers aged 35 years and over giving birth for the first time increasing from 7.1 per cent in 1994 to 9.7 per cent in 1998. The number of births to mothers aged less than 18 years decreased slightly from 1.6 to 1.4 per cent between 1990 and 1998. The proportion of babies born prematurely or with low birthweight has remained fairly stable over the past decade, at about six per cent and seven per cent respectively. The infant mortality rate declined substantially over the last 10 years: from 8.8 per 1,000 in 1986 to 5.0 per 1,000 in 1998. Sudden Infant Death Syndrome (SIDS) is the single most common cause of infant death. However, the number of deaths due to SIDS decreased from 205 in 1986 to 40 in 1997.

Rural and remote populations

Living in a remote area may influence health by restricting access to health services and to health promoting messages. The Accessibility/Remoteness Index of Australia (ARIA) can be used to measure the association between remoteness of residence and health. The ARIA index applied to death rates from road injury shows the death rates among residents of remote localities to be over twice that of NSW residents generally. Death rates due to ischaemic heart disease are also higher among residents of very remote areas compared to NSW overall.

Socioeconomic groups

In the period 1993–1998, the NSW local government areas (LGAs) with the lowest socioeconomic status (SES) had the highest rates of premature death (from any cause) among both males and females. A similar association existed for premature death from cardiovascular disease, in both sexes, and injury and poisoning in men. In children aged less than 15 years, there was a trend towards a higher death rate from injury and poisoning with increasing social disadvantage, though this was more apparent in boys than girls. In the same period, lower rates of infant mortality were found in LGAs that were the least disadvantaged. At the 1997 and 1998 NSW Health Surveys, residents of the least socioeconomically disadvantaged postcode areas were more likely to rate their health as 'excellent' or 'very good' compared to people living in the more disadvantaged postcode areas. Smoking, overweight or obesity and hazardous or harmful alcohol consumption were also associated with socioeconomic disadvantage, with rates of each of these being higher among the most disadvantaged postcode areas.

Cardiovascular diseases

The age-adjusted death rate due to coronary heart disease (CHD) has dropped by about 40 per cent in the last decade. Nevertheless, CHD is still a major cause of death in NSW, causing 22 per cent of all deaths in 1998. The decline in deaths from CHD has been accompanied by a 44 per cent increase in hospitalisations for this condition over the past decade. Most of the increase has been for non-infarct diagnoses, with hospitalisations for acute myocardial infarction ('heart attack') actually declining. Deaths from stroke declined by 36 per cent in males and 38 per cent in females in the decade to 1998. Stroke caused 10 per cent of all deaths in 1998. Although death rates for stroke have been falling, corresponding hospital separation rates have remained stable. With improvements in survival, and rising numbers of elderly people in the population, stroke will make an increasing contribution to the burden of disability on the community in NSW.

Diabetes mellitus

In NSW in 1997 and 1998, 4.7 per cent of males and 4.0 per cent of females aged 16 years and over reported having current high blood sugar or diabetes. Prevalence increased with age, to around 10 per cent for people aged 65 years or more. In 1998, 7.5 per cent of male deaths and 7.2 per cent of female deaths had diabetes as an underlying or contributing cause, ranking diabetes among the top 10 causes of death. In the 1997/98 financial year, 6,434 hospitalisations were reported as being associated with diabetes. In 1996/97, there were 547 hospitalisations for diabetes-related lower limb amputation. Many of these could be prevented by improved management of diabetes.

Cancer

In NSW in 1996, there were 26,408 new cases of cancer, and in 1998 there were 12,017 deaths from cancer. Lung cancer was the most common cause of cancer death for males and the second most common for females. Death rates from lung cancer in males have declined in recent years, but female death rates continue to increase. Colorectal cancers were the second most common malignant cancer in both males and females. The age-adjusted rate for new cases of colorectal cancer has increased in both sexes over the past 20 years. Prostate cancer was the most common malignant cancer in men and the second most common cause of cancer death. Death rates due to prostate cancer have changed little over the last 20 years. In 1996, breast cancer was the most common type of malignant cancer diagnosed in NSW women and the leading cause of cancer death. The number of new cases of breast cancer has increased in recent years, partly because of increased screening and early detection, while death rates have declined by about 20 per cent over the 10 years to 1998. Both new cases and deaths due to cervical cancer have declined in recent years, with the death rate decreasing by more than one-third in the period between 1989 and 1998.

Asthma

The prevalence of asthma has been increasing since the 1980s. In 1997 and 1998, one in 10 NSW adults reported currently having asthma. Almost 40 per cent of people with current asthma reported having one or more nights of sleep disturbed in the previous month, and approximately one-third reported having a written asthma management plan. There are over 20,000 hospitalisations for asthma each year in NSW. The rate of hospitalisation for asthma has been fairly stable in recent years. The number of deaths in NSW due to asthma decreased from 366 in 1989 to 246 in 1998, a decrease of almost one-third over the 10-year period.

Injury and poisoning

There were around 2,551 deaths in NSW due to injury and poisoning in NSW in 1998, making it the fourth leading cause of death in both sexes. There were 526 road injury deaths, with the highest death rate from this cause in young men aged 15–24 years. In the same year, there were 91 unintentional drownings, with the highest rate of drowning in children aged 0–4 years. Deaths and hospitalisations due to firearm injury have decreased slightly in recent years. In 1998, there were 90 deaths involving firearms compared to 179 in 1988.

Falls are the leading cause of hospitalisation for injuries, with persons over 65 years of age most at risk. The estimated lifetime cost of injuries from falls in 1995/96 was $1,073 million. In 1997/98, there were almost 5,000 hospitalisations for unintentional poisoning, 851 of which were for children aged 0–4 years. Hospitalisations following interpersonal violence have increased gradually in the last decade, with 6,036 such hospitalisations in 1997/98. In the same year, the highest hospitalisation rates for unintentional injuries from fire, burns and scalds were among children aged 0–4 years.

Mental health

Almost one in five adults may have at least one of the common mental health disorders at some time during a 12-month period. Young people are more likely to have a major mental disorder than older people. The most common mental disorders in adults are anxiety disorders (9.7 per cent), affective disorders (5.8 per cent) and substance use disorders (7.7 per cent). In NSW in 1997 and 1998, females reported higher levels of psychological distress than males, and young adults reported higher levels than older adults.

In 1998, an estimated 844 deaths in NSW were caused by suicide or self-inflicted injury. Most of these deaths were in males. Death rates from suicide among young men aged 15–24 years increased slightly in NSW over the past 10 years, while remaining relatively stable among young women. Hospitalisation for attempted suicide, on the other hand, is more common among females than males.

Oral health

In 1997 and 1998, 67 per cent of NSW Kindergarten children had not experienced tooth decay. Kindergarten children had on average one decayed, missing or filled tooth. In the same years, 64 per cent of NSW children in Year 6 had not experienced tooth decay. Year 6 children also had on average one decayed, missing or filled tooth.

Hospitalisations for the removal or restoration of teeth among infants and young children aged 0–4 years increased slightly between 1994/95 and 1997/98. The main reason for inpatient care in this age group is extensive dental caries possibly caused by the prolonged daily use of nursing bottles. Hospitalisations for the removal or restoration of teeth among children aged 5–14 years and persons aged 15 years and over also increased over this period.

Communicable diseases

Hepatitis C was the most frequently reported notifiable condition in 1998 (7,700 cases), as it has been each year since it became notifiable in 1991. Measles notifications decreased from 273 in 1997 to 119 in 1998. Pertussis notifications almost halved in 1998 compared to the previous year, from 4,252 in 1997 to 2,315 in 1998. *Haemophilus influenzae* type b (Hib) notifications declined substantially, from 38 in 1994 to 11 in 1998, following the introduction of an effective vaccine. In 1997 and 1998, 59 per cent of men and 61 per cent of women aged 65 years and over reported that they had been immunised against influenza in the previous 12 months.

Gonorrhoea notifications continued to increase, from 637 in 1997 to 1,050 in 1998. The increase was most marked among young inner-Sydney men. AIDS notifications continued to decline, with 149 cases notified in 1998. However, there was only a modest decline in reports of newly diagnosed HIV infections, with 371 notifications in 1998. A steady decline occurred in reported hepatitis A during 1998, following a large outbreak among young inner-Sydney men in late 1997 and early 1998.

Cryptosporidiosis notifications increased in late 1997–early 1998, as the result of a large outbreak linked to swimming in contaminated pools. However, no increase in cases was seen later that year following the identification of *Cryptosporidium* and *Giardia* parasites in treated drinking water—the 'Sydney water crisis'. Ross River virus notifications decreased dramatically, from 1,596 cases in 1997 to 580 in 1998. Salmonellosis notifications continued the gradual increase seen in recent years.

Map of NSW Area Health Services

These maps illustrate the current boundaries of the NSW Area Health Services. Each is made up of a number of statistical local areas or local government areas, which are listed on page 277.

List of abbreviations

ABS	Australian Bureau of Statistics
AGPS	Australian Government Printing Service
AHS	NSW Area Health Service
AHR	Airway hyper-responsiveness
AIDS	Acquired Immunodeficiency Syndrome
AIHW	Australian Institute of Health and Welfare
ARIA	Accessibility/Remoteness Index for Australia
ARMCANZ	Agricultural and Resource Management Council of Australia and New Zealand
BMI	Body mass index
BSP	Back-scattering coefficient for particles
CI	Confidence interval
DDE	A metabolite of DDT, Dichloro-diphenyl-dichloroethylene
DDT	Dichloro-diphenyl-trichloroethane
DLWC	Department of Land and Water Conservation
dmft	The number of deciduous (infant) teeth which are decayed, missing or have been filled due to caries (that is, tooth decay)
DMFT	The number of permanent (adult) teeth which are decayed, missing or have been filled due to caries (that is, tooth decay)
DTP	Diphtheria-tetanus-pertussis combined vaccine (also called triple antigen vaccine)
EPA	Environment Protection Authority
ESRD	End-stage renal disease
F	Female
FEV1	Forced expiratory volume
HARP	Health and Air Research Program
HIV	Human immunodeficiency virus
HOIST	Health Outcomes Information Statistical Toolkit (see Methods section, page 265)
HPS	NSW Health Promotion Survey 1994 (see Methods section, page 265)
ICD-9	International Classification of Diseases, 9th revision
ICD-9-CM	International Classification of Diseases, 9th revision, Clinical Modification
IDDM	Insulin-dependent diabetes mellitus
IRSD	Index of Relative Socioeconomic Disadvantage (see Methods section, page 265)
ISC	NSW Inpatients Statistics Collection (see Methods section, page 265)
LGA	Local Government Area
LL 95% CI	Lower limit of 95% confidence interval for rate
M	Male
MMR	Measles-mumps-rubella combined vaccine
NAC	National Asthma Campaign

NHS	Australian Bureau of Statistics National Health Survey (see Methods section, page 265)
NEPC	National Environment Protection Council
NHMRC	National Health and Medical Research Council
NIDDM	Non-insulin-dependent diabetes mellitus
No.	Number
NO_2	Nitrogen dioxide
NSW	New South Wales
PCP	Pentachlorophenol
PM10	Particulate matter <10 microns in diameter
ppm	parts per million
SCA	Sydney Catchment Authority
SEIFA	Australian Bureau of Statistics Socioeconomic Indices for Areas
SES	Socioeconomic status
SLA	Statistical Local Area
SPCC	State Pollution Control Commission
SIDS	Sudden Infant Death Syndrome
UL 95% CI	Upper limit of 95% confidence interval for rate

Determinants of health

Section 1

Chapter 1.1

NSW population

- In 1998, the Australian Bureau of Statistics estimated the NSW population to be 6,333,515.
- By the year 2017 it is estimated that the NSW population will be 7,302,623.
- In 1998 about half the population of NSW was over 35 years of age.
- In 1998, the estimated female population of NSW slightly outnumbered the male population. The greater proportion of women in the population increased with age, with women making up almost two-thirds of the population over 80 years of age.
- In 1998, 77.3 per cent of the NSW population lived in urban Health Areas, compared to 22.7 per cent in rural Health Areas.

In this Chapter

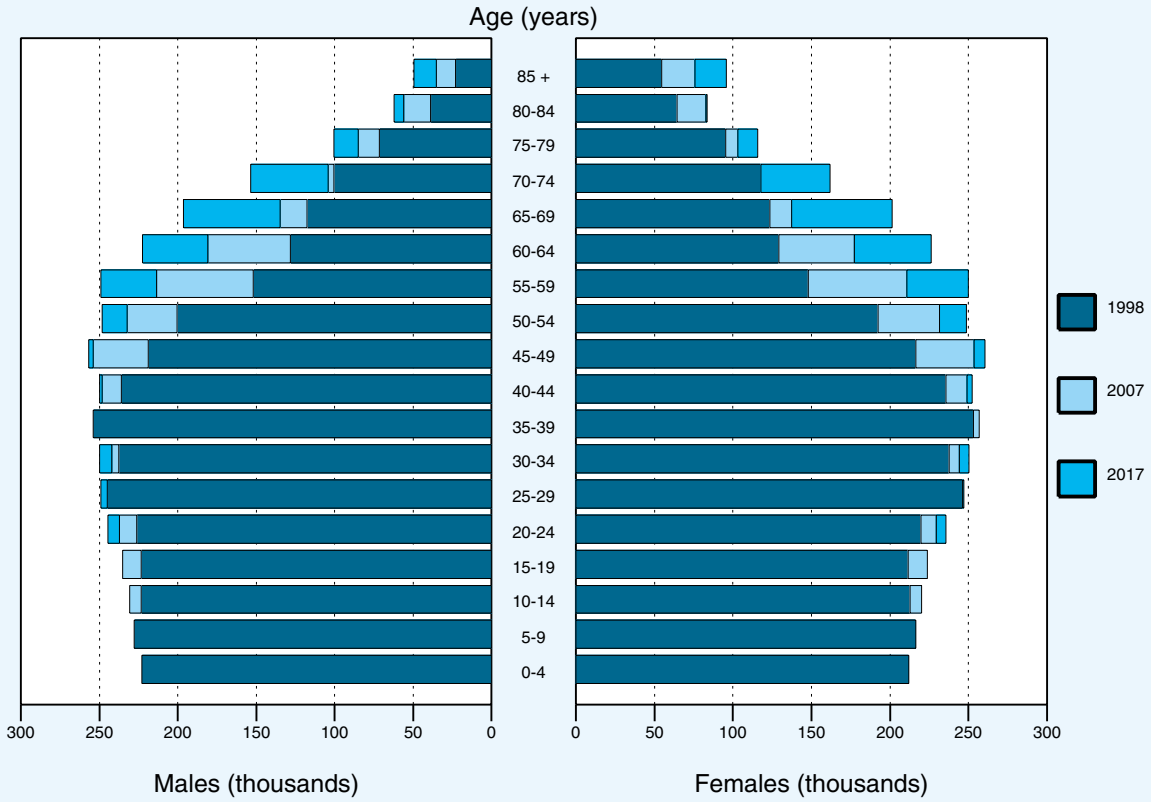
- Population pyramid
- 1998 populations of NSW Health Areas

Introduction

Age and sex are important determinants of the health of individuals, and the age and sex structure of populations are reflected in their patterns of illness and health service use. This chapter presents information on the age and sex distribution of NSW residents in 1998 (including a breakdown by Health Area) and gives population projections for NSW to 2017.

Country of birth and indigenous status are also important demographic determinants of health. More information on these population groups is given in Chapters 3.1 and 3.2, respectively.

NSW population pyramid
Estimated resident population 1998 and projected populations 2007 and 2017



Note: Population estimates as at 30 June each year. Where a bar has fewer than three segments, the number of people in that category is predicted to decrease by 2007 and/or 2017.

Source: ABS, 1998 estimated resident populations and mid-series experimental population projections (unpublished).

- The age and sex distribution of the estimated NSW population in 1998, and the projected population in 2007 and 2017, is shown in the population pyramid above.
- In 1998, the Australian Bureau of Statistics estimated the NSW population to be 6,333,515. By the year 2017, it is estimated that the population will be 7,302,623.
- Currently, approximately half of the NSW population is aged 35 years and over.
- In 1998, the estimated female population slightly outnumbered the male population. The greater proportion of women in the population increased with age, with women making up almost two-thirds (66 per cent) of the population over 80 years of age.
- The projected shape of the population pyramid reflects low death rates and increasing life expectancy.
- In 1998, 77.3 per cent of the NSW population lived in urban Health Areas, compared to 22.7 per cent in rural Health Areas.

For more information, see: Australian Bureau of Statistics Web site at http://www.abs.gov.au.

Australian Bureau of Statistics. *Population by Age and Sex, New South Wales*. Catalogue no. 3235.1. Canberra: ABS, 1999.

Australian Bureau of Statistics, *Estimated resident population projections by age and sex, New South Wales, 1997–2017*. Canberra: ABS, 1999 (unpublished data).

MALES: 1998 estimated population of NSW residents by age and Health Area

Health Area	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44
Central Sydney	15245	13250	12177	13862	19873	24744	23807	22407	18672
Northern Sydney	22522	22770	22915	26043	27872	30433	28914	30515	28268
Sth East Sydney	21898	21115	20371	23061	31980	37471	34268	32708	28525
Sth West Sydney	31476	31226	30299	30233	29480	29951	29040	30910	27978
Western Sydney	26282	25315	24503	25786	26638	27885	26093	26485	24386
Wentworth	12670	13111	12924	12326	11352	11895	11270	12501	11945
Central Coast	10222	11084	10358	9006	7657	8419	9160	10481	10040
Hunter	18717	19552	19481	18948	19195	19607	18322	20361	19570
Illawarra	12121	12803	12429	12142	11942	11921	11681	13130	12173
Northern Rivers	8497	10041	10352	9294	6686	6460	7442	9573	10045
Mid North Coast	8224	9948	10278	8626	5415	6029	6796	8982	9497
New England	6403	6984	7024	6667	5398	5537	5497	6518	6424
Macquarie	4342	4534	4226	3614	2717	3309	3400	3980	3669
Far West	1949	1987	1892	1616	1467	1769	1780	2028	1900
Mid Western	6246	6566	6887	6655	5350	5598	5429	6244	6072
Greater Murray	9973	10389	10078	9596	8338	8640	8721	9893	9424
Southern	6303	7014	6967	5936	4734	5388	5867	7199	7240
NSW	223090	227689	223161	223411	226094	245056	237487	253915	235828

FEMALES: 1998 estimated population of NSW residents by age and Health Area

Health Area	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44
Central Sydney	14278	12225	11699	13869	21196	25538	22975	21092	18090
Northern Sydney	21354	21949	21929	24229	27560	30881	30010	30847	29444
Sth East Sydney	20608	20081	19583	21960	31415	36889	32006	30052	27354
Sth West Sydney	30059	29569	28399	28692	28171	30454	29340	31053	28562
Western Sydney	24583	23960	23357	24545	26002	28037	25827	25952	24774
Wentworth	12204	12461	12386	11660	11270	12192	11719	13142	12509
Central Coast	9938	10445	9864	8546	7451	8967	9576	11105	10349
Hunter	17868	18908	18663	17949	17834	18856	18287	20480	19281
Illawarra	11476	12153	12154	11291	11017	11581	11606	13326	12212
Northern Rivers	8147	9480	9615	8495	6212	6804	7937	10550	10407
Mid North Coast	7885	9432	9824	8169	5116	6330	7423	9886	9554
New England	6172	6760	6806	6697	5202	5449	5749	6614	6323
Macquarie	4064	4273	4099	3268	2732	3405	3767	3875	3684
Far West	1723	1829	1675	1472	1321	1755	1688	1860	1653
Mid Western	5944	6287	6419	6151	5148	5329	5302	6204	5792
Greater Murray	9447	9908	9836	9175	7853	8449	8541	9830	8946
Southern	6214	6878	6618	5523	4102	5364	6090	7223	6822
NSW	211964	216598	212926	211691	219602	246280	237843	253091	235756

PERSONS: 1998 estimated population of NSW residents by age and Health Area

Health Area	0–4	5–9	10–14	15–19	20–24	25–29	30–34	35–39	40–44
Central Sydney	29524	25476	23876	27731	41069	50282	46782	43499	36762
Northern Sydney	43876	44719	44844	50272	55432	61314	58924	61362	57712
Sth East Sydney	42505	41195	39954	45021	63395	74360	66274	62760	55879
Sth West Sydney	61535	60795	58698	58925	57651	60405	58380	61963	56540
Western Sydney	50865	49275	47860	50331	52640	55922	51920	52437	49160
Wentworth	24874	25572	25310	23986	22622	24087	22989	25643	24454
Central Coast	20160	21529	20222	17552	15108	17386	18736	21586	20389
Hunter	36585	38460	38144	36897	37029	38463	36609	40841	38851
Illawarra	23597	24956	24583	23433	22959	23502	23287	26456	24385
Northern Rivers	16644	19521	19967	17789	12898	13264	15379	20123	20452
Mid North Coast	16109	19380	20102	16795	10531	12359	14219	18868	19051
New England	12575	13744	13830	13364	10600	10986	11246	13132	12747
Macquarie	8406	8807	8325	6882	5449	6714	7167	7855	7353
Far West	3672	3816	3567	3088	2788	3524	3468	3888	3553
Mid Western	12190	12853	13306	12806	10498	10927	10731	12448	11864
Greater Murray	19420	20297	19914	18771	16191	17089	17262	19723	18370
Southern	12517	13892	13585	11459	8836	10752	11957	14422	14062
NSW	435054	444287	436087	435102	445696	491336	475330	507006	471584

Note: Population estimated at 30 June.

Source: ABS 1998 estimated resident populations (unpublished).

MALES: 1998 estimated population of NSW residents by age and Health Area

45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85 +	All ages
16078	14414	11195	9815	8802	7316	5123	2782	1895	241459
27874	27156	19792	15227	13365	11686	9146	5377	3570	373445
25813	24552	18301	15239	13578	11881	9125	5267	3295	378446
25294	22193	16261	13072	11185	8988	6040	2900	1544	378070
23193	22031	15983	11786	9487	7633	5089	2642	1375	332592
11601	9793	6240	4586	3740	3053	2149	1126	648	152930
8962	8076	6226	5624	6514	6194	4732	2670	1446	136871
18257	16757	12384	10722	10502	9457	6707	3521	2048	264108
11035	10016	8309	7914	7806	6616	4457	2154	1085	169734
9553	7695	5881	5781	5968	5625	4022	2201	1196	126312
8746	7841	6753	6651	7085	6348	4474	2391	1334	125418
6040	5827	4702	4126	3587	2771	1863	1147	708	87223
3464	3185	2756	2397	2161	1650	1041	602	370	51417
1822	1712	1428	1181	1102	861	479	297	176	25446
5824	5314	4188	3718	3306	2694	1763	1026	639	83519
8683	7828	6285	5807	5173	4417	2813	1552	1032	128642
6592	6007	5131	4462	4116	3521	2401	1171	664	90713
218831	200397	151815	128108	117477	100711	71424	38826	23025	3146345

FEMALES: 1998 estimated population of NSW residents by age and Health Area

45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85 +	All ages
15748	13476	10519	9335	8656	8220	6962	4975	4594	243448
29323	27169	19599	15356	14682	14941	13226	10161	9850	392510
25779	23506	17502	14998	14576	14871	12682	8909	7742	380512
25416	20810	15559	13108	12230	11050	8170	4538	3700	378880
23354	21224	14637	11410	10286	9396	7480	4592	3819	333235
11299	9078	5946	4588	4019	3881	3091	1892	1499	154836
8818	8152	6397	6695	7125	7303	6209	4196	2885	144021
18023	15814	12303	11393	11381	10883	8740	5961	4785	267409
10866	9899	8539	8343	8158	7275	5383	3324	2542	171145
8817	7405	6184	6213	6184	5995	4749	3047	2434	128675
8644	7972	7282	6965	7088	6624	5169	3301	2520	129184
5857	5520	4606	3983	3466	3167	2600	1769	1696	88436
3249	3025	2575	2248	2067	1770	1335	1028	862	51326
1542	1398	1121	1025	968	861	667	493	428	23479
5353	4928	4073	3582	3267	3053	2504	1750	1533	82619
8237	7191	6062	5552	5232	4748	3817	2594	2386	127804
6256	5683	4868	4298	4072	3626	2720	1863	1431	89651
216581	192250	147772	129092	123457	117664	95504	64393	54706	3187170

PERSONS: 1998 estimated population of NSW residents by age and Health Area

45–49	50–54	55–59	60–64	65–69	70–74	75–79	80–84	85 +	All ages
31826	27890	21714	19149	17458	15537	12085	7757	6489	484906
57197	54325	39391	30583	28047	26627	22372	15538	13420	765955
51592	48058	35803	30238	28154	26751	21807	14176	11037	758959
50710	43003	31820	26180	23415	20038	14210	7438	5244	756950
46547	43255	30620	23196	19773	17029	12569	7234	5194	665827
22900	18871	12186	9174	7759	6934	5240	3018	2147	307766
17780	16228	12623	12319	13639	13497	10941	6866	4331	280892
36280	32571	24687	22115	21883	20340	15447	9482	6833	531517
21901	19915	16848	16257	15964	13891	9840	5478	3627	340879
18370	15100	12065	11994	12152	11620	8771	5248	3630	254987
17390	15813	14035	13616	14173	12972	9643	5692	3854	254602
11897	11347	9308	8109	7053	5938	4463	2916	2404	175659
6713	6210	5331	4645	4228	3420	2376	1630	1232	102743
3364	3110	2549	2206	2070	1722	1146	790	604	48925
11177	10242	8261	7300	6573	5747	4267	2776	2172	166138
16920	15019	12347	11359	10405	9165	6630	4146	3418	256446
12848	11690	9999	8760	8188	7147	5121	3034	2095	180364
435412	392647	299587	257200	240934	218375	166928	103219	77731	6333515

Note: Population estimated at 30 June.

Source: ABS 1998 estimated resident populations (unpublished).

Chapter 1.2

Social determinants

- In NSW in 1996, almost one third of men and more than half of women aged 15–64 years had a weekly income of less than $300. One in five households had a weekly income of less than $300.
- In 1998 and 1999, more than 579,000 people were receiving the aged pension, about 270,000 were receiving disability or sickness benefits, and 289,000 were receiving unemployment benefits. Over 331,000 families were receiving the family assistance benefit.
- The unemployment rate among NSW males rose from 7.0 per cent in 1989 to 13.3 per cent in 1993, and then declined to 6.5 per cent in 1999. Among females, the rate rose from 7.5 per cent to 11.3 per cent, and declined to 7.8 per cent over the same period.
- In 1996, unemployment rates ranged from 3.5 per cent and 4.3 per cent of males and females respectively in the Northern Sydney Health Area, to 18.5 per cent and 13.8 per cent of males and females in the Far West Health Area.
- In 1996, 51 per cent of males and 61 per cent of females had no post-school qualifications. The Far West Health Area had the highest proportion of people with no post-school qualifications (63 per cent of males and 70 per cent of females), while the Northern Sydney Health Area had the lowest (40 per cent of males and 48 per cent of females).
- In 1996, one in 10 NSW families were single-parent families with dependent children, and 40 per cent were couple families with dependent children.
- Year 12 retention rates in NSW increased from 36 to 69 per cent between 1978 and 1998.

In this chapter

- Individual weekly income
- Household income groups
- Recipients of pensions and sickness benefits
- Recipients of unemployment and family assistance benefits
- Unemployment rate
- Unemployment rate by Health Area
- No post school education
- Families with dependent children
- Year 12 retention rates

Introduction

For almost 20 years the World Health Organization has defined 'health' not only as a state of physical, but also social well-being (WHO,1981). There is increasing acceptance of social models of health which include the social, as well as the physical and biological determinants of health and illustrate the joint impact of these determinants on the healthy functioning, disease outcomes and well-being of the individual. While the evidence for the relationship between socioeconomic status and health is strong (Evans et al.1994; Marmot et al. 1999; Howden-Chapman et al.1998), the factors that explain this relationship are unclear. It is obvious that material resources of individuals such as housing, income and education are important determinants. However, the relative importance of the resources of the community as a whole and the impact these may have on the health of individuals is not clear. The notions of social capital and capacity building attempt to describe and subsequently provide a basis for measuring some of these community-based socioeconomic determinants of health (Bordieu, 1985; Coleman,1988). Indicators to measure these factors which are relevant to the Australian social environment are being developed, but data are not currently available for reporting (NSW Health Department, 2000).

This Chapter provides population-based data on various social and economic factors which have been shown to be associated with the health of individuals or groups. For some factors such as income, employment and education, several indicators are included, as there are no standard measures in this area. Geographic variations based on NSW Health Areas are also shown with a further breakdown by target group in some areas, to give some indication of relative disadvantage at a broad level. The indicators in the chapter are presented as single dimensions—the relationship between an overall measure of socioeconomic status and a range of health indicators is explored in Chapter 3.5.

For more information, see: WHO 1981 Global Strategy for Health for All by the Year 2000.

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Hupalo P, Herden K. *Health policy and inequality.* Canberra: Department of Health and Aged Care Occasional Papers: New series no. 5, 1999.

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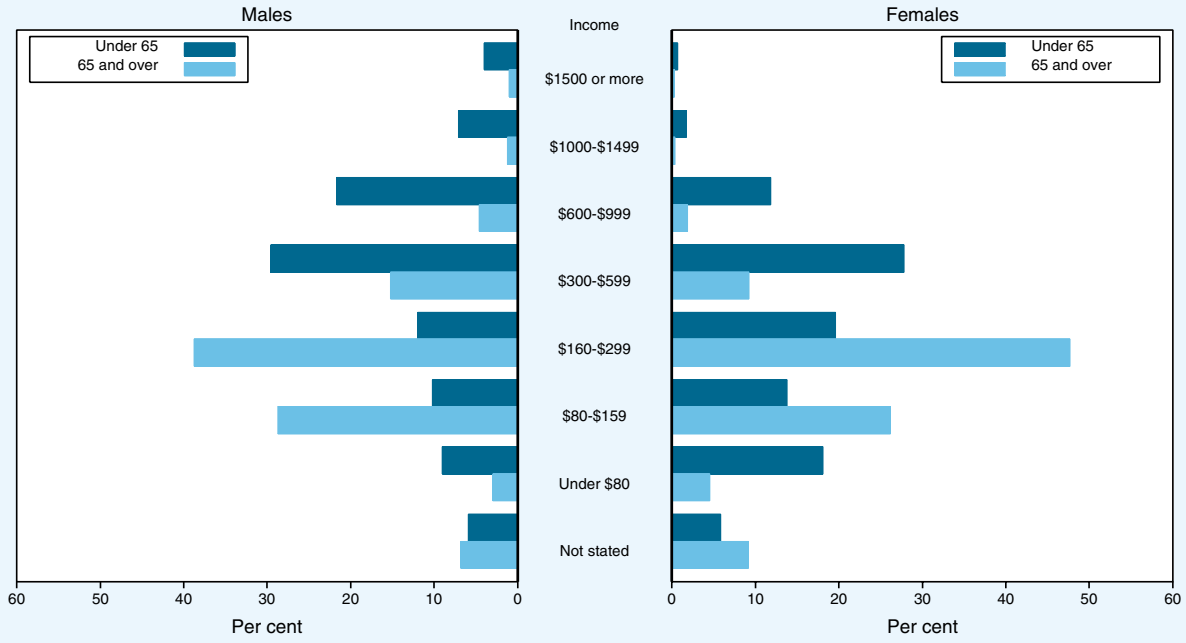
Individual weekly income by sex and age, NSW 1996



			< $80	$80–159	$160–299	$300–599	$600–999	$1000–1499	$1500+	Not stated
Number	Males	Under 65	179632	203419	237540	584566	428937	141243	80309	117792
		65 & over	10086	94559	127610	50269	15405	4224	3659	22742
		Total	189718	297978	365150	634835	444342	145467	83968	140534
	Females	Under 65	357655	272817	387976	550048	235143	35675	15083	116926
		65 & over	20074	113984	207359	40423	8455	2062	1696	40065
		Total	377729	386801	595335	590471	243598	37737	16779	156991
	Persons	Under 65	537287	476236	625516	1134614	664080	176918	95392	234718
		65 & over	30160	208543	334969	90692	23860	6286	5355	62807
		Total	567447	684779	960485	1225306	687940	183204	100747	297525
Per cent	Males	Under 65	9.1	10.3	12.0	29.6	21.7	7.2	4.1	6.0
		65 & over	3.1	28.8	38.8	15.3	4.7	1.3	1.1	6.9
		Total	8.2	12.9	15.9	27.6	19.3	6.3	3.6	6.1
	Females	Under 65	18.1	13.8	19.7	27.9	11.9	1.8	0.8	5.9
		65 & over	4.6	26.3	47.8	9.3	1.9	0.5	0.4	9.2
		Total	15.7	16.1	24.7	24.5	10.1	1.6	0.7	6.5
	Persons	Under 65	13.6	12.1	15.9	28.8	16.8	4.5	2.4	6.0
		65 & over	4.0	27.3	43.9	11.9	3.1	0.8	0.7	8.2
		Total	12.1	14.5	20.4	26.0	14.6	3.9	2.1	6.3

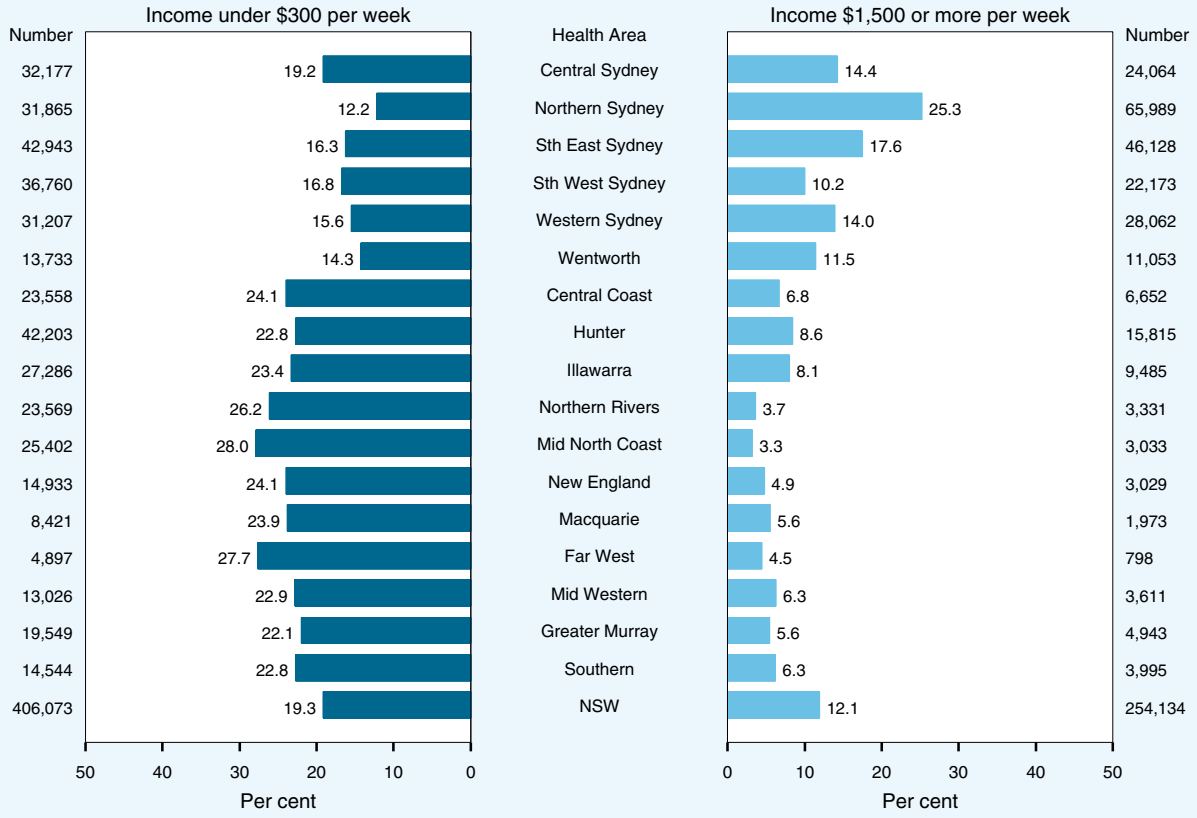
Note: Includes all NSW residents aged 15 years and over, based on individual weekly income.

Source: ABS 1996 Census Basic Community Profile (electronic), ABS cat. no. 2020.0, ABS, Canberra, 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Income is one of the main determinants of poverty, which is closely linked to poor health.
- In NSW in 1996, there were substantial differences in the individual income distribution according to sex and age group. These figures represent self-reported income, includings earnings and government payments. The not-stated category is relatively large.
- Among males aged 15–64 years, almost one-third had weekly incomes of $299 or less, while among males aged 65 years or over, about 70 per cent had incomes in this range.
- Females had lower incomes in both age groups. Just over half of females aged under 65 years and almost 80 per cent of females aged 65 years and over had weekly incomes of $299 or less.

For more information, see: ABS. *Australian social trends 1998*. Canberra: ABS, 1998.

Households in the highest and lowest income groups by Health Area, NSW 1996



Note: Includes all NSW residents aged 15 years and over, based on family household income.

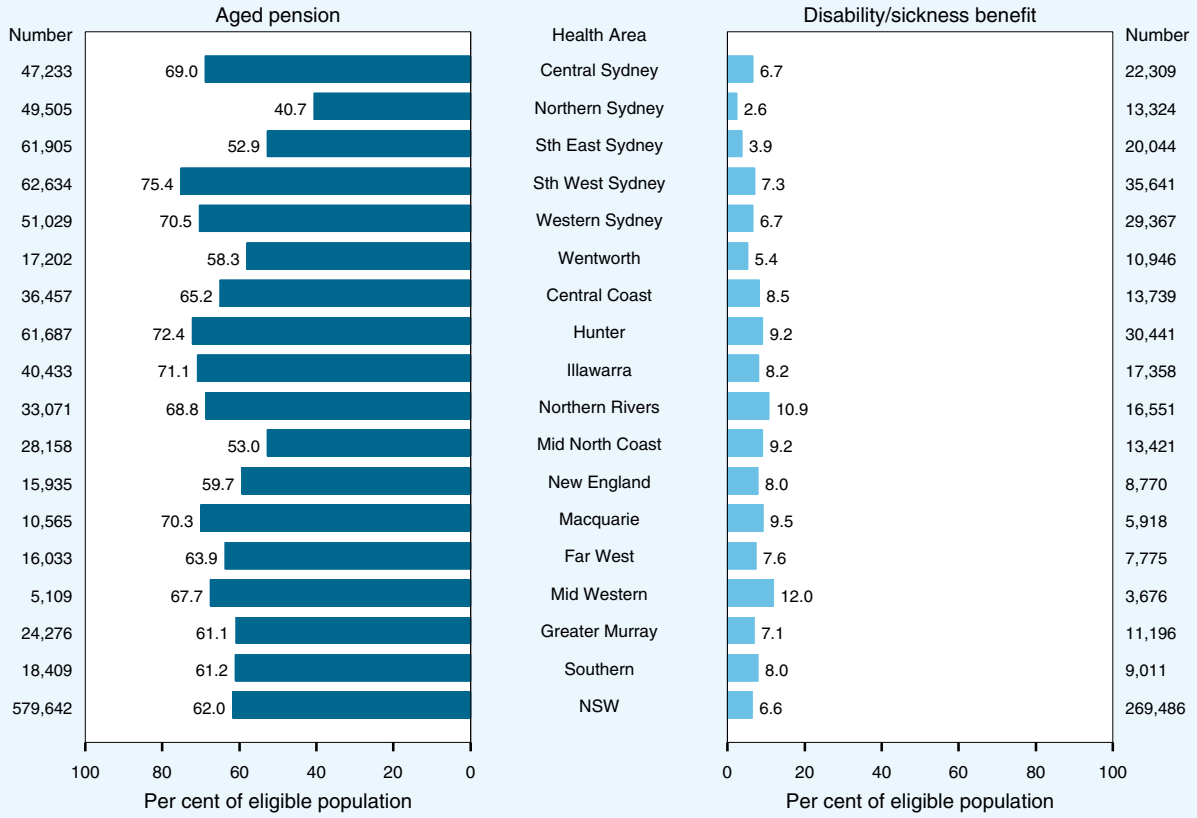
Source: ABS 1996 Census Basic Community Profile (electronic), ABS cat no. 2020.0, ABS. Canberra, 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, 406,073 households in NSW (19.3 per cent) had a weekly income of less than $300. The Health Areas with the highest proportions of households with a weekly income of less than $300 were the Mid North Coast Health Area (28.0 per cent) and the Far West Health Area (27.7 per cent). Those with the lowest proportion of households with a weekly income of less than $300 were the Northern Sydney (12.2 per cent) and Wentworth (14.3 per cent) Health Areas.
- There were 254,134 households (12.1 per cent) with a weekly income of $1,500 or more in NSW in 1996. The greatest proportion of high income households was in the Northern Sydney Health Area (25.3 per cent) and the lowest proportions were in the Mid North Coast (3.3 per cent) and Northern Rivers (3.7 per cent) Health Areas.
- Rural Health Areas had a higher proportion of households with incomes of less than $300 per week and a lower proportion of high income households in comparison with Sydney metropolitan Health Areas. An unusual pattern was displayed in the Central Sydney Health Area, where low income households almost equalled the state average (19.2 per cent) and high income households were above state average (14.4 per cent).
- The poverty lines for Australia are based on an estimate of the seasonally-adjusted household disposable income per head per week (Saunders, 1996). Defining 'poverty' in an affluent country such as Australia is difficult, and merely measuring inequalities in household income is only indicative of the ability of those households to afford the necessities of life. A better basis for measuremnt would rely on agreement on a 'basket for the necessities of life' whose prices could be tracked (Warby, 1999). This may also assist in better identification of pockets of disadvantage within areas of relative affluence.

For more information, see: Saunders P. *Income and Welfare special article - Poverty and deprivation in Australia.* From Year Book Australia, 1996. Australian Bureau of Statistics. Canberra:1996.

Warby M. Book review. *Australian poverty: Then and now* (editors Fincher R and Nieuwenhuysen J, Melbourne University Press, 1998). *Policy,* Summer 1998–1999. Web site at http://ipa.org.au/pubs/special/bookreviews/Ozpovertyreview.html.

Recipients of aged pension or sickness benefits by Health Area, NSW 1998 and 1999



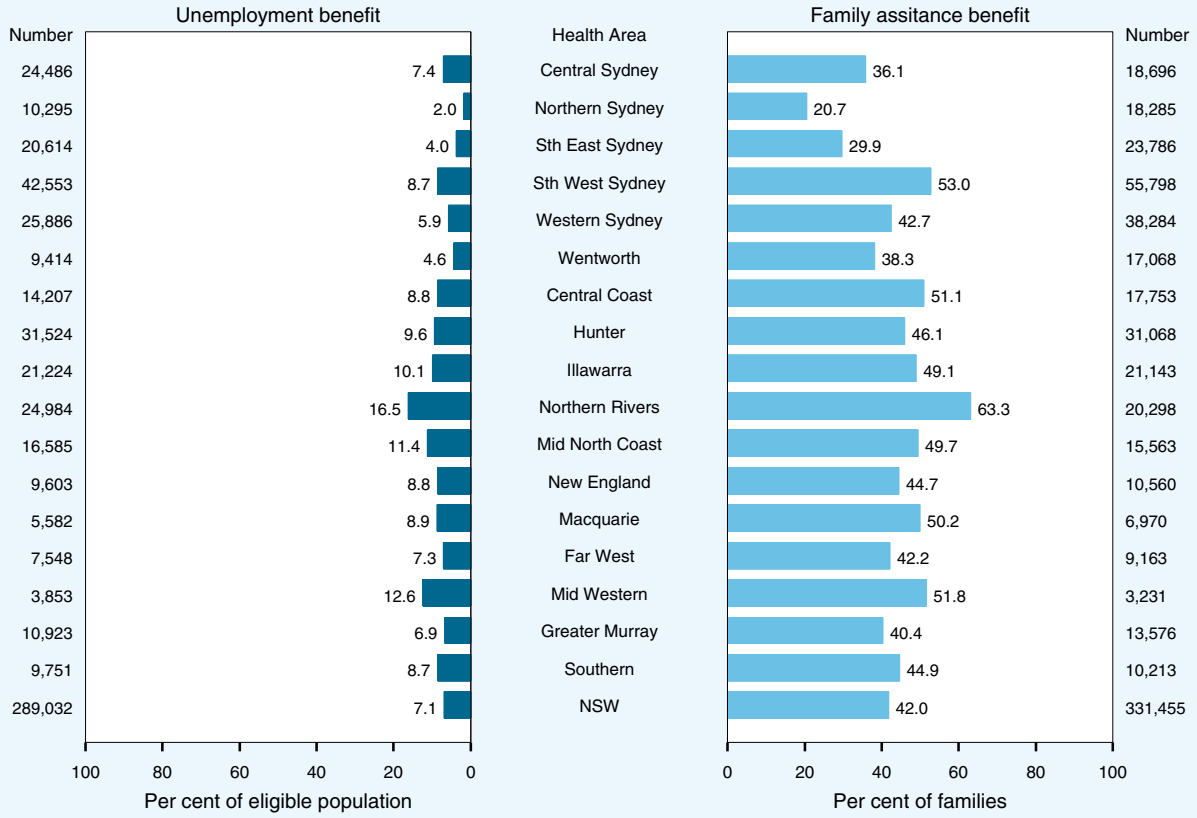
Note: The eligible population for the aged pension includes females aged 60 years and over and males aged 65 years and over. The eligible population for disability or sickness benefits includes females aged between 15 and 59 years and males aged between 15 and 64 years.

Source: Centrelink, Head Office, Canberra, 1999 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, 579,642 females aged 60 and over and males aged 65 and over in NSW received the aged pension. This constituted 62 per cent of the total NSW population in these age/sex groups. South Western Sydney Health Area had the highest proportion of older persons receiving the aged pension (75.4 per cent) while Northern Sydney Health Area had the lowest proportion (40.7 per cent) and was the only Health Area with a rate below 50 per cent.
- Also in 1996, 269,486 females aged 15–59 years and males aged 15–64 years received disability or sickness benefits in NSW. The Far West Health Area had the highest proportion of persons receiving this benefit (12.0 per cent) and the Northern Sydney Health Area had the lowest proportion (2.6 per cent). The average for NSW was 6.6 per cent.
- Where people living on aged pensions and disability or sickness benefits are clustered in regions or localities, it is reasonable to assume that the communities in which they live will be generally of lower socioeconomic status than many others. This table illustrates this to be the case even on as broad a scale as Area Health Services. The Northern Sydney Health Area had the lowest number of benefit recipients in both categories, while South Western Sydney, Hunter and Illawarra Health Areas had the most aged pensioners. The Far West and Northern Rivers Health Areas had the most sickness benefit recipients. These five Areas have been identified as having high levels of social disadvantage in another study (Vinson, 1999).
- Age is an important component in the Resource Distribution Formula used by NSW Health to allocate funding to Health Areas. Indicators which link age and income may help Health Areas to target more clearly those people most in need and to provide the most appropriate health services.

For more information, see: Vinson T. *Unequal in life*. The distribution of social disadvantage in Victoria and New South Wales. Melbourne: The Ignatius Centre, 1999.

Recipients of unemployment or family assistance benefits by Health Area, NSW 1998 and 1999



Note: The eligible population for unemployment benefits includes females aged 15–59 years and males aged 15– 64 years. Unemployment rates as at 30 June 1998. Family assistance benefits are means tested and are paid on a sliding scale based on family income level up to a combined family income of $66,403 annually for one child, adding $3,322 for each child.

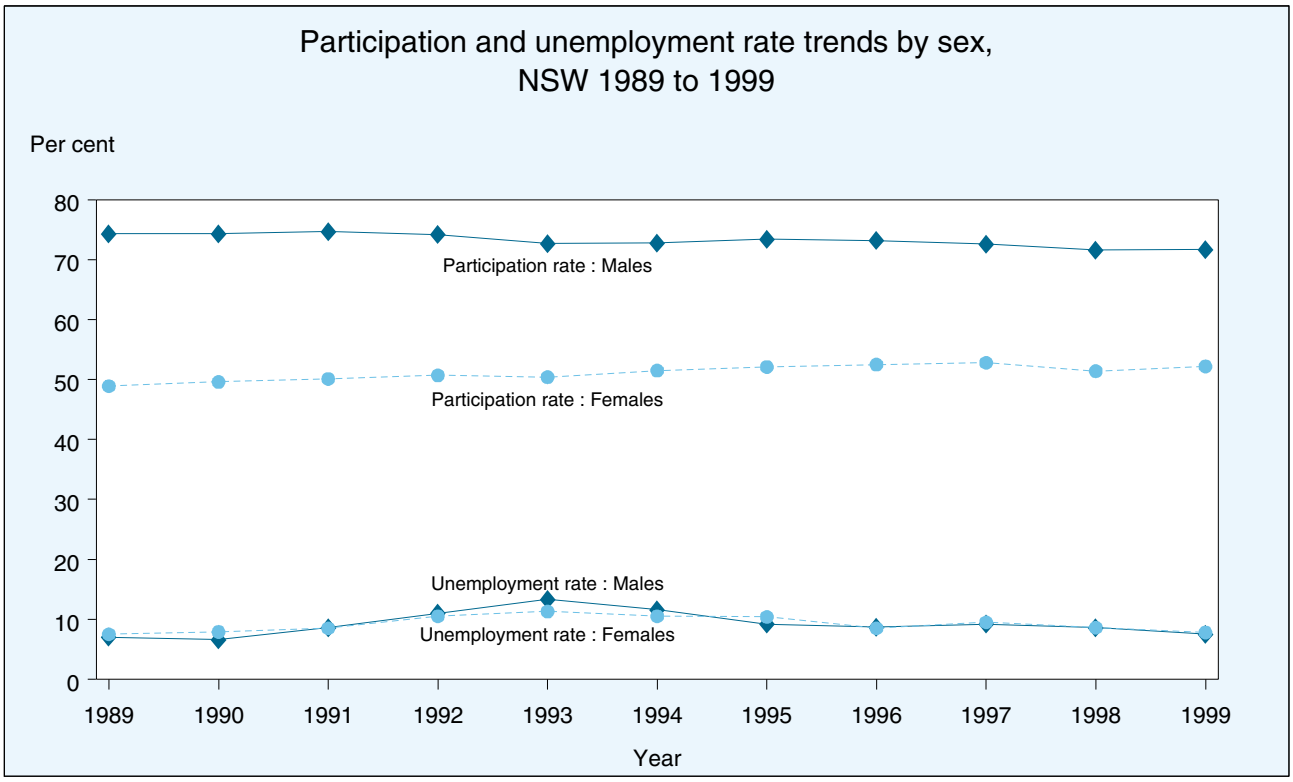
Source: Centrelink, Head Office, Canberra, 1999 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, 289,032 persons received unemployment benefits in NSW—7.1 per cent of the eligible population. Those eligible to receive the benefit were females aged 15–59 years and males aged 15–64 years who were residents of NSW.
- Also in 1996, 331,455 families received the family assistance benefit in NSW, representing 42.0 per cent of all families in NSW.
- The Northern Rivers Health Area had by far the highest proportion of unemployment benefit recipients (16.5 per cent) and the highest proportion of families receiving the family assistance benefit (63.3 per cent). The Northern Sydney Health Area had the lowest proportion of beneficiaries in both categories (2.0 per cent and 20.7 per cent respectively), followed by the South Eastern Sydney Health Area (4.0 per cent and 29.9 per cent respectively).
- Following the Northern Rivers Health Area, the proportion of recipients of unemployment benefits was well above the state average in the Far West (12.6 per cent), Mid North Coast (11.4 per cent) and Illawarra (10.1 per cent) Health Areas. The proportion of families receiving the family assistance benefit was also above the state average in the South Western Sydney (53.0 per cent), Far West (51.8 per cent), Central Coast (51.1 per cent) and Macquarie Health Areas (50.2 per cent).

For more information, see: Harris E, Webster I, Harris M, and Lee P. Unemployment and health: The healthcare system's role. *Med J Aust* 1998;168: 168–70.

Morrell S, Taylor R, and Kerr C. Unemployment and young people's health. *Med J Aust* 1998; 168: 236–240.

Harris E, Harris M, Lee P, and Powell Davies G. *Taking action to address the health impact of unemployment: Experiences from South-Western Sydney. Health Promotion J Aust* 1999; 9(2): 115–120.



Year	Male unemployment rate (%)	Male participation rate (%)	Female unemployment rate (%)	Female participation rate (%)
1989	7.0	74.3	7.5	48.9
1990	6.6	74.3	7.9	49.6
1991	8.6	74.7	8.5	50.1
1992	11.0	74.2	10.5	50.7
1993	13.3	72.7	11.3	50.4
1994	11.6	72.8	10.5	51.5
1995	9.2	73.4	10.4	52.1
1996	8.7	73.2	8.5	52.5
1997	9.2	72.6	9.5	52.8
1998	8.6	71.6	8.6	51.4
1999	7.5	71.7	7.8	52.2

Note: Unemployment rate=ratio of the number of people out of work but seeking work to the total participating in the labour force. Participation rate=ratio of the population participating in the labour force to the total population.

Source: Labour force data, Centrelink, Head Office, Canberra, 1999 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

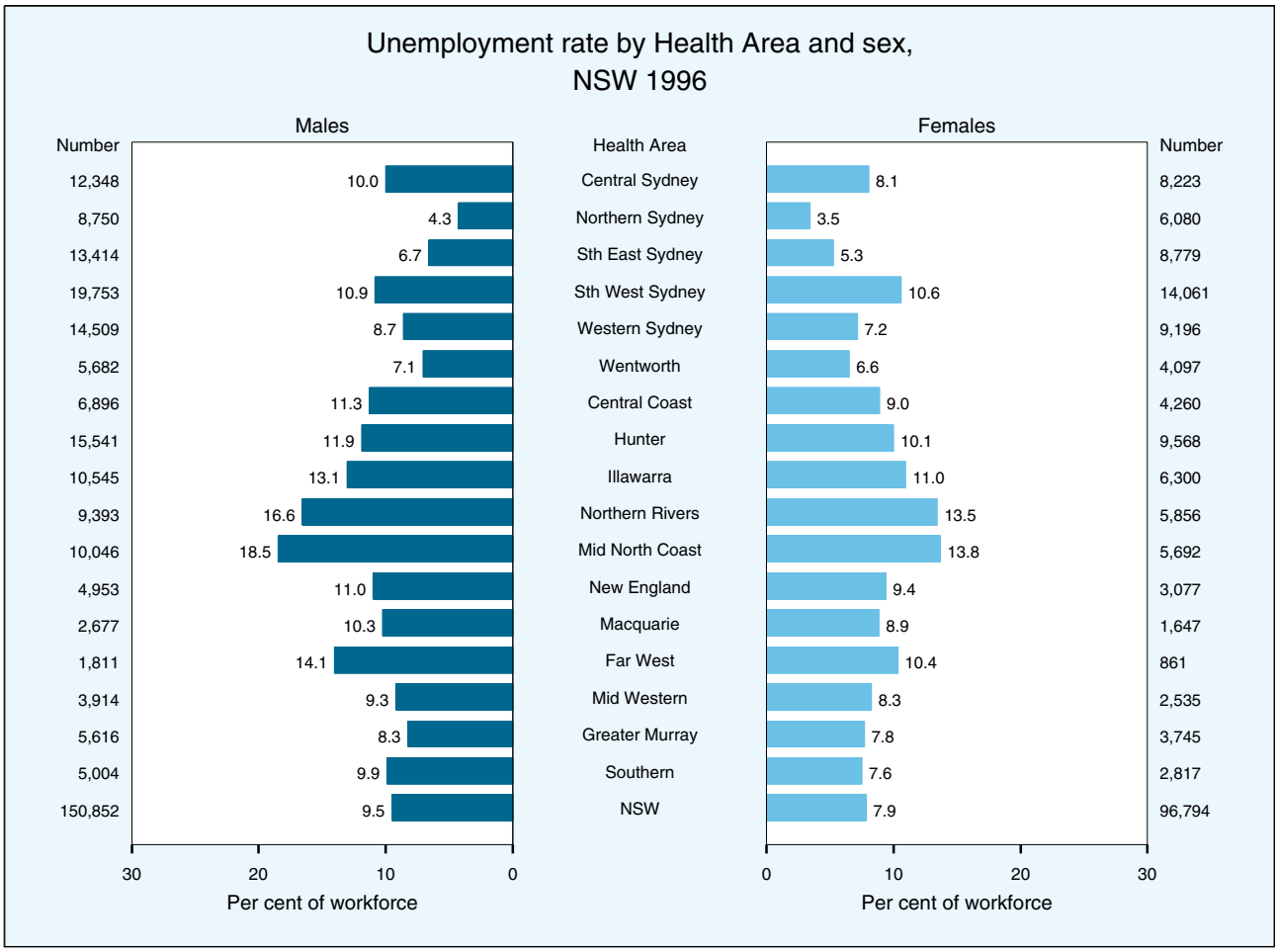
- The interpretation of unemployment statistics requires information on both unemployment and labour force participation. For example, if the number of people participating in the workforce decreases, and the number of people out of work or seeking work remains the same, the unemployment rate will rise.
- People who are unemployed have poorer physical and mental health than people who are employed. Four reasons are generally given for this: people who are sick are more likely to become unemployed; lifestyle factors such as increased smoking or use of alcohol; the impact of poverty; and a direct and independent impact of loss of employment (Mathers and Schofield, 1998).
- The impact of unemployment on health is thought to increase with the length of unemployment, with many chronic physical and mental health problems acting as barriers to re-employment (Harris et al. 1998).

For more information, see: Mathers CD and Schofield DJ. Health consequences of unemployment: the evidence. *Med J Aust* 1998; 166: 178–181.

Harris E, Webster I, Harris M, and Lee P. Unemployment and health: The healthcare system's role. *Med J Aust* 1998; 168:168–70.

Morrell S, Taylor R, and Kerr C. Unemployment and young people's health. *Med J Aust* 1998; 168: 236–240.

Harris E, Harris M, Lee P, and Powell Davies G. Taking action to address the health impact of unemployment: Experiences from South-Western Sydney. *Health Promotion J Aust* 1999; 9(2): 115–120.



Note: Unemployment rate is the ratio of the number of people out of work and seeking work to the total participating in the labour force. Participation rate is the ratio of the population participating in the labour force to the total population.

Source: ABS 1996 Census Basic Community Profiles (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

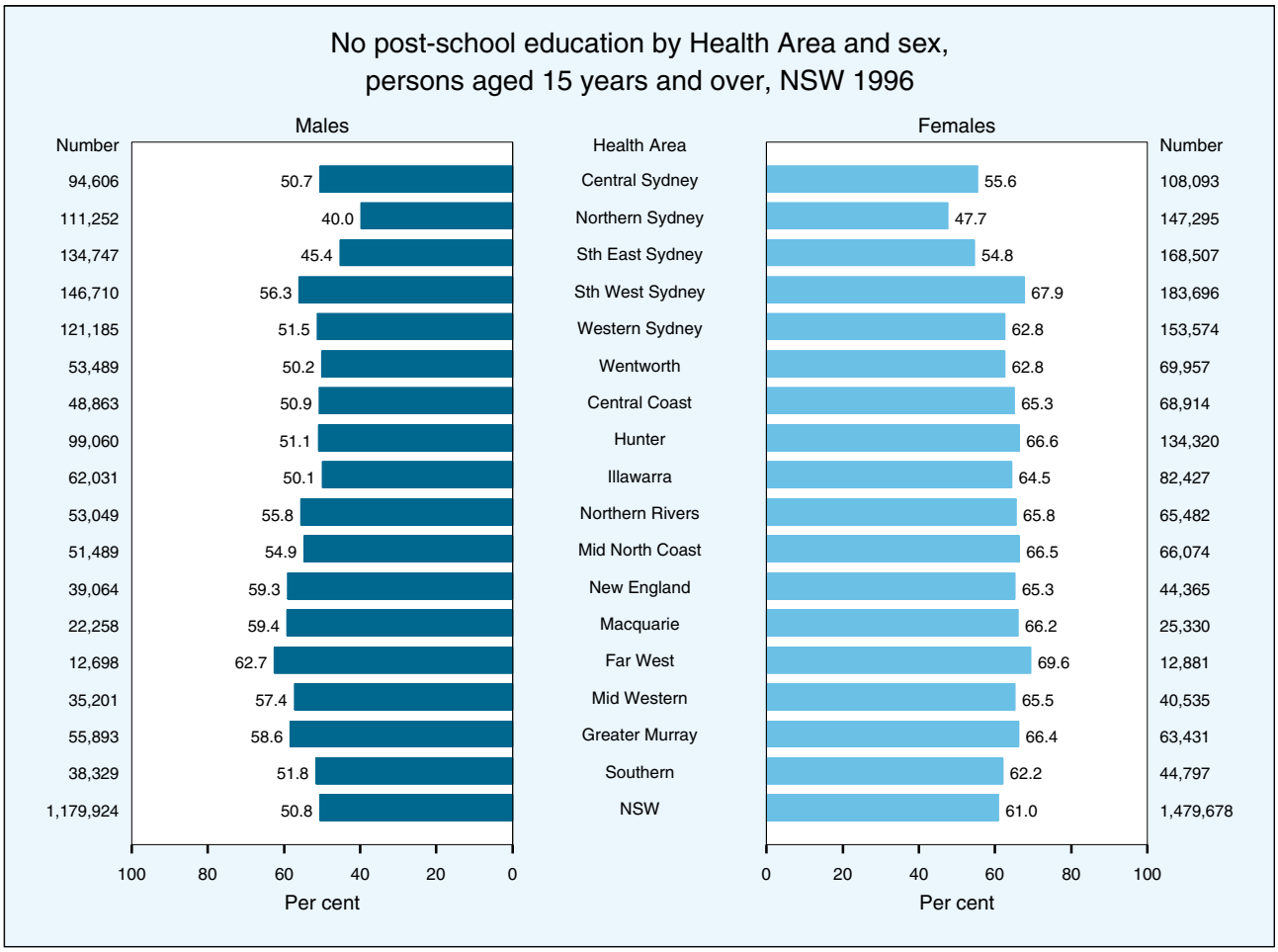
- In 1996, 150,852 males and 96,794 females were unemployed in NSW. The overall unemployment rate for both sexes was 8.7 per cent. There were large variations in the unemployment rates among Health Areas for both males and females. Part of this variation is related to the unequal distribution of population sub-groups which have higher unemployment rates based on characteristics such as Aboriginality, country of birth, length of time in Australia, education and qualification levels and age (ABS,1998; Morrell et al. 1998).
- The highest unemployment rate was in the Mid North Coast Health Area for both males and females (18.5 and 13.8 per cent respectively), followed by the Northern Rivers Health Area (16.6 per cent and 13.5 per cent respectively). The lowest unemployment rates in both sexes were in the Northern Sydney Health Area (4.3 per cent for males and 3.5 per cent for females).
- The unemployment rates for both males and females in all rural areas combined were well above average for the state. The highest in an urban area was in the South Western Sydney Health Area, where the unemployment rate was 10.9 per cent in males and 10.6 per cent in females.
- The health sector can play a part in reducing the impact of unemployment on health by effectively managing health problems to reduce barriers to re-employment; work with organisations dealing with unemployed people to prevent and detect health problems; advocate for policies and programs to reduce long term unemployment and encourage job creation; and provide training and work experience to long term unemployed people in health services (Harris, 1999).

For more information, see: Australian Bureau of Statistics. *Australian social trends 1998*. Canberra: ABS, 1998.

Morrell S, Taylor R and Kerr C. Unemployment and young people *Med J Aust* 1998; 168: 236–240.

Harris E, Harris M, Lee P, and Powell Davies G. *Taking action to address the health impact of unemployment: experiences from South Western Sydney*. Sydney: CHETRE, 1999.

Australian Bureau of Statistics Web site at: www.abs.gov.au.



Note: Includes all NSW residents aged 15 years and over. No post-school education includes all people aged over 15 years reporting no basic or skilled vocational qualifications, as well as no tertiary diplomas or degrees.

Source: ABS 1996 Census Basic Community Profile (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

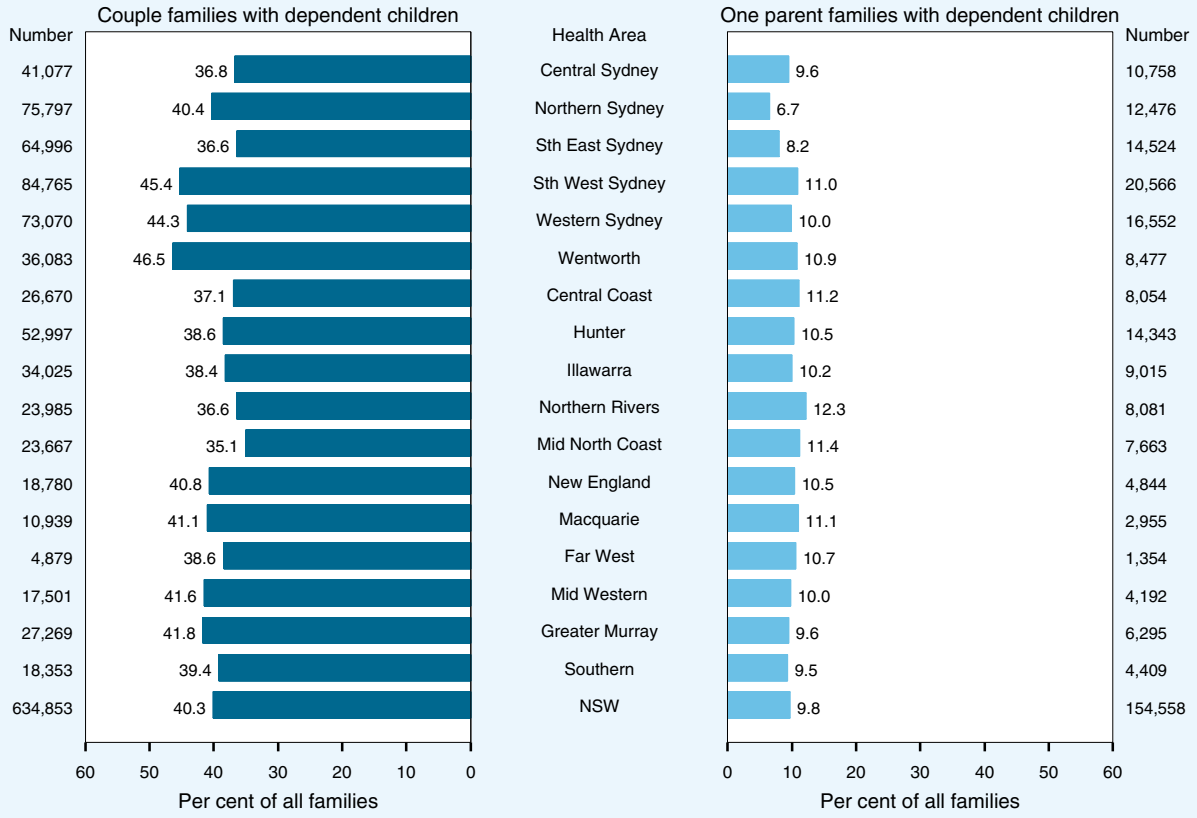
- People with higher levels of education, as a group, experience better physical and psychological wellbeing. Higher levels of parental education are also associated with better health. Reasons for this may include not only the potential for better occupations, job opportunities and incomes, but also a greater sense of personal control and reward for work (Reynolds et al. 1998). The proportion of unskilled workers in each postcode area was one of the key indicators used in a recent study on the distribution of social disadvantage in Victoria and NSW (Vinson, 1999).
- In 1996 in NSW, there were 1,179,924 males and 1,479,678 females with no post-school qualifications. This represented 50.8 per cent of males and 61.0 per cent of females aged 15 years and older. These figures included those people reporting no basic or skilled vocational qualifications, as well as no tertiary diplomas or degrees.
- The Far West Health Area had the highest proportion of males and females with no post-school qualifications (62.7 per cent and 69.6 per cent respectively) and the Northern Sydney Health Area the lowest proportion (40.0 per cent and 47.7 per cent respectively).
- Besides the Far West, the Macquarie, Greater Murray and South Western Sydney Health Areas ranked in the top six Health Areas in terms of the proportion of males and females with no post-school qualifications. This proportion was below the state average in the the South Eastern Sydney and Central Sydney Health Areas.
- Overall, a greater proportion of males and females in rural areas had no post-school qualifications compared to urban and outer metropolitan Health Areas.

For more information, see: Reynolds JR, Ross CE. Social stratification and health: education's benefit beyond economic states and social origins. *Social problems* 1998; 45 (2): 221–248.

Vinson T. *Unequal in life. The distribution of social disadvantage in Victoria and New South Wales.* Melbourne: The Ignatius Centre, 1999.

Australian Bureau of Statistics. *Australian social trends 1998.* Canberra: ABS, 1998.

Family type: couple and one-parent families with dependent children by Health Area, NSW 1996



Note: Dependent children are family members under 15 and those aged 15–24 years attending an educational institution full-time.

Source: ABS 1996 Census Basic Community Profiles (HOIST), ABS, Canberra, Second version, 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

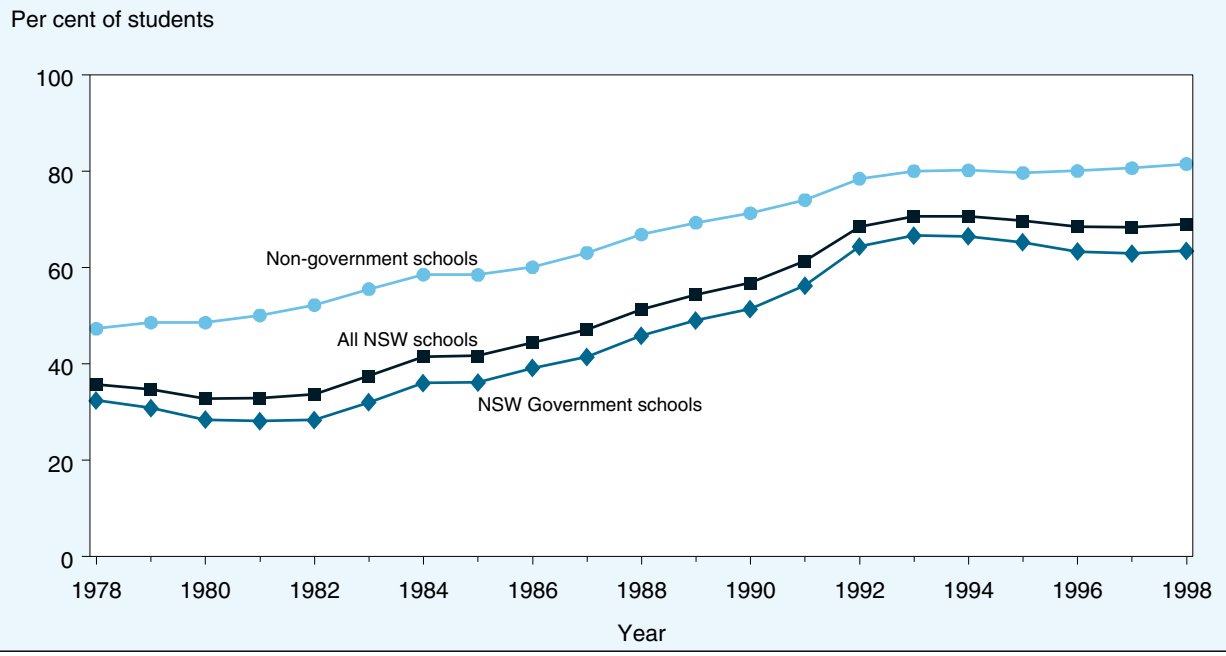
- The family and family structure has a strong impact on the health and wellbeing of children and their parents (Silburn et al. 1996).
- Family type can impact on the resources and skills available to families that are needed to achieve resilience to life stresses caused by work and financial problems (Moon, Rahman and Bhatia 1998). Inadequate family income is more common in single parent families and poverty has a strong impact on health. Family breakdown can also have adverse social and health consequences for children and their parents.
- In 1996, there were 634,853 couples with dependent children in NSW—40.3 per cent of all families in NSW. The Wentworth Health Area had the highest proportion of these families (46.5 per cent) and the Mid North Coast Health Area had the lowest proportion (35.1 per cent).
- There were 154,558 one-parent families with dependent children in NSW in 1996. This constituted 9.8 per cent of all families in NSW. The Northern Rivers Health Area had the highest proportion of one-parent families with dependent children (12.3 per cent) and the Northern Sydney Health Area had the lowest (6.7 per cent).
- Couple families with dependent children constituted 45.7 per cent of all families in Australia in 1988, declining to 40.8 per cent in 1997. The proportion of couples with dependent children ranged from 37.6 per cent of all families in South Australia to 46.5 per cent in the Northern Territory (ABS, 1998).
- In Australia, the proportion of single-parent families with dependent children has increased from 8 per cent of all families in 1988 to 10.4 per cent in 1997 (ABS,1998).

For more information, see: Silburn SR, Zubrick SR, Garton A, Gurrin L, Burton P et al. *Western Australia child health survey: family and community health.* Perth: ABS and TVW Telethon Institute for Child Health Research, 1996.

Moon L, Rahman N, Bhatia. *Australia's children – their health and well being 1998.* AIHW Catalogue no. PHE 7. Canberra: AIHW, 1998.

Australian Bureau of Statistics. *Australian social trends 1998.* Canberra: ABS, 1998.

Retention rate of students to Year 12 by school type, NSW 1978 to 1998



Year	Male students retention %	Female students retention %	NSW government schools retention %	Non-government schools retention %	All NSW schools retention %
1978	–	–	32.4	47.3	35.8
1979	28.5	33.4	30.9	48.6	34.7
1980	25.6	31.4	28.4	48.6	32.8
1981	25.5	30.9	28.1	50.1	32.9
1982	25.2	31.6	28.3	52.2	33.7
1983	29.1	35.1	32.0	55.5	37.5
1984	33.8	38.4	36.1	58.5	41.5
1985	33.5	38.9	36.2	58.5	41.7
1986	36.7	41.7	39.1	60.1	44.4
1987	38.7	44.4	41.5	63.0	47.1
1988	42.5	49.4	45.9	66.9	51.3
1989	45.0	53.3	49.1	69.3	54.4
1990	46.3	56.8	51.4	71.3	56.8
1991	51.1	61.8	56.3	74.0	61.4
1992	59.5	69.6	64.4	78.4	68.5
1993	61.9	71.6	66.6	80.0	70.6
1994	61.2	72.1	66.5	80.2	70.6
1995	59.2	71.6	65.2	79.6	69.7
1996	57.8	69.1	63.3	80.0	68.5
1997	57.3	68.9	62.9	80.6	68.4
1998	–	–	63.5	81.5	69.0

Note: The apparent school retention rate is the ratio of the number of full-time equivalent (FTE) students who are enrolled in Year 12 in a given year to the number of FTE Year 7 students six years prior to that given year.

Source: NSW Department of Education and Training. Epidemiology and Surveillance Branch, NSW Health Department.

- The proportion of the population leaving school before the age of 15 in each postcode area was one of the key indicators used in a recent study of disadvantage in Victoria and NSW (Vinson, 1999). Year 12 retention rates have risen in both government and non-government schools between 1978 and 1998. The combined retention rate was 35.8 per cent in 1978 and 69.0 per cent in 1998, a rise of 33.2 per cent.
- Female students have consistently higher retention rates, with the difference between female and male rates growing over the years from 4.8 per cent in 1979 to 11.5 per cent in 1998.
- Government school retention rates may be more greatly affected by students transferring to the TAFE system to complete their secondary education. Transfers between government and non-government sectors also affect retention rates.

For more information, see:Vinson T. *Unequal in life. The distribution of social disadvantage in Victoria and New South Wales.* Melbourne: The Ignatius Centre, 1999.

Chapter 1.3

The environment

- About 75 per cent of atmospheric nitrogen dioxide (NO_2) in Sydney can be attributed to motor vehicles. Since 1982, the number of days in the Sydney region when atmospheric nitrogen dioxide concentrations exceeded the desired goal have decreased. Over the period 1994 to 1997 there were no days on which the goal was exceeded.
- Ozone levels have been more variable, with the number of days on which the desired goal was exceeded ranging from 0–16 per year over the 10 year period 1988–1997.
- The number of days in the Sydney region when atmospheric fine particles exceeded the desired goal declined between 1979 and 1992, with some variability since then. In 1997 the goal for fine particles (PM10) was exceeded on eight days.
- The first representative survey of air quality in NSW homes was carried out during the Winter of 1999. The survey found elevated levels of fine particles in homes where smoking occurred and in homes with wood burning heaters.
- Concentrations of lead in ambient air in Sydney have declined over the past 10 years, owing largely to the declining use of leaded petrol, and the reduced lead content of leaded petrol.
- The bacteriological quality of Sydney and Hunter water supplies has improved in recent years, with consistently low levels of faecal and total coliform counts reported.
- In July 1998, *Cryptosporidium* oocysts and *Giardia* cysts were detected at high levels in Sydney water, prompting the issue of a series of 'boil-water' alerts. Surveillance data suggest that the contamination did not pose a major risk to human health.
- Flouride levels in Sydney and Hunter water supplies stayed within the required limits over the period 1992–1998.
- Neither Sydney nor Hunter Water Corporation has had a positive test for pesticides in source water. Low levels of pesticides were detected in five samples from rural water supplies during 1998.

In this chapter

Introduction

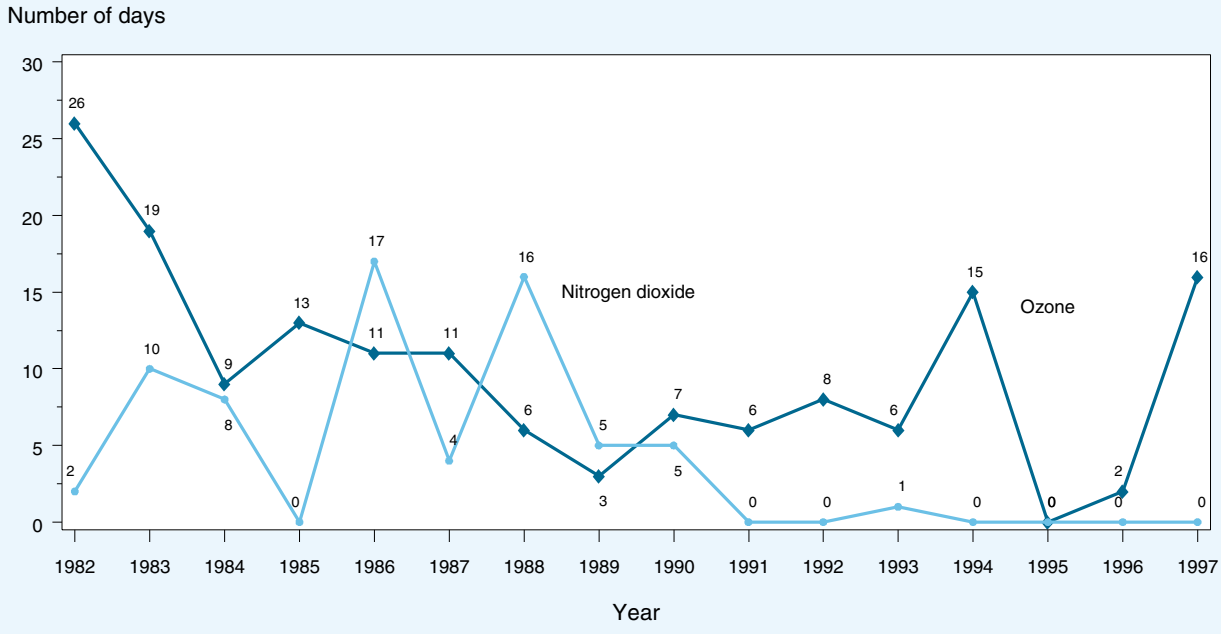
Human health is closely linked with environmental conditions. The potential health impact of water quality, in particular, has been a high-profile issue in NSW in recent years, as a result of the 'Sydney water crisis' in July–September 1998 (see page 30). Other key environmental issues that impact on health include air quality, sewage and waste disposal, land contamination, ozone layer depletion, climate change, urbanisation, and food quality and supply.

Comprehensive information about the environment in NSW is given in the Environment Protection Authority's *State of the Environment* reports. This chapter presents recent NSW data on selected health-related environmental indicators, with a particular focus on air and water quality. More information on arboviral infections, Legionnaires' disease, cryptosporidiosis and food poisoning (additional health conditions that are closely linked with environmental factors) is presented in Chapter 4.8.

For more information, see: NSW Environmental Protection Authority. *New South Wales State of the Environment 1997.* Sydney: EPA, 1997.

NSW Environmental Protection Authority Web site at http://www.epa.nsw.gov.au.

Days one-hour ozone and nitrogen dioxide goals exceeded, Sydney region 1982 to 1997



Note: Current NHMRC goal for NO_2 is 0.16 parts per million for a one-hour average. Current NHMRC goal for ozone is 0.10 parts per million for a one-hour average.

Sources: State Pollution Control Commission. *Air Quality Measurement in NSW: Annual Review 1979–1990.* Sydney: SPCC, 1991 and NSW Environmental Protection Authority. *New South Wales State of the Environment.* Sydney: EPA, 1997.

- Nitrogen dioxide (NO_2) and ozone are photochemical air pollutants that can affect human health. NO_2 impairs lung function in people with asthma, and may make them more susceptible to the effects of allergens (Morgan et al. 1998, Folinsbee 1992). Ozone causes irritation of the eyes and respiratory tract, and has been associated with increased rates and episodes of asthma (Woodward et al. 1995; McDonell et al. 1999).
- Outdoor NO_2 comes mainly from motor vehicle emissions. It contributes to the brown haze of photochemical pollution and is the main precursor for the formation of ozone in the lower atmosphere. This reaction is catalysed by sunlight.
- Ozone in the lower atmosphere is produced from photochemical reactions between oxides of nitrogen (including NO_2) and reactive organic compounds (which are also found in motor vehicle emissions). Ozone also occurs naturally in the upper atmosphere, where it absorbs ultraviolet radiation.
- In Sydney, the number of days when NO_2 concentrations exceeded the desired goal decreased between 1982 and 1997. Indeed, the NO_2 goal was not exceeded on any day in the most recent four-year period. In contrast, the number of days on which the ozone goal was exceeded have fluctuated in recent years, from zero in 1995 to 16 in 1997 (EPA, 1997).
- Weather conditions and events such as bushfires caused much of the annual variability in the number of days on which NO_2 and ozone goals were exceeded. Average NO_2 and ozone levels are falling, due to stricter emission controls on vehicles. However, increasing motor vehicle use is likely to increase average levels of both pollutants in the longer term (EPA,1997).
- The National Environment Protection Council (NEPC) have recently proposed a more stringent standard for NO_2 of 0.12 ppm (one-hour average).

For more information, see: NSW Environmental Protection Authority. *New South Wales State of the Environment.* Sydney: EPA, 1997.

Morgan G, Corbett S, Wlodarczyk J. Air pollution and hospital admissions in Sydney, Australia, 1990 to 1994. *Am J Public Health* 1998; 88: 1761–66.

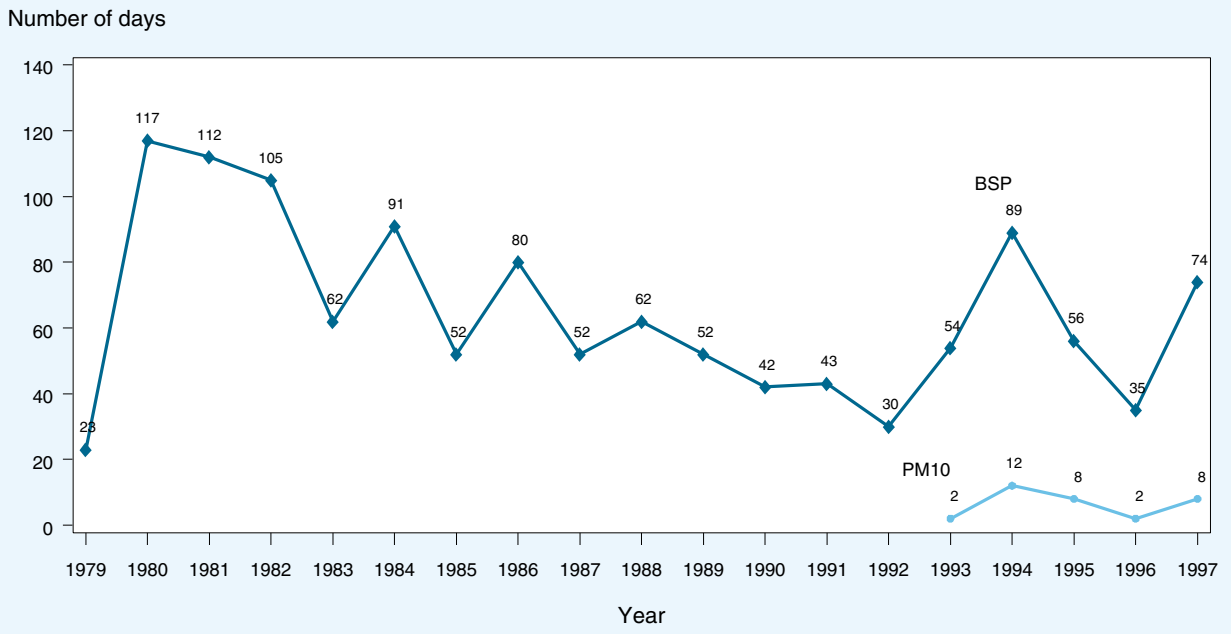
Folinsbee L. Human health effects of air pollution, *Environ Health Perspect* 1992; 100: 45–56.

Woodward A, Guest C, Steer K. Trophospheric ozone: respiratory effects and Australian air quality goals. *J Epidemiol Community Health* 1995; 49: 410–7.

McDonell W, Abbey D et al. Long term ambient ozone concentrations and the incidence of asthma in nonsmoking adults: The Ashmog Study. *Environ Res* 1999; 80: 110–121.

The HARP newsletters, NSW Health Department Web site at : http://www.health.nsw.gov.au/public-health/harp/harp.html.

Days visibility and atmospheric fine particle goals exceeded, Sydney region 1979 to 1997



Note: The NSW goal for visibility was <2.1 Bsp averaged over one hour. The new NEPC goal for fine particles (PM10) of 50 micrograms per cubic metre averaged over 24 hours, was used to define days on which the atmospheric fine particle goal was exceeded.

Source: State Pollution Control Commission. *Air Quality Measurement in NSW: Annual Review 1979–1990*. Sydney: SPCC, 1991 and NSW Environmental Protection Authority. *New South Wales State of the Environment*. Sydney: EPA, 1997.

- Health and Air Research Program (HARP) studies funded by NSW Health Department from 1993 to 1996 found associations between levels of atmospheric particles and daily mortality, hospital admissions for cardiac disease in the elderly (Morgan et al. 1998) and respiratory symptoms (Lewis et al. 1998).
- Sources of particles in the atmosphere include dusts from soils, vegetation (pollens and fungi), sea salt, combustion of fossil fuels (vehicles, coal or diesel power generation), biomass burning (bush fires, hazard reduction burns, incinerators) and industries.
- The major sources of particle pollution in urban areas are wood combustion for domestic heating and motor vehicles, particularly diesel-powered. In the last 20 years, average levels of particle pollution have been falling, due to the elimination of backyard burning and emission controls on vehicles.
- Atmospheric particles can be measured in terms of visibility (due to scattering of light by fine particles) or by measuring the actual ambient concentration of particles, expressed as concentration of PM10 (particulate matter of less than 10 microns in diameter).
- For the years 1979 to 1992, the NSW Environmental Protection Authority (EPA) used a goal equivalent to a visibility of nine kilometres as an indicator of fine particle pollution. In the most recent ten years, this visibility goal was exceeded on an average of 54 days per year. Bushfires in 1994 and 1997 caused peaks in those years.
- Since 1993, atmospheric particles have been monitored using the number of days on which PM10 concentrations exceeded the current air quality goals. The current goal is based on the US EPA standard of 150 micrograms per cubic metre, averaged over 24 hours. The National Environment Protection Council is considering a more stringent goal, of 50 micrograms per cubic metre. This new goal for fine particle pollution was exceeded on an average of six days per year in the most recent five-year period.

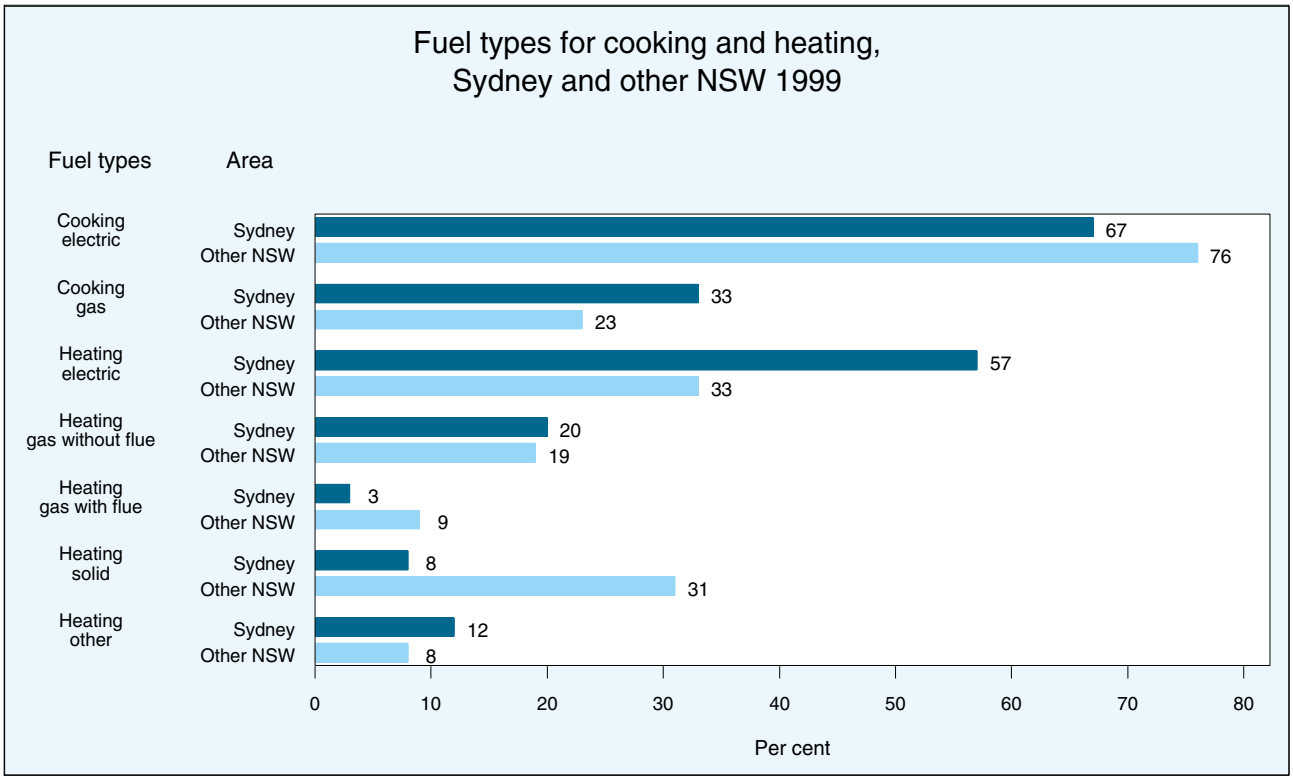
For more information, see: National Environment Protection Council. *(Ambient Air Quality) Measure*. Adelaide: National Environment Protection Council, 1998.

Morgan G, Corbett S, Wlodarczyk J. Air pollution and hospital admissions in Sydney, Australia, 1990 to 1994. *Am J Public Health* 1998; 88: 176–66.

Morgan G, Corbett S, Wlodarczyk J. Air pollution and daily mortality in Sydney, Australia, 1989 through 1993. *Am J Public Health* 1998; 88: 759–764.

Lewis P, Hensley M, Wlodarczyk J et al. Outdoor air pollution and childrens respiratory symptoms in the steel cities of New South Wales. *Med J Aust* 1998; 169: 459–63.

The HARP newsletters, NSW Health Department web site at: http://www.health.nsw.gov.au/public-health/harp/harp.html



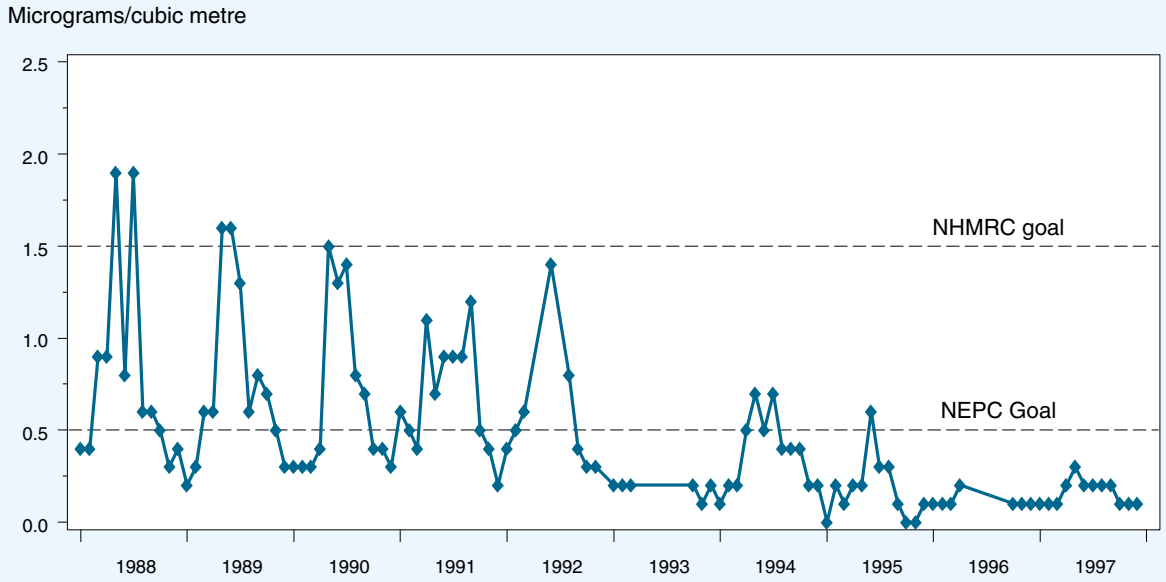
Source: NSW Health Indoor Air Quality Survey, 1999 (unpublished data).

- Australians spend 80–90 per cent of their time indoors, most of this in their own homes. As a result, the quality of indoor air and its potential effect on human health are important issues.
- Some air pollutants, such as nitrogen dioxide and fine particles are found inside as well as outside, and can be in higher concentrations in the home than outdoors. Other types of air pollutants, such as dust mite allergen and formaldehyde are usually only found inside. Environmental tobacco smoke is also a serious form of indoor air pollution.
- The first representative survey of air quality in NSW homes was conducted during the winter of 1999, enabled by recent advances in the technology of air pollution measuring devices.
- The prevalence of potential sources of air pollution was assessed by a random telephone survey of 2,000 homes, and pollution levels were measured in 150 homes in 10 areas.
- Indoor smoking was reported to occur in around 25 per cent of the homes surveyed, and was associated with elevated fine particle levels. In communities where wood burning heaters are prevalent, the indoor level of fine particles was high compared to Sydney and rural areas without many wood heaters.
- Formaldehyde levels were higher in some homes with recent renovations, new furnishings or indoor smoking. However, the levels of formaldehyde detected were not likely to affect health.

For more information, see: Ayers GP, Baruch R, Keywood M D, Gillett RW. Indoor air quality: A pilot study employing low-technology methods. *Clean Air Aust* 1999; 33: 29–33.

United States Environmental Protection Agency Indoor Environments Division Web site at http://www.epa.gov/iedweb00.

Monthly average ambient air lead concentration, Earlwood monitoring site, Sydney 1988 to 1997



Month	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
January	0.4	0.2	0.3	0.6	0.4	0.2	0.1	0.0	0.1	0.1
February	0.4	0.3	0.3	0.5	0.5	0.2	0.2	0.2	0.1	0.1
March	0.9	0.6	0.3	0.4	0.6	0.2	0.2	0.1	0.1	0.1
April	0.9	0.6	0.4	1.1	n/a	n/a	0.5	0.2	0.2	0.2
May	1.9	1.6	1.5	0.7	n/a	n/a	0.7	0.2	n/a	0.3
June	0.8	1.6	1.3	0.9	1.4	n/a	0.5	0.6	n/a	0.2
July	1.9	1.3	1.4	0.9	n/a	n/a	0.7	0.3	n/a	0.2
August	0.6	0.6	0.8	0.9	0.8	n/a	0.4	0.3	n/a	0.2
September	0.6	0.8	0.7	1.2	0.4	n/a	0.4	0.1	n/a	0.2
October	0.5	0.7	0.4	0.5	0.3	0.2	0.4	0.0	0.1	0.1
November	0.3	0.5	0.4	0.4	0.3	0.1	0.2	0.0	0.1	0.1
December	0.4	0.3	0.3	0.2	n/a	0.2	0.2	0.1	0.1	0.1

Note: NHMRC goal: 90 day average=1.5 µg/m³. NEPC goal: 1 year=0.5 µg/m³. n/a=not available.

Sources: NSW Environment Protection Authority. Quarterly air monitoring reports. Sydney: EPA, 1988-1997.

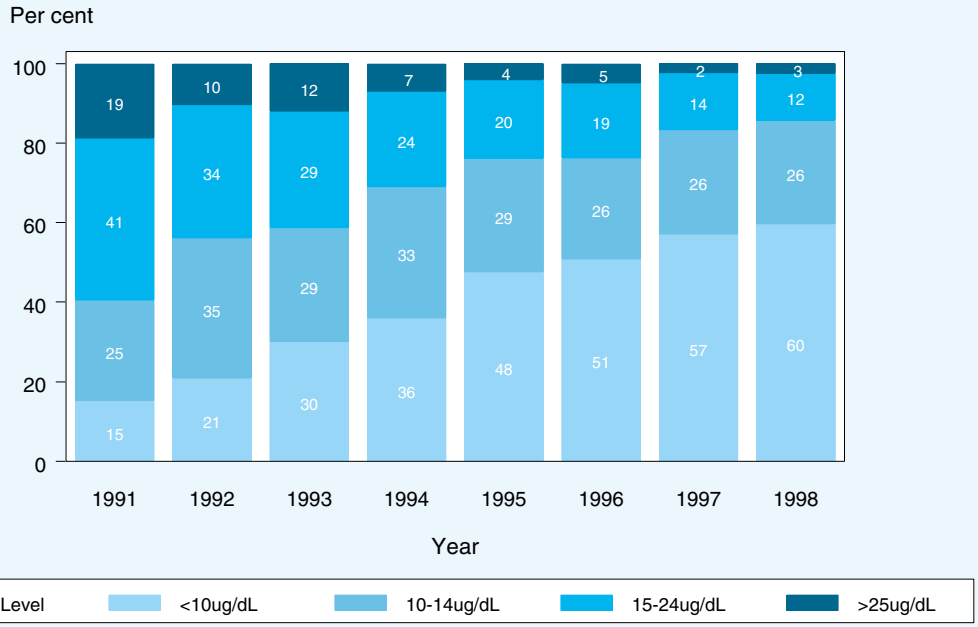
- Lead is found in all urban and in many rural environments. Humans are exposed either by inhaling or eating small particles of lead in air, water, soil or dust. Once absorbed into the body, lead can impair physical and mental development of children, even at quite low levels.
- Historically, tetra-ethyl lead added to fuel as an anti-knock agent has been the major source of lead in air in most urban areas in NSW. Lead smelters in Port Kembla and North Lake Macquarie are significant point sources.
- Air lead levels in Sydney have declined rapidly in the past 10 years. The average monthly ambient air lead level has not exceeded the current NHMRC goal since 1992, and has not exceeded the more stringent goal proposed by the National Environment Protection Council since 1995.
- The decline in air lead levels in Sydney is the result of the phasing out of leaded petrol. Lead-free petrol was introduced in 1986, and it is estimated that more than 70 per cent of vehicles now use unleaded petrol. The concentration of lead in leaded petrol has also been halved.
- Communities near lead smelters, such as North Lake Macquarie, are still exposed to elevated air lead levels.

For more information, see: NHMRC. *NHMRC ambient air quality goals*. Canberra: NHMRC, 1979.

National Environment Protection Council. *Towards a national environment protection measure for ambient air quality*. Canberra: National Environment Protection Council, 1997.

Interdepartmental Lead Taskforce. *New South Wales lead management action plan*. Chatswood, NSW: Environment Protection Authority for the Taskforce, 1994.

Blood lead levels of children aged less than 5 years, Broken Hill 1991 to 1998

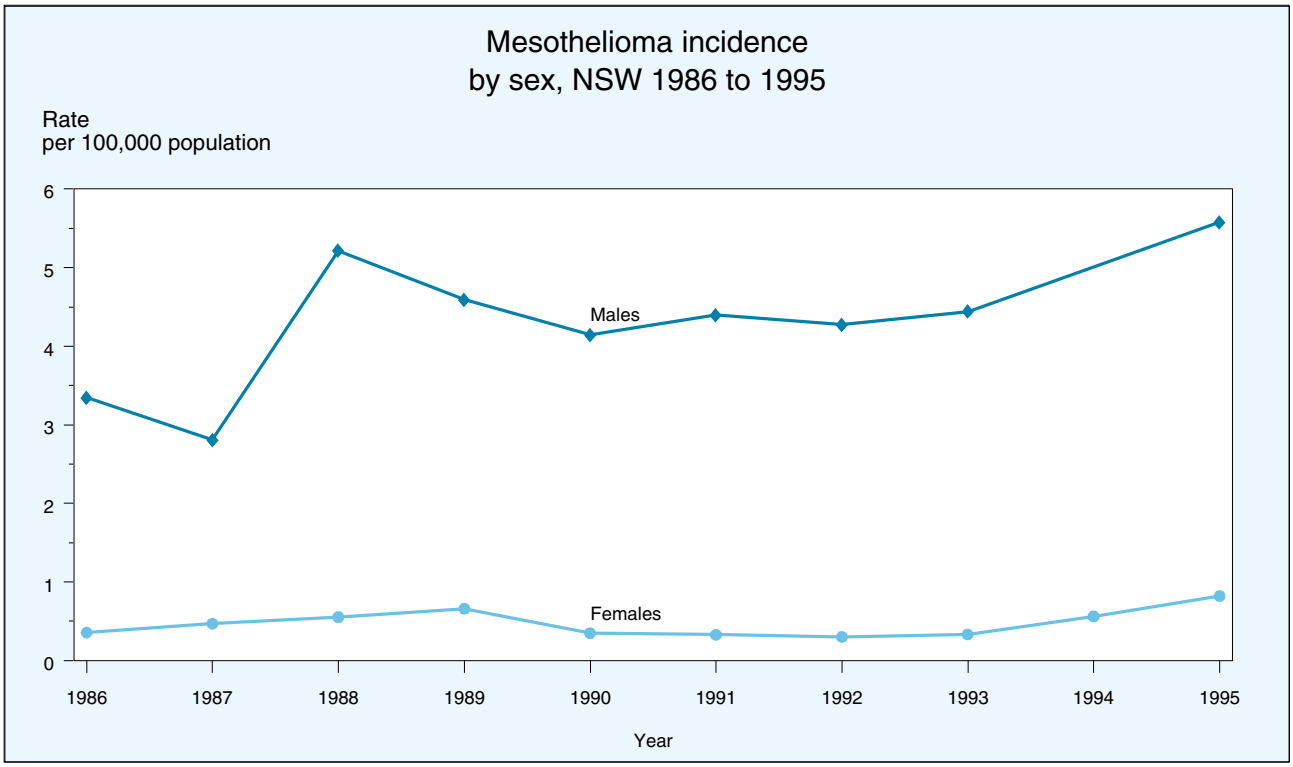


Note: NHMRC goal: 10 micrograms per decilitre or less.

Source: Broken Hill Environmental Lead Centre. *Blood Lead Levels of Broken Hill Children from 1991 to 1998.* Broken Hill: Broken Hill Environmental Lead Centre (unpublished).

- Small children engaging in hand-mouth activity are particularly at risk of ingesting lead. Lead soot on eating utensils, and flakes of lead paint in soil or house dust, are known sources of lead. Once absorbed into the body, lead can impair children's mental and physical development.
- Broken Hill, North Lake Macquarie and Port Kembla have been the major sites of lead mining and processing in NSW. Broken Hill was one of the world's largest lead mines. Natural deposition and lead mining and smelting have left a legacy of widespread lead contamination throughout the city.
- The NSW Lead Management Action Plan established the Lead Reference Centre and Environmental Lead Centres in Broken Hill and North Lake Macquarie. Their activities have included blood lead monitoring and case management, emission reduction, a trial of home remediation, environmental remediation and lead education.
- There has been a steady decline in blood lead levels among children aged less than five years living in Broken Hill over recent years. The average blood lead level decreased by about 50 per cent between 1991 and 1997, from 16.1 to 8.5 µg/dl. Over the same period, the proportion of children with levels greater than 10 µg/dl fell from 85 to 43 per cent, and the proportion of children with very high levels (greater than 30µg/dl) fell from 10 to one per cent.
- Elevated blood lead became a notifiable condition in NSW in 1997. Most notifications in children are from known contaminated areas (Far West and Hunter Health Areas).

For more information, see: NHMRC. *Lead in Australians*: summary statement of the 115th session of the NHMRC, 2 June 1993, regarding revision of the 1987 (103rd session): guidelines for lead in Australia. Canberra: NHMRC, 1993.
Interdepartmental Lead Taskforce. *New South Wales lead management action plan*. Sydney, NSW: Environment Protection Authority for the Taskforce, 1994.
The NSW Environmental Protection Authority Lead Reference Centre Web site at www.epa.nsw.gov.au/leadsafe.



		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Number	Males	59	53	93	84	77	84	86	91	158	116
	Females	7	10	12	14	8	8	7	8	14	20
	Persons	66	63	105	98	85	92	93	99	172	136
Rate per100,000	Males	3.3	2.8	5.2	4.6	4.1	4.4	4.3	4.4	7.7	5.6
	Females	0.4	0.5	0.6	0.7	0.3	0.3	0.3	0.3	0.6	0.8
	Persons	1.7	1.6	2.6	2.4	2.0	2.1	2.1	2.2	3.8	2.9

Note: Incident mesothelioma cases restricted to those reported among persons aged 20 years and over. NSW population estimates as at 30 June each year. Rates were age-adjusted using the Australian population as at 30 June 1991.

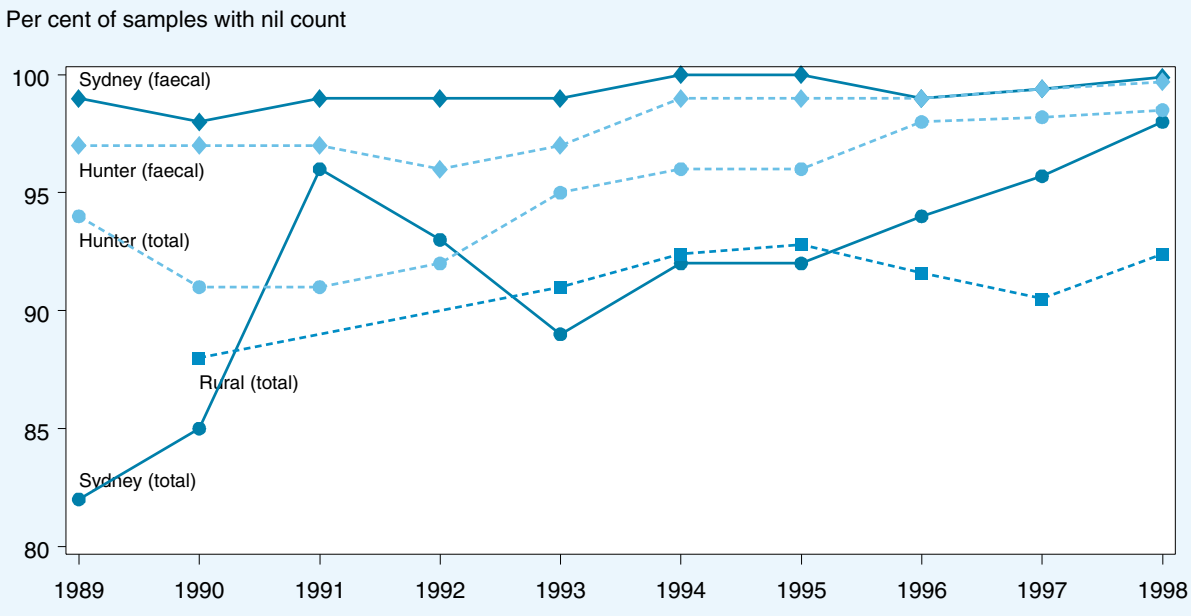
Source: The incidence of Mesothelioma in Australia [1986–1988, 1987–1989, 1988–1990, and 1989–1991]. *Annual Mesothelioma register report[s] 1990 to 1993.* Sydney: National Occupational Health and Safety Commission; 1990, 1991, 1992, and 1993. Leigh J, Hull B, Davidson P. The incidence of Mesothelioma in Australia [1990–92,1991–1993,1992–1994,1993–1995]. *Annual Mesothelioma register report[s] 1994 to 1996, and 1998.* Sydney: National Occupational Health and Safety Commission; 1994, 1995, 1996, and 1998.

- Malignant mesothelioma is a cancer of the outer covering of the lung or the abdominal cavity. It is frequently associated with past exposure to asbestos and has no direct relationship to smoking.
- NSW was the first state in Australia to mine asbestos, and produced the largest tonnages of chrysotile (until 1983) as well as smaller quantities of amphibole (until 1949). While Australian consumption of asbestos (including imported fibre) peaked in 1975, asbestos products continue to be an important environmental hazard.
- In 1995, 136 cases of mesothelioma were reported in NSW, with 85 per cent of these in males. Mesothelioma rates are much higher in males because of the occupational exposure associated with the disease.
- The age-adjusted incidence rate for mesothelioma almost doubled in NSW over the period 1986–1995, from 1.7 to 2.9 per 100,000 population.
- This increase reflects the current Australia-wide epidemic of mesothelioma cases. The incidence of malignant mesothelioma in Australia appears to be higher than that of any other country. The first confirmed case was reported from Wittenoom in Western Australia in 1962. Since then, incidence has increased steadily across the nation.

For more information, see: Ferguson DA, Berry G, Jelihovsky T et al. The Australian Mesothelioma surveillance program 1979–1985. *Med J Aust* 1987; 147: 166–172.

Leigh J, Hendrie L, Berry G. *The Incidence of Mesothelioma in Australia 1993 to 1995, Australian Mesothelioma Register Report 1998.* Sydney: National Occupational Health and Safety Commission, 1998.

Faecal and total coliform counts, metropolitan and rural water supplies, NSW 1989 to 1998



		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Nil faecal coliforms (%samples)	Hunter	97.0	97.0	97.0	96.0	97.0	99.0	99.0	99.0	99.4	99.7
	Sydney	99.0	98.0	99.0	99.0	99.0	100.0	100.0	99.0	99.4	99.9
Nil total coliforms (%samples)	Hunter	94.0	91.0	91.0	92.0	95.0	96.0	96.0	98.0	98.2	98.5
	Sydney	82.0	85.0	96.0	93.0	89.0	92.0	92.0	94.0	95.7	98.0
	Rural	n/a	88.0	n/a	n/a	91.0	92.4	92.8	91.6	90.5	92.4

Note: Results are for calendar years with the exception of rural total coliform counts which are for financial years (e.g. 1989/90 is shown under 1990, etc). n/a=not available.

Source: Sydney and Hunter Water Corporations and NSW Department of Analytical Laboratories (unpublished data).

- The coliform group of organisms occur in high numbers in the faeces of warm-blooded animals, although they can also occur in soil and vegetation. Faecal coliforms are a sub-group of coliforms which are used as indicator organisms of faecal contamination.
- To minimise contamination of water supplies, suppliers rely on a multiple barrier approach, including catchment protection, storage detention, appropriate treatment and disinfection. Coliforms are most likely to be present in water supplies when the water is inadequately treated or disinfected. Some pathogenic microorganisms such as *Cryptosporidium* (see page 30) and viruses can be present in the absence of coliforms.
- Water samples for microbiological analyses are collected at points in the distribution system which represent water at consumers' taps. The Australian Drinking Water Guidelines (NHMRC/ARMCANZ, 1996) state that 98 per cent of samples should contain no faecal (thermotolerant) coliform counts, and 95 per cent of samples should contain no total coliform counts.
- Water testing results from the Sydney and Hunter Water Corporations indicate that drinking water is generally of good bacteriological quality.
- Microbiological results from rural water supplies as a whole cannot be applied to individual supplies. As a group, the results indicate that a consistently high proportion of samples have complied with the target over the last six years. Although the overall failure rate is low, data from individual supplies may vary substantially.

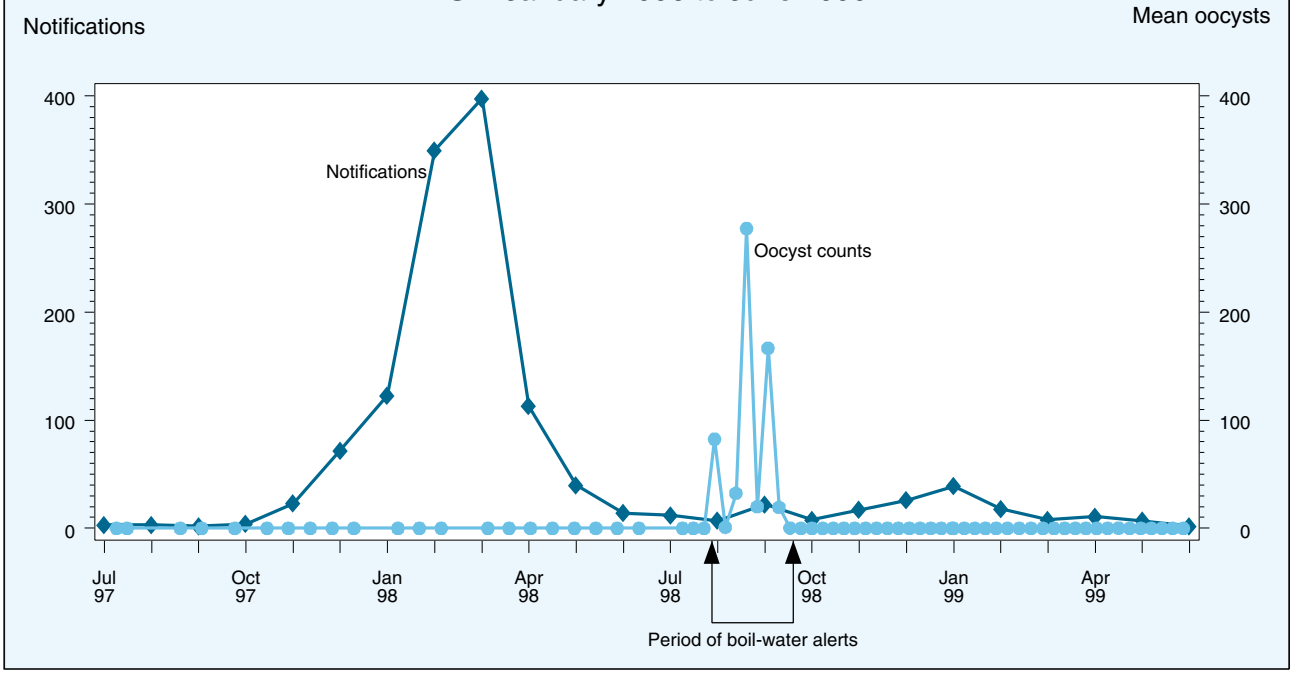
For more information, see: NHMRC/ARMCANZ. *Australian drinking water guidelines 1996.* Canberra: NHMRC, 1996.

The Sydney Water Corporation Web site at http://www.sydneywater.com.au.

The Hunter Water Corporation Web site at http://www.hwc.com.au.

Department of Land and Water Conservation. *1994/95 NSW Water Supply and Sewerage Performance Comparisons.* Sydney: DLWC, 1996.

Cryptosporidiosis notifications and Sydney water cryptosporidium oocyst counts, NSW January 1996 to June 1999



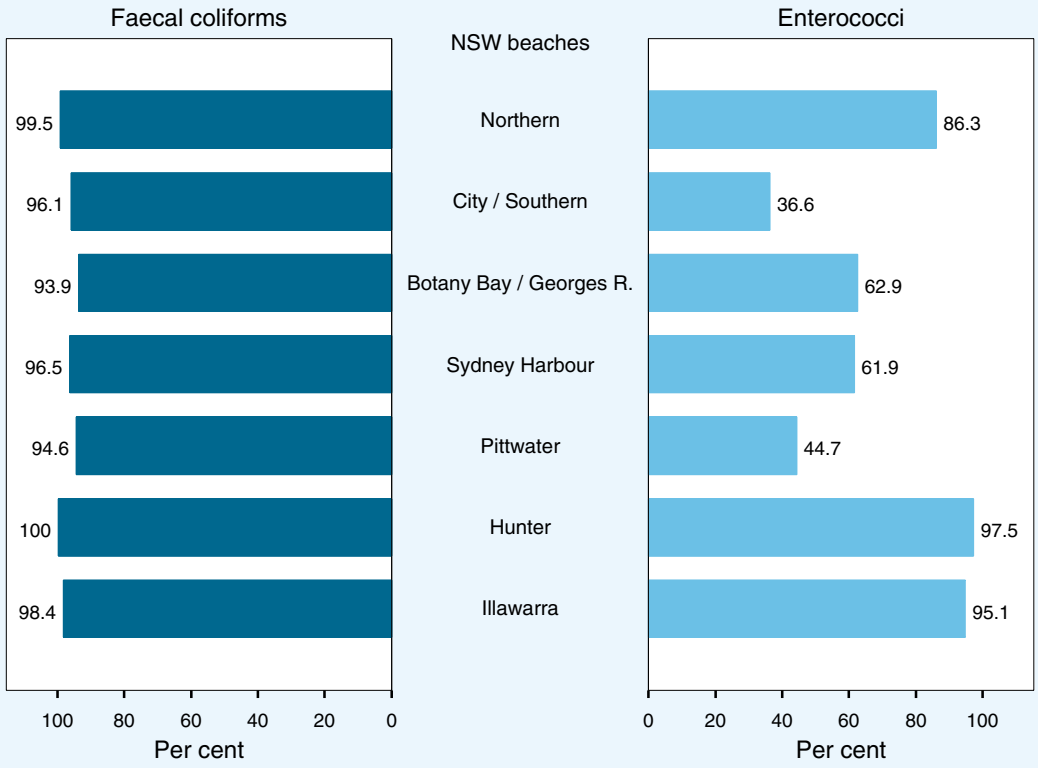
Note: Notifications per month, oocyst counts per test per week. Cryptosporidiosis notification data as at 17 March 2000.

Source: Sydney Water Corporation (unpublished data) and NSW Notifiable Diseases Database (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In July 1998, routine water testing identified *Cryptosporidium* oocysts and *Giardia* cysts at high levels in treated Sydney drinking water. In the absence of evidence-based guidelines for public health action, and in the light of overseas reports of major outbreaks of disease linked with contaminated municipal water systems, NSW Health responded by issuing a series of 'boil-water' alerts. These lasted intermittently until mid-September.
- Sydney residents had opportunities for exposure to *Cryptosporidium* and *Giardia* in drinking water before the 'boil-water' alerts were issued, and compliance with the alerts was far from complete. However, enhanced surveillance through laboratories, general practitioners, emergency departments, pharmacies and nursing homes, as well as the usual notification system, did not reveal any increase in diarrhoeal illness in the Sydney area.
- Laboratory reports of giardiasis increased slightly, but so did isolation of other gastrointestinal pathogens that are not related to drinking water. This suggests that the increase was probably due to increased testing, and identification of background cases unrelated to Sydney water.
- There was no significant increase in reports of cryptosporidiosis in Sydney residents, with 0–2 cases reported per week. Notification levels were well below those recorded during the swimming pool-associated outbreak in November 1997–May 1998 (see page 260) Taken together, the surveillance data suggest that the water contamination did not pose a major risk to human health.
- Positive outcomes of the Sydney water crisis include the development of protocols to guide the issuing of future 'boil-water' alerts and provision of information to consumers, health care facilities, manufacturers and others on reducing the risk of cryptosporidiosis.
- However, many questions remain unanswered about factors affecting the viability, infectivity and pathogenicity of *Cryptosporidium* and *Giardia* in water. Further epidemiological and microbiological research is needed to inform our public health response to positive tests for these parasites.

For more information, see: *The Sydney Water incident.* Editorial. *NSW Public Health Bulletin* 1998; 9: 91–94.

Water samples compliant for faecal coliforms and enterococci counts, NSW beaches, December 1998 to February 1999

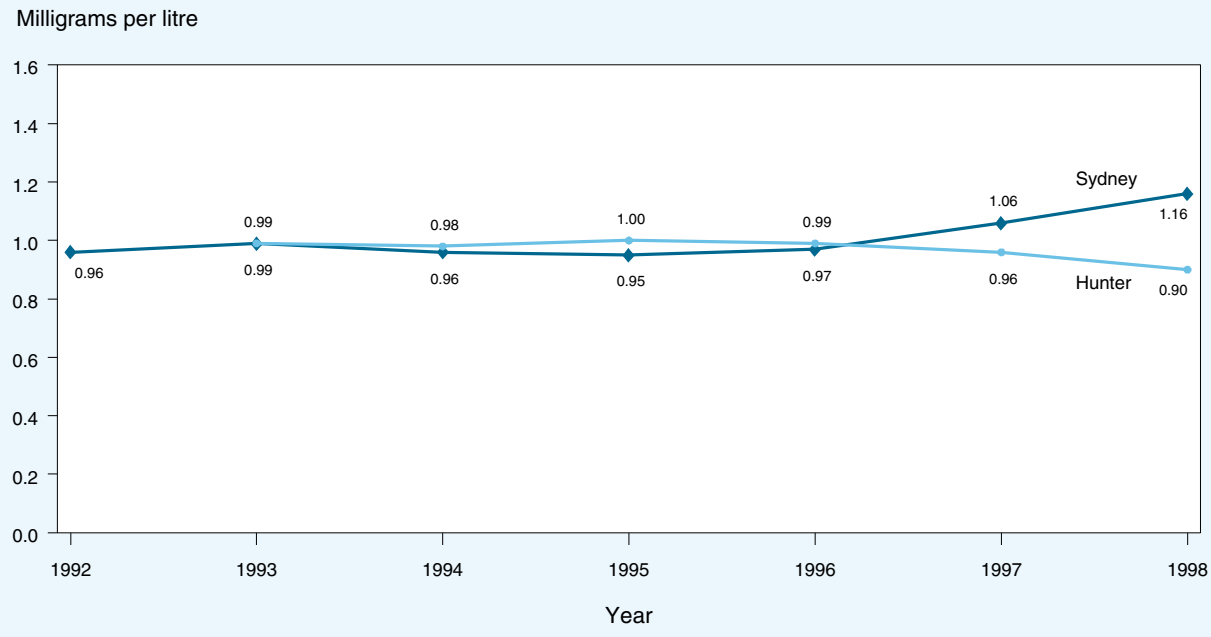


Source: Sydney and Hunter Water Corporations and NSW Department of Analytical Laboratories (unpublished data).

- The Environment Protection Authority (EPA) conducts the Beachwatch and Harbourwatch monitoring programs, which involve routine monitoring of bacterial levels to determine water quality at recreational sites.
- The program uses two indicator organisms, faecal coliforms and enterococci, as recommended by the National Health and Medical Research Council and the Australian and New Zealand Environment Conservation Council. The use of enterococci as an indicator organism in recreational waters is gaining favour because of its ability to survive for longer periods in marine waters.
- Two Beachwatch monitoring programs were held over the 1997/98 season. The Cronulla beaches had the lowest compliance rates. Water quality at these beaches is expected to be substantially improved when a planned upgrade of the Cronulla Sewage Treatment Plant takes place.

For more information, see: NSW Environment Protection Authority. *Beachwatch and Harbourwatch State of the Beaches: 1997–1998 Report.* Sydney: EPA, 1998.

Fluoride levels in drinking water,
Sydney and Hunter Water Corporations, NSW 1992 to 1998



Note: The 1996 NHMRC/ARMCANZ guideline level for fluoride in water is 1.5 mg/L. The Fluoridation of Public Water Supplies Act 1957 requires fluoride dosing in the range of 0.9–1.5 mg/L.

Source: Sydney and Hunter Water Corporations (unpublished data).

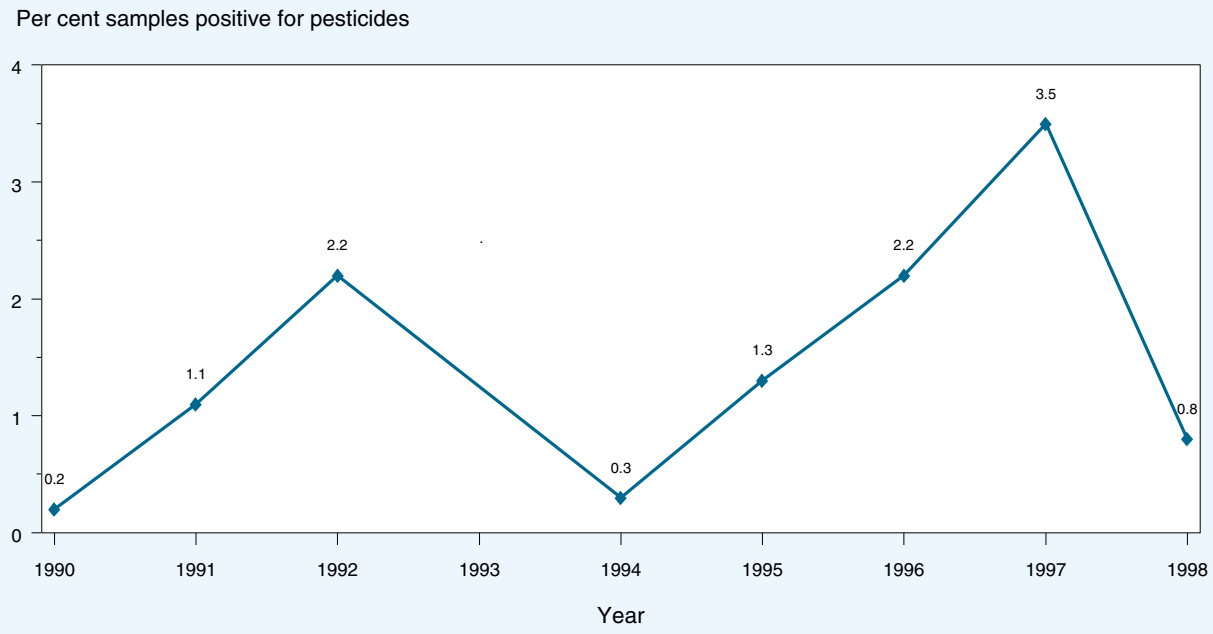
- Fluoridation of water supplies is a public health measure undertaken to protect teeth against dental caries. It is carried out under the provisions of the Fluoridation of Public Water Supplies Act 1957.
- The Australian Drinking Water Guidelines 1996 specify that the concentration of fluoride in drinking water should not exceed 1.5 mg/L. Concentrations above 1.5 mg/L may lead to dental fluorosis, a mottling of teeth which can be unsightly. However, the minimum concentration required for the protection of teeth is 0.5 mg/L, with concentrations of around 1.0 mg/L required in temperate climates.
- The provisions of the Fluoridation of Public Water Supplies Act 1957 require water supply authorities to dose fluoride at concentrations in the range of 0.9–1.5 mg/L. Water supply authorities are responsible for dosing and daily testing of fluoride concentration, and submitting these results to the NSW Health Department.
- The level of flouride in drinking water supplied by the Sydney and Hunter Water Corporations stayed within the required limits over the period 1992–1998.

For more information, see: NHMRC/ARMCANZ. *Australian Drinking Water Guidelines 1996.* Canberra: NHMRC, 1996.

The Sydney Water Corporation Web site at: http://www.sydneywater.com.au/.

The Hunter Water Corporation Web site at: http://www.hwc.com.au/.

Pesticides in rural water supplies,
NSW 1990 to 1998



Source: Department of Analytical Laboratories (unpublished data).

- Although many pesticides, including insecticides, herbicides and fungicides, degrade rapidly in the environment, water supplies should be protected at all times against pesticide contamination. The presence of pesticides in drinking water indicates contamination.
- Test results from Sydney Water and Hunter Water Corporations for the period 1990–1998 indicate that pesticides were not detected in raw water sources (i.e. water prior to treatment).
- Pesticides were detected in five rural water samples during 1998. However, pesticide levels in these samples did not exceed the 1987 guideline values. Three of the 33 rural water samples in which pesticides were detected during the period 1994–1997 contained levels exceeding the guideline values. These were for the pesticides DDT and profenophos.
- Pesticides detected, but not exceeding the guideline values, were: fenitrothion, atrazine, 2,4-D, cypermethrin, simazine, dichlobenil, DDE, PCP, methidathion, endosulfan sulphate, endosulfan, ethyl chlorpyrifos, profenophos, and methyl parathion. The identification of pesticides which have been banned (such as DDT) is of concern, and indicates persistence in the environment.
- The monitoring program, funded by the NSW Health Department, tests supplies once or twice per year. The Department is in the process of realigning this pesticides sampling program to more specifically target timing, and pesticide types used, in each area.

For more information, see: NHMRC and AWRC. *Guidelines for drinking water quality in Australia.* Canberra: National Health and Medical Research Council and Australian Water Resources Council, 1987.

Chapter 1.4

Health-related behaviours

- In 1997, 67 per cent of men and 46 per cent of women reported expending enough energy on leisure-time activity for health benefit.
- The proportion of men who reported being overweight or obese increased from 44 per cent in 1989/90 to 50 per cent in 1997 and 1998. For women, self-reported overweight or obesity increased from 30 to 35 per cent over the same period.
- In 1997 and 1998, women were more likely to report eating adequate amounts of fruit and using low or reduced fat milk, while men were more likely to report eating adequate amounts of breads and cereals.
- In 1996, less than 50 per cent of secondary school students reported usually, or mostly, protecting themselves from the sun by: staying in the shade or indoors in the middle of the day, covering up in clothes, wearing a hat, or wearing sunglasses.
- Among adults in 1997 and 1998, women were more likely to report using sunscreen and wearing sunglasses, while men were more likely to report wearing protective clothing or hats.
- Current smoking rates have declined by around four per cent in the last 10 years, with much of this decline before 1994. In 1997 and 1998, 27 per cent of men and 21 per cent of women reported current smoking.
- Among secondary school students in 1996, 19 per cent of boys and 21 per cent of girls reported having smoked in the previous week, and 34 per cent of boys and 29 per cent of girls reported drinking alcohol in the previous week. In the same year, 39 per cent of boys and 31 per cent of girls reported ever having used cannabis.
- In 1997 and 1998, 19 per cent of men and 20 per cent of women reported drinking alcohol at hazardous or harmful levels.
- In 1998, 324 males and 63 females died from opiate overdose. The male death rate from this cause has more than doubled in the past 10 years.

In this chapter

Introduction

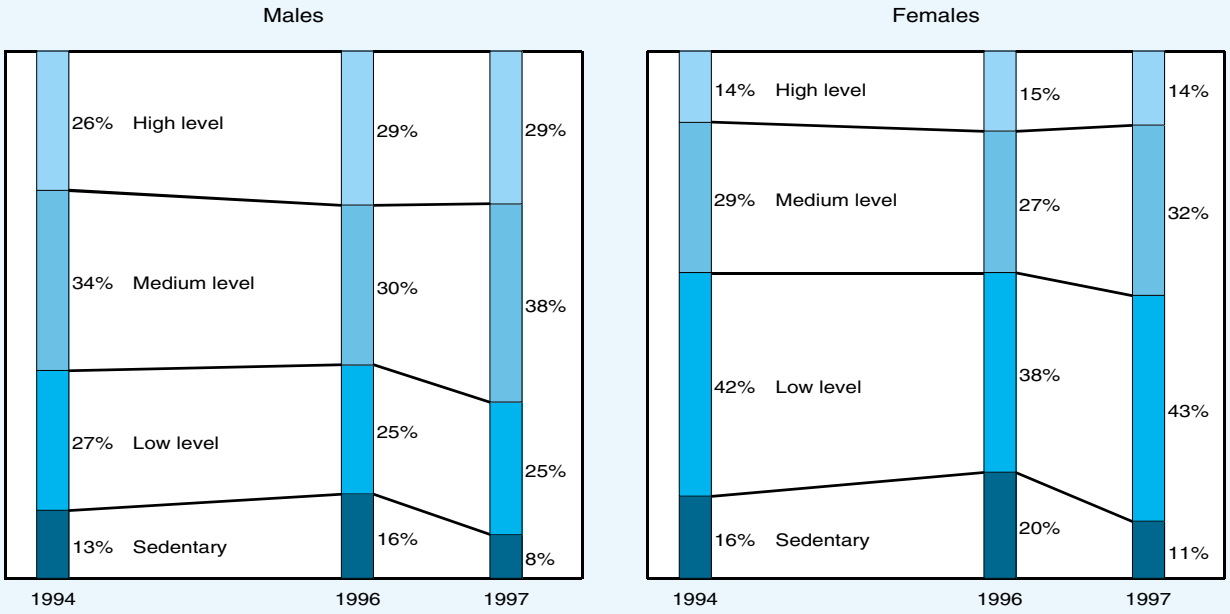
Health-related behaviours play a major part in causing cardiovascular and respiratory diseases, some cancers, and other conditions that account for much of the burden of morbidity and mortality in later life.

This chapter covers important health-related behaviours, including physical activity, nutrition and obesity, sun protection, smoking, alcohol use and illicit drug use. It includes previously unpublished information from the 1997 and 1998 NSW Health Surveys, as well as information from the ABS National Health Surveys, secondary school students' surveys and the 1994 Health Promotion Survey.

Because existing data for adults come from a range of surveys that used different modes (including face-to-face and telephone interview), apparent trends in some health indicators are difficult to interpret. They may reflect real changes in the prevalence of behaviour, or differences due to variations in sampling and data collection methods.

For details of the methods used for analysing data from the 1997 and 1998 NSW Health Surveys, refer to the Methods section (page 265).

Level of physical activity by sex,
persons aged 18 years and over, NSW 1994, 1996 and 1997



Note: Classification of energy expenditure: 'sedentary' 0–<100 Kcal/fortnight, 'low' 100–<1600 Kcal/fortnight, 'medium' >=1600 Kcal/fortnight but did not engage in at least two hours of vigorous activity, 'high' >=1600 Kcal/fortnight and participated in at least two hours of vigorous activity.

Source: NSW Health Survey 1997, 1994 Health Promotion Survey (HOIST). Epidemiology & Surveillance Branch. 1996 NSW Physical Activity Survey, Physical Activity & Sun Protection Unit, NSW Health Department.

- Physical inactivity has been estimated to contribute almost seven per cent to the total burden of disease in Australia, second only to tobacco (Mathers et al. 1999).
- It is recommended that every adult in NSW should accumulate at least 30 minutes of moderate-intensity physical activity on most, and preferably all, days of the week.
- The graphs on this page show NSW population survey data collected in 1994, 1996 and 1997. Comparisons between the three surveys should be made with caution. All were conducted by telephone and used similar questions, but they used different sampling methods and were carried out at different times of the year. Season has an important effect on physical activity, with people tending to be more active in summer. The 1997 survey ran from August to February, the 1994 survey from May to November, and the 1996 survey from April to May.
- The combined medium-level and high-level groups—'adequate' physical activity—indicated that 67 per cent of men and 46 per cent of women expended enough energy on leisure time physical activity for health benefit in 1997.
- This represents an apparent increase in physical activity levels from 1996, when 59 per cent of men and 42 per cent of women reported adequate levels of energy expenditure.
- The goal of Simply Active Everyday, a whole-of-government strategy, is to increase safe and ongoing participation, particularly among less active people. If the increased levels of physical activity reported in 1997 are real, rather than a seasonal or sampling artefact, it is anticipated that the year 2002 targets set for adequate physical activity (66 per cent of men and 50 per cent of women) will be met or exceeded.

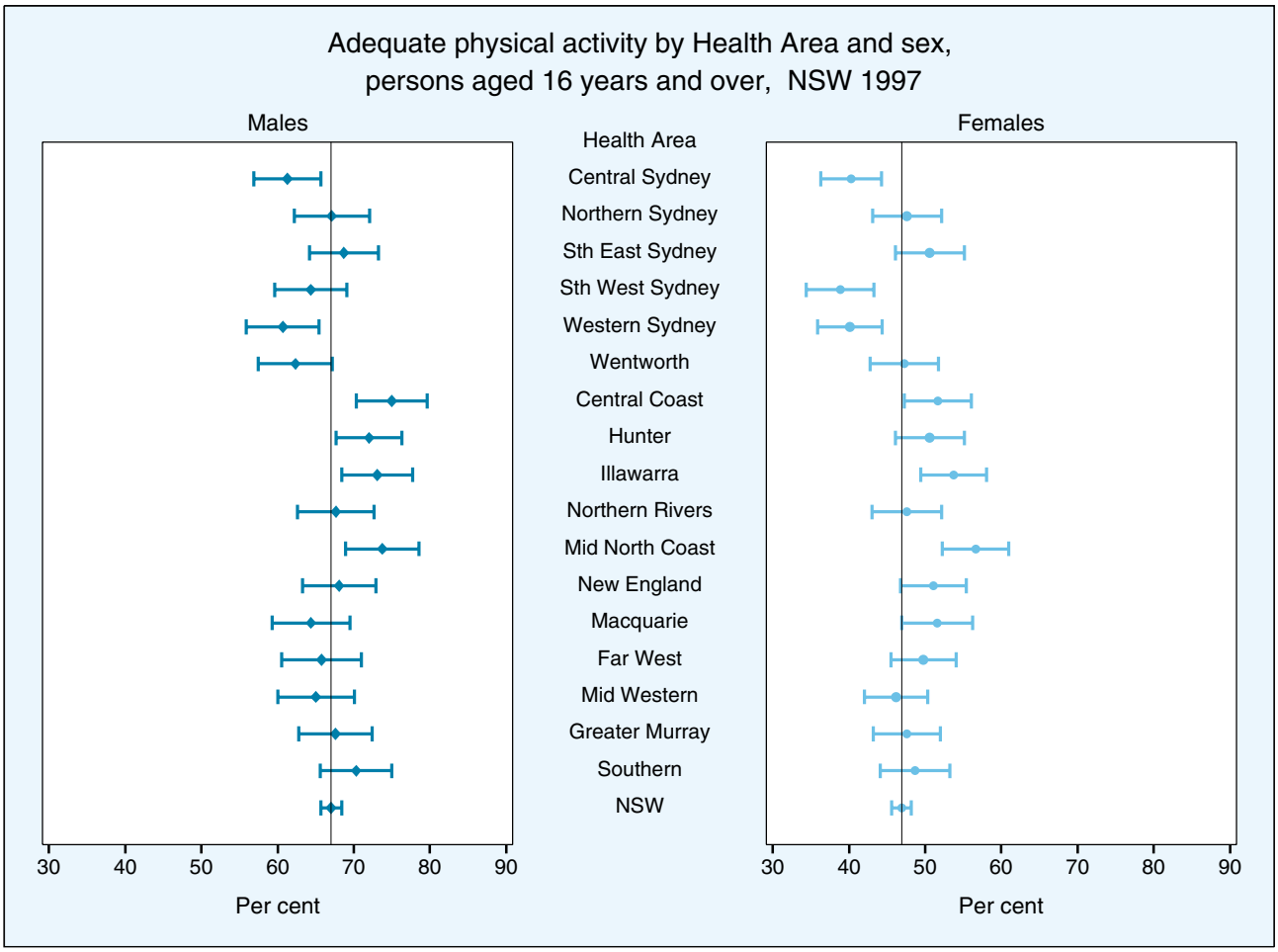
For more information, see: Bauman A. et al. *Towards best practice for the promotion of physical activity in the areas of NSW*. Sydney: NSW Health Department, 1996.

Bauman A. et al. *NSW Physical activity survey*. Sydney: NSW Health Department, 1996.

US Surgeon General's Report *Physical activity and health* at: www.cdc.gov/nccdphp/sgr/sgr.htm

Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia*. Canberra: Australian Institute of Health and Welfare. Catalogue no. 17, 1999.

NSW Physical Activity Task Force. *Simply active every day: A plan to promote physical activity in NSW 1998–2002*. Sydney: NSW Health Department, 1998.



Note: Classification of energy expenditure: 'sedentary' 0-<100 Kcal/fortnight, 'low' 100-<1600 Kcal/fortnight, 'medium' >= 1600 Kcal/fortnight but did not engage in at least two hours of vigorous activity, 'high' >=1600 Kcal/fortnight and participated in at least two hours of vigorous activity. 'Adequate' physical activity is 'medium' or 'high' energy expenditure. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: 1997 NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Among males aged 16 years and over in 1997, rates of self-reported adequate physical activity ranged from 61 per cent in Western Sydney Health Area to 75 per cent in Central Coast Health Area. Among females of the same age, rates of adequate physical activity varied from 39 per cent in South Western Sydney Health Area to 57 per cent in Mid North Coast Health Area.
- Men from Central Coast, Mid North Coast and Illawarra Health Areas were more likely than NSW men overall to report adequate levels of physical activity, while men from Western Sydney and Central Sydney Health Areas were less likely to report this.
- Women from Mid North Coast and Illawarra Health Areas were more likely than NSW women in general to report adequate levels of physical activity, while women from South Western Sydney, Western Sydney and Central Sydney Health Areas were less likely to report adequate physical activity.
- Variations in physical activity rates among Health Areas reflect the distribution of underlying social determinants of health. Inadequate levels of physical activity are more prevalent among NSW adults who are married (rather than single), have not finished high school, live in urban areas or economically disadvantaged areas, or who speak a language other than English at home (Harris et al. 1999). Variations by socioeconomic status are further examined in Chapter 3.5.

For more information, see: Bauman A. et al. *Towards best practice for the promotion of physical activity in the Areas of NSW.* Sydney: NSW Health Department, 1996.

Bauman A. et al. *NSW physical activity survey.* Sydney: NSW Health Department, 1996.

Harris E, Sainsbury P, Nutbeam D (editors). *Perspectives on health inequity.* Sydney: Australian Centre for Health Promotion, 1999.

US Surgeon General's Report *Physical activity and health* at: www.cdc.gov/nccdphp/sgr.

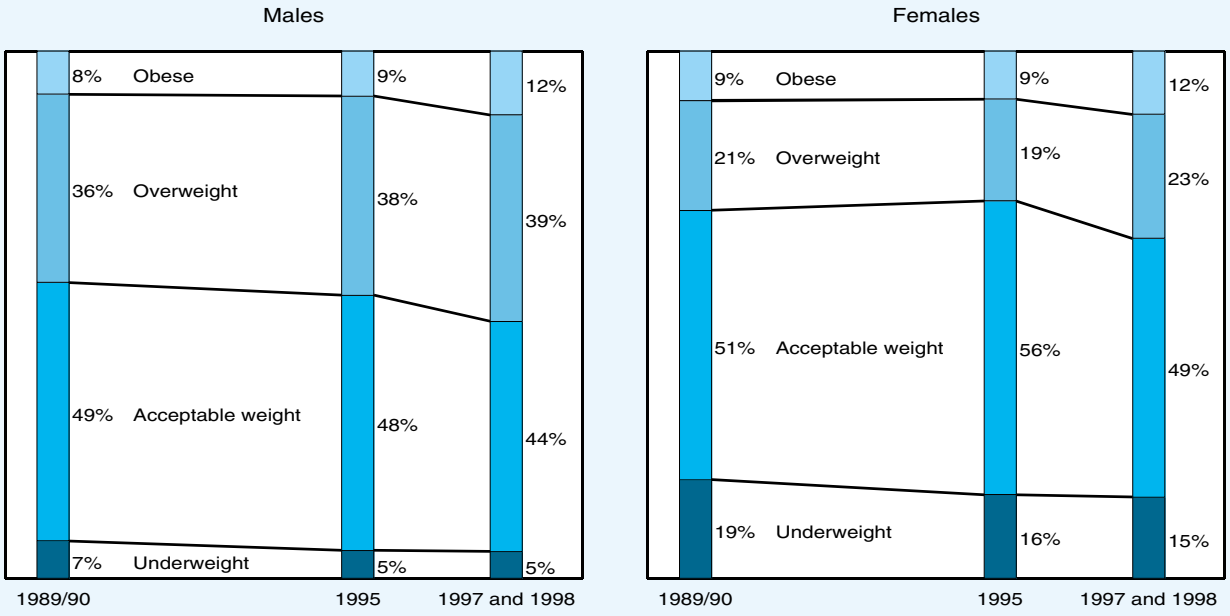
Adequate physical activity by Health Area and sex, persons aged 16 years and over, NSW 1997.

Area Health Service of Residence	Sex	Per cent	LL 95% CI	UL 95% CI
Central Sydney AHS	Males	61.3	56.9	65.7
	Females	40.3	36.3	44.2
	Persons	50.6	47.5	53.6
Northern Sydney AHS	Males	67.1	62.2	72.0
	Females	47.6	43.1	52.1
	Persons	57.0	53.6	60.4
South Eastern Sydney AHS	Males	68.7	64.2	73.3
	Females	50.6	46.1	55.2
	Persons	59.5	56.2	62.8
South Western Sydney AHS	Males	64.4	59.6	69.1
	Females	38.8	34.4	43.3
	Persons	51.4	48.0	54.7
Western Sydney AHS	Males	60.7	55.9	65.5
	Females	40.1	35.9	44.4
	Persons	50.3	47.0	53.5
Wentworth AHS	Males	62.3	57.4	67.2
	Females	47.2	42.7	51.7
	Persons	54.7	51.4	58.1
Central Coast AHS	Males	75.0	70.3	79.7
	Females	51.6	47.2	56.0
	Persons	62.8	59.5	66.2
Hunter AHS	Males	72.0	67.7	76.4
	Females	50.6	46.1	55.1
	Persons	61.2	58.0	64.4
Illawarra AHS	Males	73.1	68.4	77.7
	Females	53.7	49.4	58.0
	Persons	63.2	59.9	66.5
Northern Rivers AHS	Males	67.7	62.6	72.7
	Females	47.6	43.0	52.1
	Persons	57.3	53.8	60.7
Mid North Coast AHS	Males	73.7	68.9	78.5
	Females	56.6	52.2	61.0
	Persons	64.7	61.4	68.0
New England AHS	Males	68.1	63.3	72.9
	Females	51.1	46.7	55.4
	Persons	59.3	56.0	62.6
Macquarie AHS	Males	64.4	59.3	69.5
	Females	51.6	46.9	56.2
	Persons	57.9	54.4	61.3
Far West AHS	Males	65.8	60.5	71.0
	Females	49.8	45.5	54.1
	Persons	58.0	54.5	61.5
Mid Western AHS	Males	65.0	60.0	70.1
	Females	46.2	42.0	50.4
	Persons	55.4	52.0	58.7
Greater Murray AHS	Males	67.6	62.8	72.4
	Females	47.6	43.1	52.0
	Persons	57.4	54.1	60.8
Southern AHS	Males	70.3	65.6	75.0
	Females	48.7	44.1	53.2
	Persons	59.3	56.0	62.7
All NSW	Males	67.0	65.7	68.4
	Females	46.9	45.6	48.2
	Persons	56.7	55.8	57.7

Note: Classification of energy expenditure: 'sedentary' 0-<100 Kcal/fortnight, 'low' 100-<1600 Kcal/fortnight, 'medium' >=1600 Kcal/fortnight but did not engage in at least two hours of vigorous activity, 'high' =1600 Kcal/fortnight and participated in at least two hours of vigorous activity. 'Adequate' physical activity is 'medium' or 'high' energy expenditure.LL/UL95% CI = lower/upper limits of 95 per cent confidence interval for the point estimate.

Source: 1997 NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Body weight by sex,
persons aged 18 years and over, NSW 1989/90, 1995 and 1997



Note: Body Mass Index (BMI) was based on self reported height and weight. BMI=weight(kg)/height*height(m). BMI categories were as follows: underweight: BMI<20, acceptable weight: 20<=BMI<25, overweight: 25<=BMI<30, obese: BMI>=30.

Source: NSW Health Survey 1997 and ABS National Health Survey 1989–90 (HOIST), Epidemiology and Surveillance Branch, NSW Health Department and ABS National Health Survey 1995 (Catalogue no. 4392.0).

- Overweight or obesity increases the risk of a range of health problems, including coronary heart disease, non insulin dependent diabetes mellitus, breast cancer, gallstones, degenerative joint disease and obstructive sleep apnoea.
- The proportion of NSW adults considered to be overweight or obese was similar in the National Health Surveys of 1989/90 and 1995. In 1995, 47 per cent of men and 28 per cent of women reported being overweight or obese. At the 1997 and 1998 NSW Health Surveys, even more men (51 per cent) and women (35 per cent) reported being overweight or obese.
- All of the surveys underestimated the true prevalence of overweight and obesity, because they relied on self-report of height and weight. Data were collected either by face-to-face interview (1989/90 and 1995 surveys) or telephone interview (1997 and 1998 surveys), rather than by physical measurement.
- A study of the accuracy of 1995 National Health Survey data found that self-report underestimated the true prevalence of overweight and obesity by 12 per cent for males and 11 per cent for females (Australian Bureau of Statistics, 1999). A small validation of 1997 NSW Health Survey data in western Sydney reported even larger discrepancies, with the prevalence of overweight and obesity being underestimated by 23 per cent for men and 15 per cent for women (Flood et al. 2000). Respondents in telephone interviews may report their height and weight less accurately than in face-to-face interviews because they cannot be seen by the interviewer.
- NSW Health Department targets for the year 2000 were to reduce the proportion of adults who are overweight or obese to 40 per cent for men and 25 per cent for women (NSW Health Department, 1995).

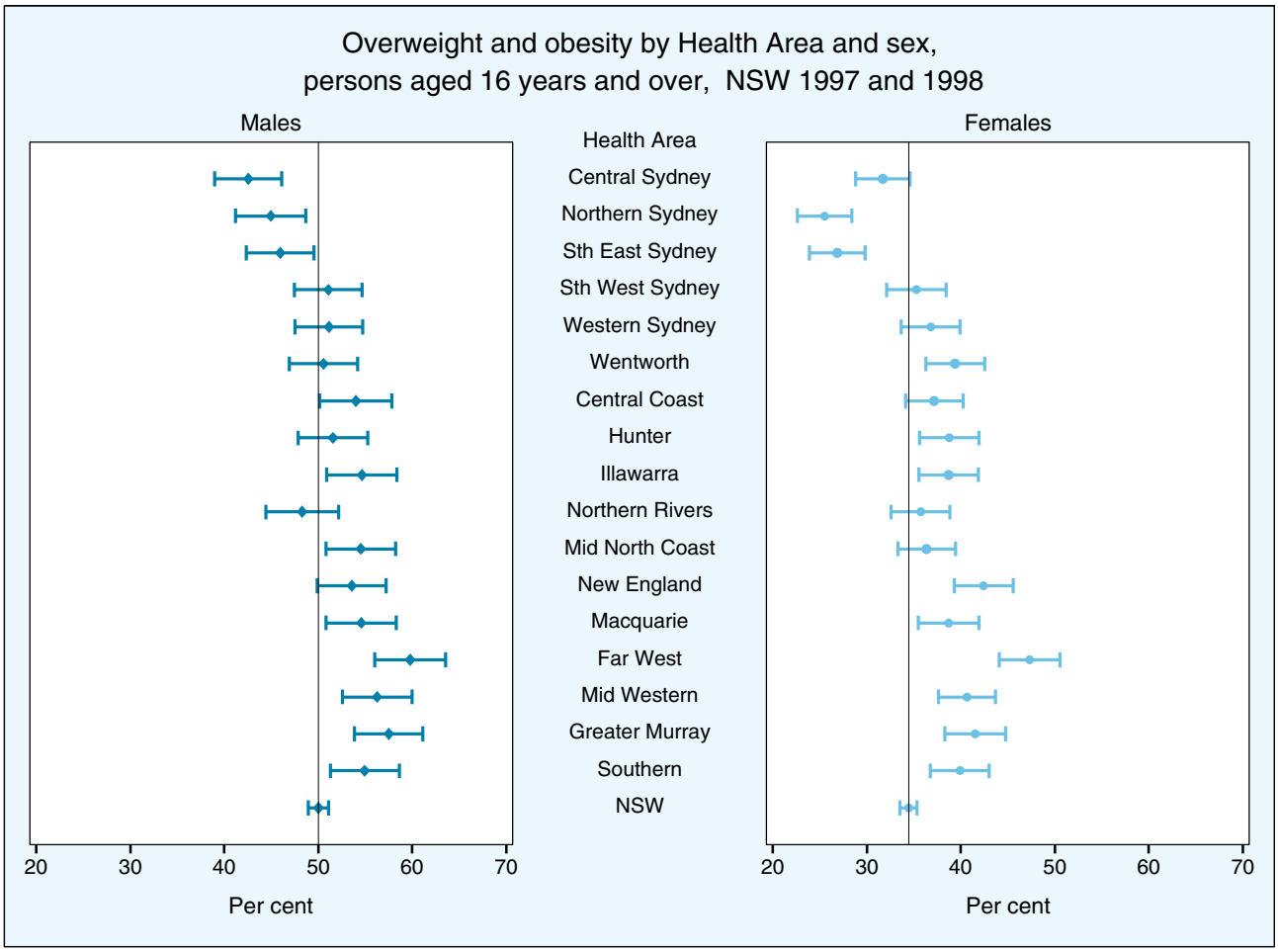
For more information, see: Australian Bureau of Statistics. *How Australians measure up*. Catalogue no. 4359.0. Canberra: ABS, 1999.

Flood V, Webb K, Lazarus R, Pang G. Use of self-report to monitor overweight and obesity in populations: some issues for consideration. *Aust J Public Health* 2000; 24: 96–99.

Martin S, Macoun E. *Food and nutrition: Directions for NSW 1996–2000*. State Health Publication No. (HP) 96–0116. Sydney: NSW Health Department, 1996.

National Health and Medical Research Council. *Acting on Australia's weight: A strategic plan for the prevention of overweight and obesity*. Canberra: NHMRC, 1997.

NSW Health Department, *Coronary heart disease: NSW goals and targets and strategies for health gain*, State Health Publication no. (PHD) 95–0110. Sydney: NSW Health Department, 1995.



Note: Body Mass Index (BMI) was based on self reported height and weight. BMI = weight(kg)/height*height;(m). Overweight or obese was classified as BMI>=25. Lower and upper limits of the 95 per cent confidence interval for the point estimate are shown.
Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1994, the prevalence of self-reported overweight and obesity varied among Health Areas.
- In men, the prevalence of reported overweight and obesity was lowest in Eastern Sydney (37 per cent) and highest in the Greater Murray (55 per cent) and Macquarie and Far West Areas (59 per cent).
- In women, the prevalence of overweight and obesity was lowest in the Northern Sydney and Eastern Sydney Areas (22 per cent) and highest in the Western Sydney, the Hunter (36 per cent) and Mid Western Areas (38 per cent).
- Men from the Macquarie and Far West Areas were significantly more likely to report being overweight or obese than NSW men overall.
- Only men and women from Eastern Sydney and women from Northern Sydney were significantly less likely to report overweight or obesity than NSW residents in general.
- Variations in rates of overweight and obesity among Health Areas reflect the distribution of underlying social determinants of health. Overweight and obesity is more prevalent among NSW adults who are married (rather than single), not in the workforce, have not finished high school or live in urban areas, and among women who live in economically disadvantaged areas (Harris et al. 1999). Variations by socioeconomic status are further examined in Chapter 3.5.

For more information, see: Australian Bureau of Statistics. *How Australians measure up*. Catalogue no. 4359.0. Canberra: ABS, 1999.

Flood V, Webb K, Lazarus R, Pang G. Use of self-report to monitor overweight and obesity in populations: some issues for consideration. *Aust J Public Health* 2000; 24: 96–99.

Harris E, Sainsbury P, Nutbeam D (editors). *Perspectives on health inequity*. Sydney: Australian Centre for Health Promotion, 1999.

Martin S, Macoun E. *Food and nutrition: Directions for NSW 1996 – 2000*. State Health Publication no. (HP) 96–0116. Sydney: NSW Health Department, 1996.

National Health and Medical Research Council. *Acting on Australia's weight: A strategic plan for the prevention of overweight and obesity*. Canberra: NHMRC, 1997.

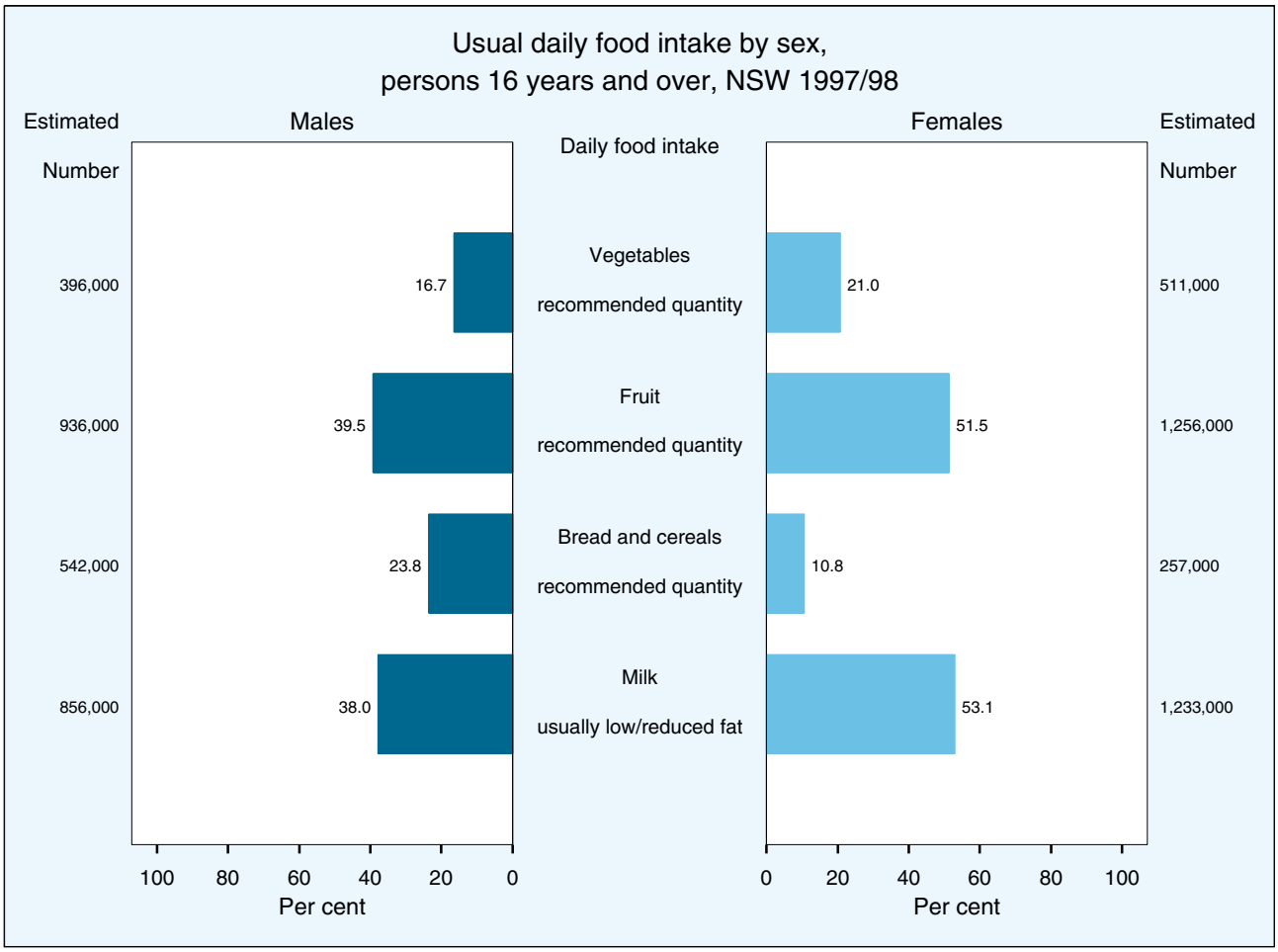
NSW Food and Nutrition Monitoring Project. *Monitoring overweight and obesity in NSW*. Sydney: NSW Health Department, 1997.

Overweight and obesity by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998.

Health Area	Sex	Per cent	LL 95% CI	UL 95% CI
Central Sydney	Males	42.6	39.0	46.1
	Females	31.7	28.8	34.6
	Persons	37.2	34.9	39.6
Northern Sydney	Males	44.9	41.2	48.7
	Females	25.5	22.6	28.4
	Persons	35.1	32.7	37.4
Sth East Sydney	Males	46.0	42.3	49.6
	Females	26.9	23.9	29.8
	Persons	36.6	34.2	38.9
Sth West Sydney	Males	51.1	47.4	54.7
	Females	35.2	32.1	38.4
	Persons	43.3	40.8	45.7
Western Sydney	Males	51.1	47.6	54.7
	Females	36.8	33.7	39.9
	Persons	44.1	41.7	46.5
Wentworth	Males	50.6	46.9	54.2
	Females	39.4	36.3	42.5
	Persons	44.9	42.5	47.3
Central Coast	Males	54.0	50.2	57.9
	Females	37.2	34.1	40.2
	Persons	45.4	43.0	47.9
Hunter	Males	51.6	47.9	55.3
	Females	38.8	35.6	42.0
	Persons	45.2	42.7	47.6
Illawarra	Males	54.6	50.9	58.4
	Females	38.7	35.6	41.9
	Persons	46.8	44.3	49.3
Northern Rivers	Males	48.3	44.4	52.2
	Females	35.7	32.6	38.8
	Persons	42.0	39.5	44.5
Mid North Coast	Males	54.5	50.8	58.2
	Females	36.4	33.3	39.4
	Persons	45.5	43.0	47.9
New England	Males	53.6	49.9	57.2
	Females	42.4	39.3	45.5
	Persons	48.1	45.7	50.5
Macquarie	Males	54.6	50.9	58.3
	Females	38.7	35.5	41.9
	Persons	46.8	44.3	49.3
Far West	Males	59.8	56.0	63.5
	Females	47.3	44.1	50.5
	Persons	54.0	51.5	56.6
Mid Western	Males	56.2	52.5	60.0
	Females	40.7	37.6	43.7
	Persons	48.5	46.1	50.9
Greater Murray	Males	57.5	53.9	61.2
	Females	41.5	38.3	44.7
	Persons	49.7	47.3	52.2
Southern	Males	54.9	51.3	58.6
	Females	39.9	36.7	43.0
	Persons	47.5	45.1	50.0
NSW	Males	50.0	49.0	51.1
	Females	34.4	33.5	35.3
	Persons	42.3	41.6	43.0

Note: Body Mass Index (BMI) was based on self reported height and weight. BMI=weight(kg)/height*height;(m). Overweight or obese was classified as BMI>=25. LL/UL95% CI = lower/upper limits of 95% confidence interval for the point estimate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



Note: Recommended daily quantity of fruit=300 grams or more. Recommended daily quantity of vegetables=300 grams or more. Recommended daily quantity of bread and cereal=210 grams or more. (NHMRC, 1995).

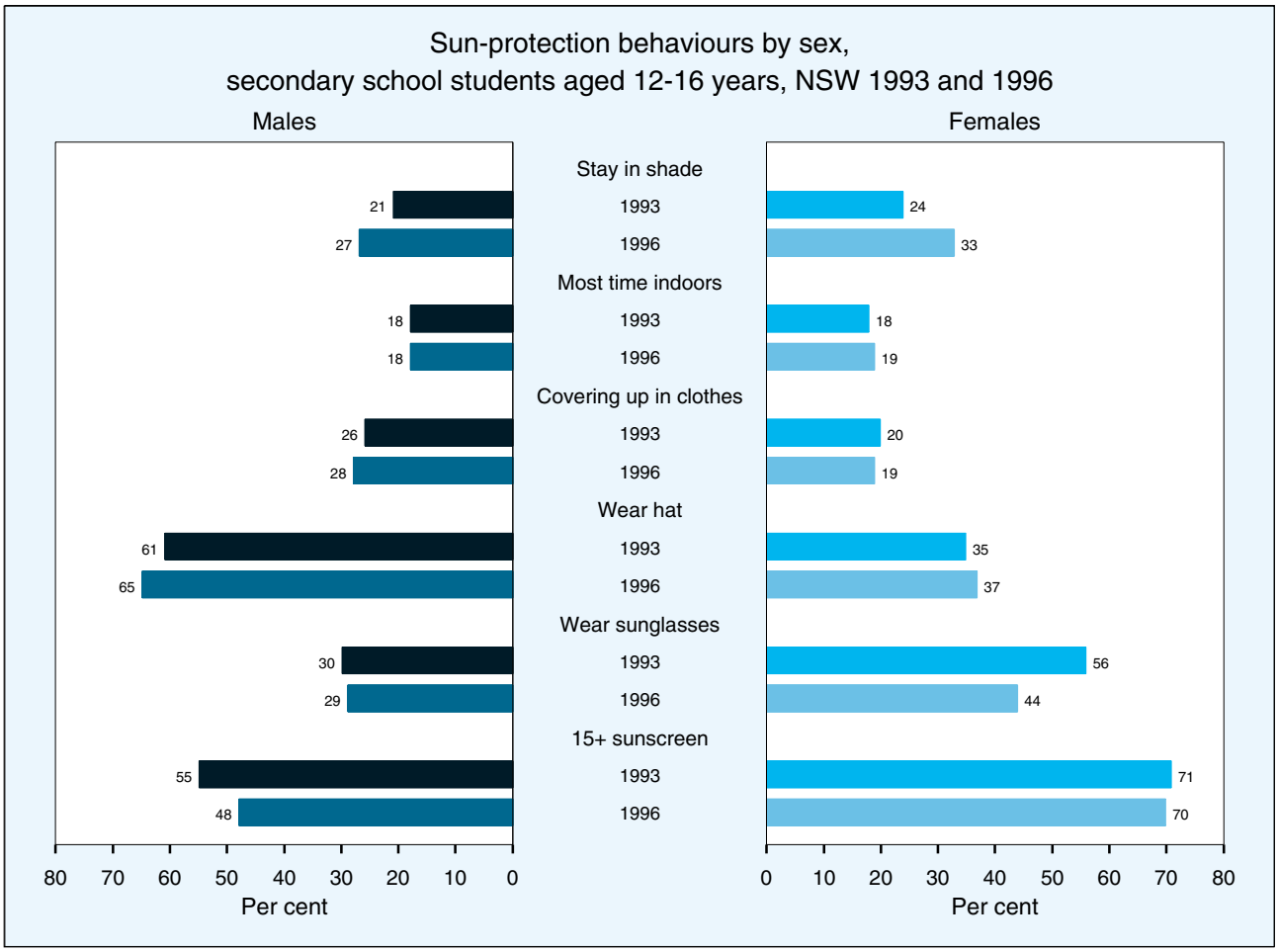
Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Diet is linked to a variety of health problems, including coronary heart disease, stroke, some cancers, non insulin dependent diabetes mellitus, osteoporosis, dental caries, gall bladder disease and diverticular disease.
- This chart presents data on a range of dietary indicators from the 1997 and 1998 NSW Health Surveys.
- NHMRC guidelines recommend that diets should include plenty of breads and cereals (preferably wholegrain), vegetables (including legumes) and fruits (NHMRC, 1992).
- In NSW in 1997 and 1998, only 17 per cent of men ate the recommended quantity of vegetables, and 40 per cent ate the recommended quantity of fruit. Women ate more of these foods, with 21 per cent and 52 per cent reporting eating adequate amounts of vegetables and fruit respectively.
- In contrast, men (24 per cent) were more likely to report eating the recommended quantity of bread and cereals than women (11 per cent).
- A diet low in saturated fats is an important strategy for preventing heart disease. National Heart Foundation guidelines recommend that diets should be low in fat, particularly saturated fat (NHF, 1999).
- Milk is a major dietary source of saturated fat as well as an excellent source of calcium. Encouragingly, consumption of low- and reduced-fat milks appears to have increased. In NSW in 1997 and 1998, 38 per cent of men and 53 per cent of women reported usually or always using these milks. This compares with 33 and 46 per cent for men and women respectively in 1994 (Public Health Division, 1997).

For more information, see: Public Health Division. *The health of the people of NSW—Report of the Chief Health Officer.* Sydney: NSW Health Department, 1997.

NHMRC. *The core food groups: scientific basis for developing education tools.* Canberra: NHMRC, 1995.

National Heart Foundation of Australia. A review of the relationship between dietary fat and cardiovascular disease. *Aust J Nutrition and Dietetics, 1999; 56(4), Supplement.*



Note: Figure gives proportions of students who responded 'usually' or 'always' to the following questions: "Thinking about sunny days in summer, when you are in the sun for an hour or more between 11am and 3pm, how often would you: stay mainly in the shade, spend most of the time indoors, wear clothes covering most of your body, wear a hat, wear sunglasses?".

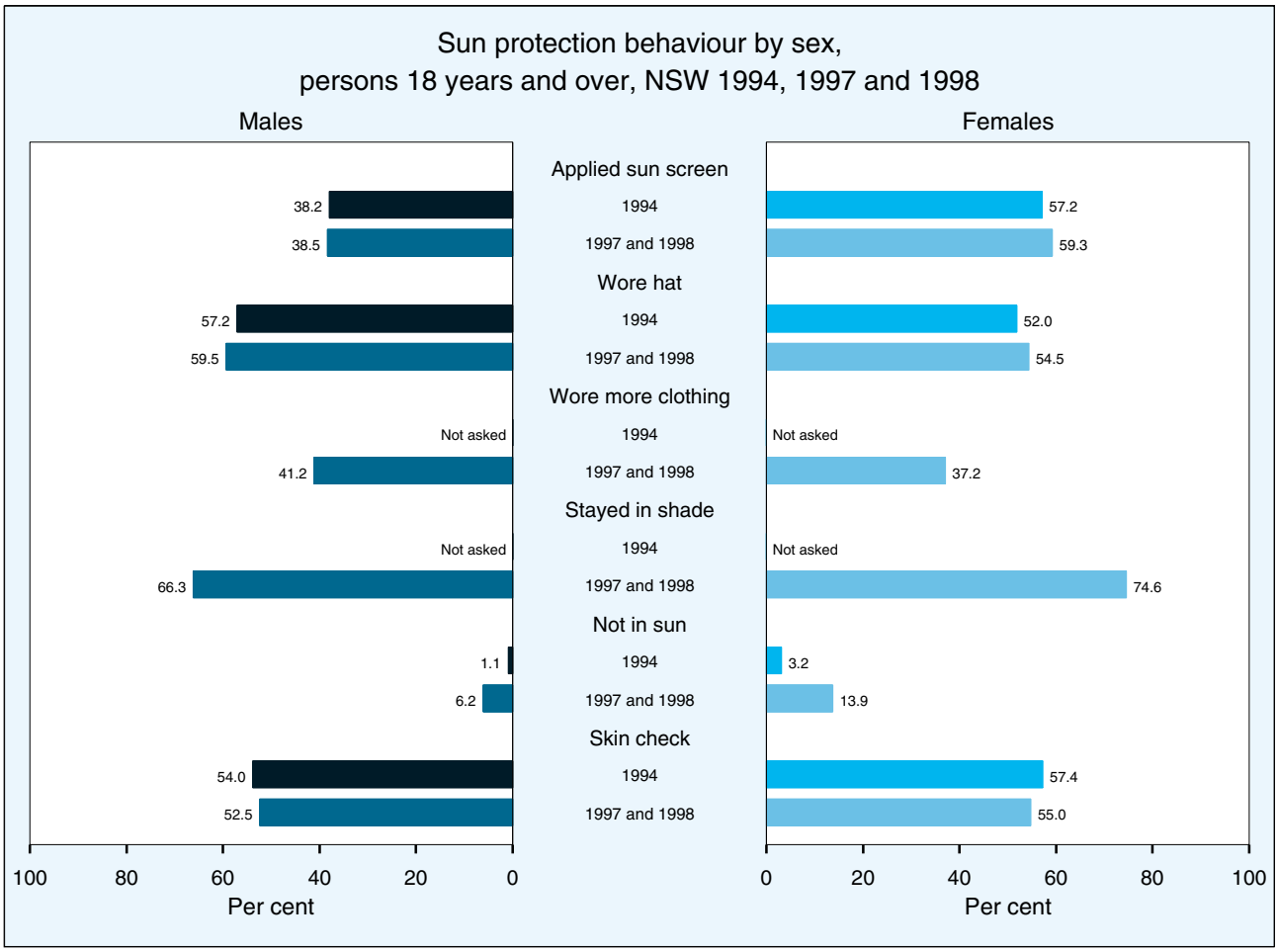
Source: The 1996 Australian School Students Alcohol and Drugs Survey. NSW Cancer Council and NSW Health Department, Sydney,1998.

- Australia has the highest rate of skin cancer in the world. Most sun-related skin damage occurs in the early years of life, and living in Australia during the first 15 years of life contributes about two-thirds to the risk of melanoma of a lifelong resident.
- In 1996, most NSW school students had a good understanding of sun protection and skin cancer issues. Eighty-five per cent of students knew that skin cancer could be cured when detected early, 90 per cent knew that they could get sunburnt on a cloudy day, and 85 per cent knew that a person does not get skin cancer only if they are sunburnt often (Schofield, Lovelace and McKenzie, 1998).
- Despite this, less than half of students in 1996 reported protecting themselves by staying in the shade or indoors, covering up in clothes, wearing a hat, or wearing sunglasses, although more claimed that they usually stayed in the shade than in 1993.
- In both 1993 and 1996, male students were more likely than females to report wearing clothing covering most of the body.
- Fewer female than male students reported that they liked to wear a hat. In 1996, nine per cent of 12-year-old females reported not wearing a hat on sunny days. This increased to 32 per cent for 17-year-old females. Corresponding figures for males were six per cent at 12 years and 14 per cent at 17 years.
- Female students were more likely to report wearing sunglasses than males, although there was a decrease in the proportion of females reporting this practice in 1996 (44 per cent compared with 56 per cent in 1993).

For more information, see: Schofield WN, Lovelace KS, McKenzie JE. *Self reported behaviours of NSW secondary school students—Sun protection, physical activity, injury and eating patterns. The 1996 Australian School Students Alcohol and Drugs Survey*. Sydney: NSW Cancer Council and NSW Health Department,1998.

Nguyen HL, Armstrong B, Coates M. *Cutaneous melanoma in NSW in 1983 to 1995*. Sydney: NSW Cancer Council, 1997.

NSW Cancer Council and NSW Health Department. *Skin cancer control strategic plan 2000–2003*. Sydney: NSW Cancer Council, 2000.



Note: All responses refer to usual behaviours from the pre-survey summer between the hours of 11 a.m. and 3 p.m. The survey defined: 'Sun Screen' as when a broad spectrum 15+ sunscreen (no less) was applied to at least half of all exposed skin; 'Wore protective clothing' as wore more clothing to protect yourself from the sun; 'Wore a Hat' as wearing a wide-brimmed hat or cap with a flap; 'Skin check—past 12 months' as deliberately checking the skin for changes during the past 12 months. '

Source: NSW Health Surveys 1997 and 1998, NSW Health Promotion Survey 1994 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

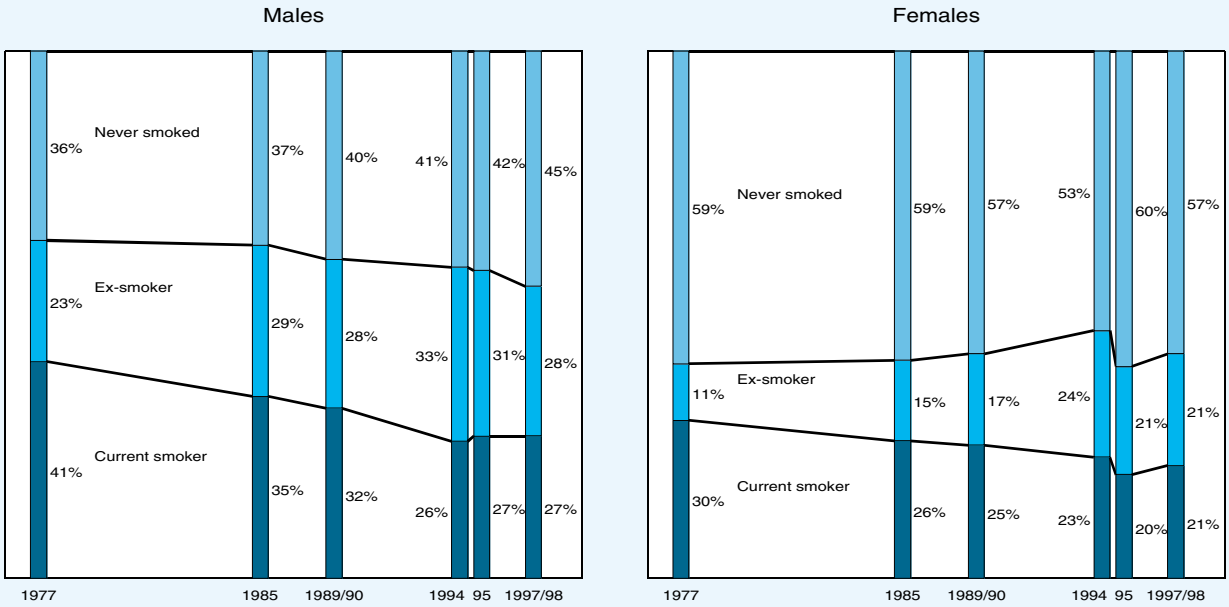
- Around two out of three people who live their whole lives in Australia will require treatment for at least one skin cancer during their lifetime. Most skin cancer is caused by unprotected exposure to the sun.
- At the 1997 and 1998 NSW Health Surveys, women were much more likely than men to report usually or always using sunscreen, staying in the shade or avoiding being in the sun between 11 a.m. to 3 p.m. Men were more likely to report wearing protective clothing or a hat.
- Comparisons between the 1994 NSW Health Promotion Survey and the 1997 and 1998 NSW Health Surveys should be made with caution due to variations in the questions used and the timing of the surveys.
- Encouragingly, however, there was a substantial increase in the 1997 and 1998 surveys in the proportion of both males and females who reported staying out of the sun between 11 am and 3 pm.
- There was a slight decline between surveys in the proportion of people reporting that they checked their skin for skin cancer in the past 12 months.
- NSW Health and the NSW Cancer Council are working to minimise the harm caused by sun exposure through the Skin Cancer Control Strategic Plan 2000–2004.

For more information, see: Nguyen HL, Armstrong B, Coates M. *Cutaneous melanoma in NSW in 1983 to 1995*. Sydney: NSW Cancer Council, 1997.

NSW Cancer Council and NSW Health Department. *Skin cancer control strategic plan 2000–2004*. Sydney: NSW Cancer Council, 2000.

NSW Cancer Council Web site at: http://www.nswcc.org.au.

Smoking status by sex,
persons aged 18 years and over, NSW 1977 to 1997/98



Note: Current smoking includes daily and occasional smoking.

Source: ABS Survey of Alcohol and Tobacco Consumption Patterns, 1977 (ABS Catalogue no. 4312.0). ABS *Life Style: Health Risk Factors, NSW, 1985* (ABS Catalogue no. 4311.1). ABS and NSW Health Department. *State of Health in NSW* (ABS Catalogue no. 4330.1); NSW Health Promotion Survey 1994, ABS National Health Survey, 1995 and NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Cigarette smoking is a major cause of death and illness in NSW. Smoking causes coronary heart disease, cancers (including lung cancer, mouth cancers and cervical cancer), stroke and chronic lung disease.
- This chart presents data on smoking from recent population surveys. Data were collected by both face-to-face interview (1989/90 and 1995 surveys) and telephone interview (1994, 1997 and 1998 surveys), so apparent trends over time need to be interpreted with caution.
- The data suggest that smoking rates in NSW have declined by around four per cent among both men and women since 1989/90. Most of this decline occurred between 1989/90 and 1994, with smoking rates levelling out in more recent years.
- Among women, much of the decline in smoking rates is attributable to an increase in smoking cessation, with a smaller decrease in smoking uptake. Among men, however, a decrease in smoking uptake, rather than an increase in the quit rate, explains most of the overall decline.
- NSW Health set smoking prevalence targets for the year 2000 of 24 and 17 per cent for men and women, respectively. Though smoking rates among both men and women moved to within three per cent of these targets, it is unlikely that they were met.
- The NSW Tobacco and Health Strategy 1995–1999 focused on four key issues for action: marketing tobacco products, availability of tobacco products, passive smoking and smoking cessation. The Strategy is currently under review and the Tobacco Control Action Plan 2000–2004 is being developed.

For more information, see: English D R, Holman C D J, Milne M G, et al. *The quantification of drug caused morbidity and mortality in Australia*. Canberra: Commonwealth Department of Human Services and Health, 1995.

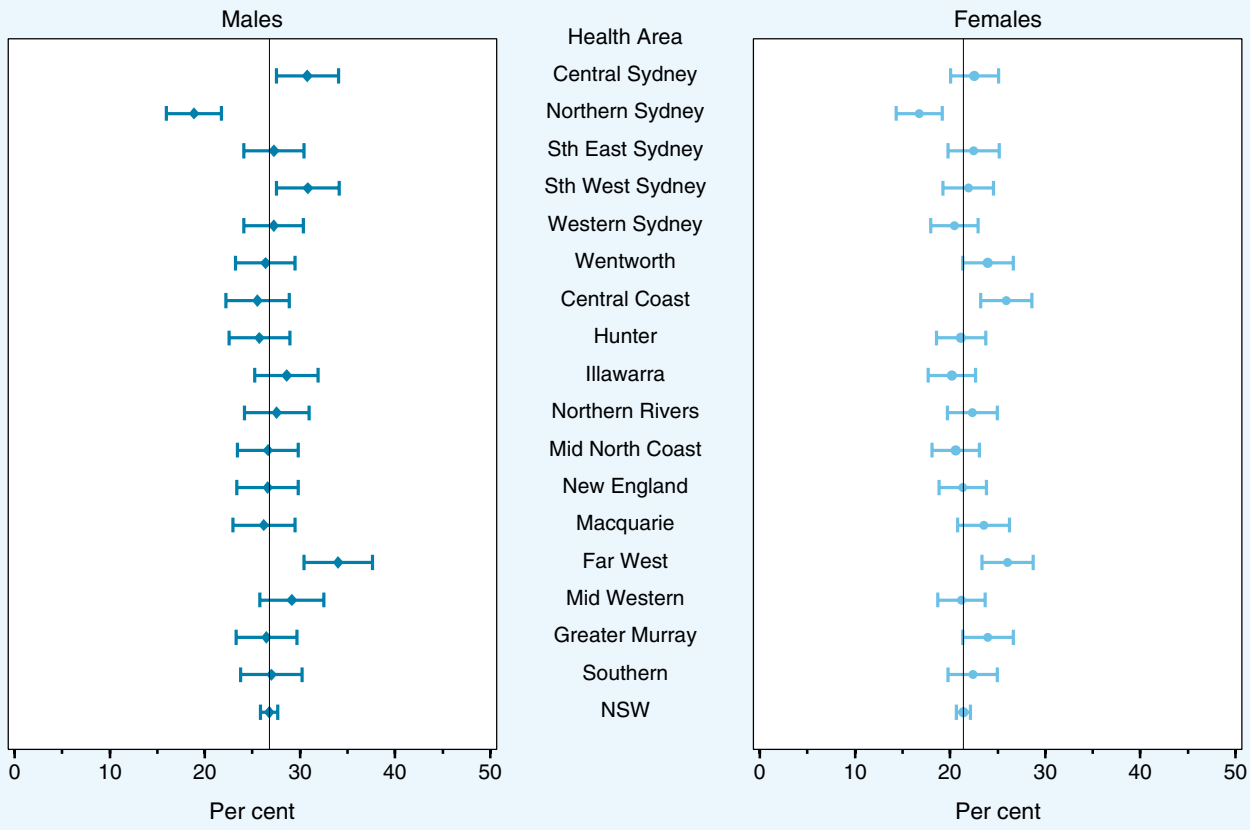
Graham-Clarke P, Nathan S, Stoker L, Bauman A and Wise M. *Smoking: best practice for reducing the prevalence of smoking in the Areas of NSW* , State Health Publication no. (HP) 96–006. Sydney: NSW Health Department, 1996.

Winstanley M, Woodward S and Walker N. *Tobacco in Australia facts and issues*. Melbourne: The Victorian Smoking and Health Program (QUIT Victoria), 1995.

Collins D and Lapsley H. *The social costs of drug abuse in Australia in 1988 and 1992*, National Drug Strategy monograph series no. 30. Canberra: Commonwealth Department of Human Services and Health, 1996.

Centre for Education and Information on Alcohol and Other Drugs Web site at: www.cida.net.au.

Current smoking by Health Area and sex,
persons aged 16 years and over, NSW 1997 and 1998



Note: Current smoking includes daily and occasional use. Lower and upper limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1997 and 1998, reported current smoking rates varied widely among Health Areas.
- In men, current smoking rates varied from 21 per cent in Northern Sydney Area to 35 per cent in Far West Area.
- In women, current smoking rates ranged from 17 per cent in Northern Sydney Area to 26 per cent in Central Coast Area.
- Variations in smoking rates among Health Areas reflect the distribution of underlying social determinants of health. They also reflect the differential impact among socioeconomic groups of influences such as health publicity and changes in cigarette price (Townsend, 1994). Current smoking is more prevalent among NSW adults who are single (rather than married), unemployed, have not finished high school or live in economically disadvantaged areas, and among men from non-English speaking backgrounds (Harris et al. 1999).
- Variations in smoking rates by socioeconomic status are further examined in Chapter 3.5.

For more information, see: Collins D and Lapsley H. *The social costs of drug abuse in Australia in 1988 and 1992*. National Drug Strategy monograph series no. 30. Canberra: Commonwealth Department of Human Services and Health, 1996.

Harris E, Sainsbury P, Nutbeam D (editors). *Perspectives on health inequity*. Sydney: Australian Centre for Health Promotion, 1999.

Townsend J. Cigarette smoking by socio-economic group, sex, and age: effects of price, income, and health publicity. *BMJ* 1994; 309: 923–927.

Centre for Education and Information on Alcohol and Other Drugs Web site at: www.ceida.net.au.

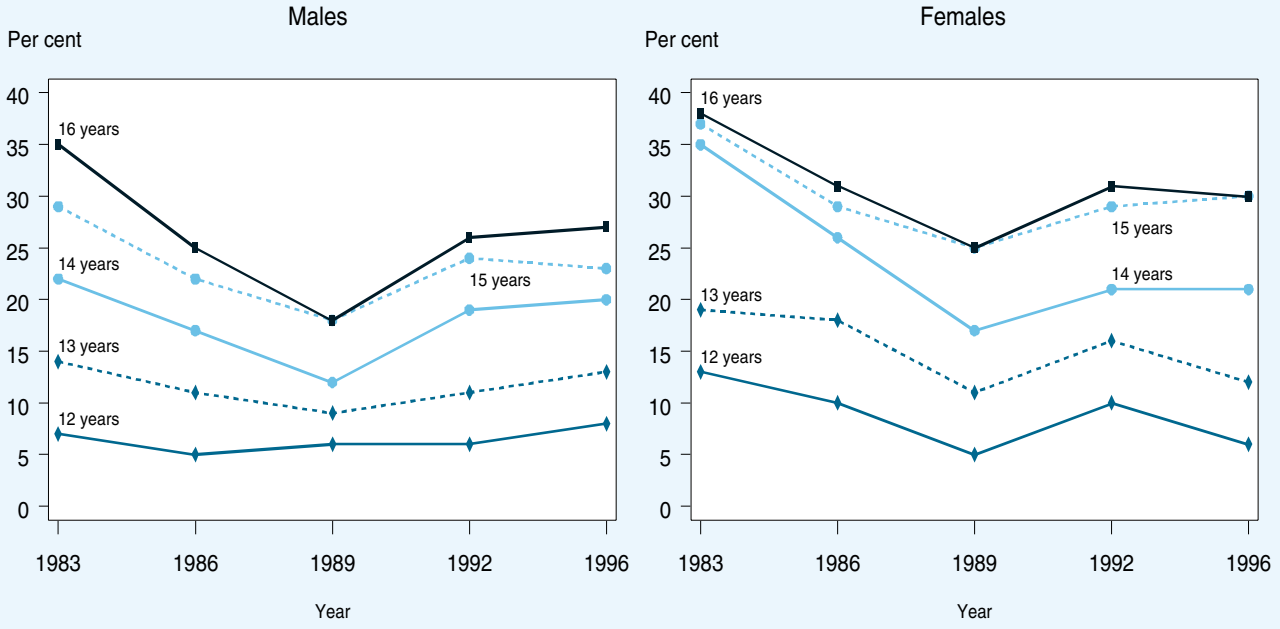
Current smoking by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998.

Health Area	Sex	Per cent	LL 95% CI	UL 95% CI
Central Sydney	Males	30.8	27.5	34.0
	Females	22.6	20.1	25.1
	Persons	26.6	24.6	28.7
Northern Sydney	Males	18.9	16.0	21.8
	Females	16.8	14.4	19.2
	Persons	17.8	15.9	19.7
South Eastern Sydney	Males	27.3	24.1	30.4
	Females	22.4	19.8	25.1
	Persons	24.8	22.7	26.9
South Western Sydney	Males	30.8	27.5	34.1
	Females	21.9	19.3	24.6
	Persons	26.3	24.2	28.4
Western Sydney	Males	27.2	24.1	30.4
	Females	20.4	17.9	23.0
	Persons	23.8	21.8	25.8
Wentworth	Males	26.4	23.2	29.5
	Females	24.0	21.3	26.7
	Persons	25.2	23.1	27.2
Central Coast	Males	25.5	22.2	28.9
	Females	25.9	23.2	28.6
	Persons	25.7	23.6	27.8
Hunter	Males	25.7	22.6	28.9
	Females	21.1	18.6	23.7
	Persons	23.4	21.4	25.4
Illawarra	Males	28.6	25.3	31.9
	Females	20.2	17.7	22.7
	Persons	24.4	22.3	26.4
Northern Rivers	Males	27.6	24.2	30.9
	Females	22.3	19.7	25.0
	Persons	24.9	22.8	27.0
Mid North Coast	Males	26.6	23.4	29.8
	Females	20.6	18.1	23.1
	Persons	23.5	21.5	25.6
New England	Males	26.6	23.4	29.8
	Females	21.3	18.8	23.8
	Persons	23.9	21.9	26.0
Macquarie	Males	26.2	23.0	29.5
	Females	23.5	20.8	26.3
	Persons	24.9	22.7	27.0
Far West	Males	34.0	30.4	37.6
	Females	26.0	23.3	28.7
	Persons	30.2	27.9	32.4
Mid Western	Males	29.1	25.8	32.5
	Females	21.2	18.7	23.7
	Persons	25.1	23.1	27.2
Greater Murray	Males	26.5	23.3	29.7
	Females	24.0	21.3	26.6
	Persons	25.2	23.1	27.3
Southern	Males	27.0	23.8	30.2
	Females	22.4	19.8	25.0
	Persons	24.7	22.6	26.8
All NSW	Males	26.8	25.8	27.7
	Females	21.4	20.7	22.2
	Persons	24.1	23.5	24.6

Note: Current smoking includes daily and occasional use. LL/UL 95% CI=lower/upper limits of 95% confidence interval of the point estimate.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Current tobacco use by age and sex,
secondary school students aged 12-16 years, NSW 1983 to 1996



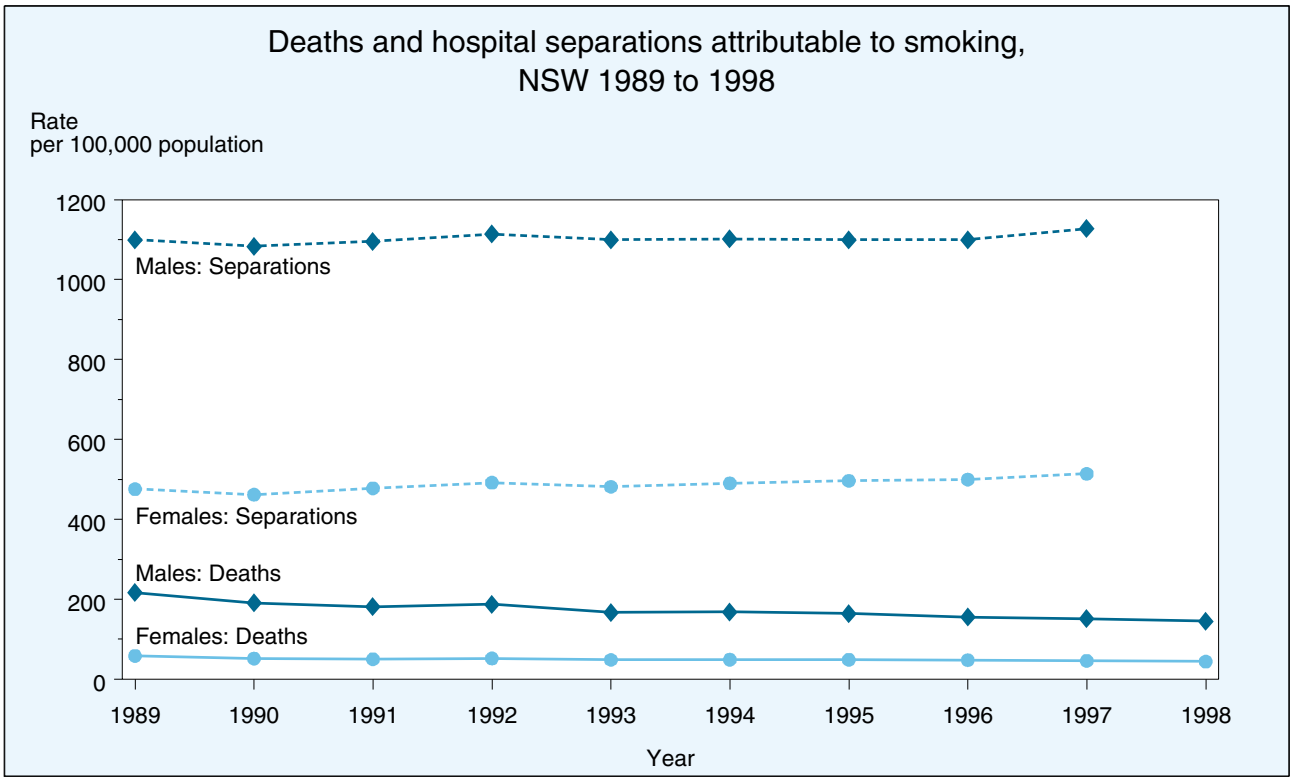
	Age	1983	1986	1989	1992	1996
Males	12 years	7	5	6	6	8
	13 years	14	11	9	11	13
	14 years	22	17	12	19	20
	15 years	29	22	18	24	23
	16 years	35	25	18	26	27
Females	12 years	13	10	5	10	6
	13 years	19	18	11	16	12
	14 years	35	26	17	21	21
	15 years	37	29	25	29	30
	16 years	38	31	25	31	30

Note: Current smoking includes daily and occasional smokers for earlier surveys (1983–1992). Percentages are age-adjusted.

Source: Schofield WN. et al. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students Alcohol and Drugs Survey.* NSW Health Department and NSW Cancer Council, Sydney, 1998.

- Most tobacco users begin, develop and establish their behaviour during adolescence, so preventing smoking in this group is key to reducing tobacco-related illness and death in the long-term.
- Among NSW secondary school students aged 12–17 years in 1996, 19 per cent of boys and 21 per cent of girls reported having smoked during the previous week (Schofield et al. 1998).
- There was a decline in current (daily and occasional) smoking among both sexes between 1983 and 1989, followed by an increase between 1989 and 1992. In 1996, the overall prevalence of current smoking was very similar to 1992, but underlying this was a slight increase among boys, and a slight decline among girls.
- In 1996, at all ages after 13 years, the prevalence of current smoking among girls exceeded that among boys.
- The prevalence of current smoking increased with age among both sexes, peaking at 27 and 30 per cent among boys and girls, respectively.
- Most student smokers reported that they did not buy their own cigarettes. The proportion of students buying their own cigarettes increased with age. In boys, this ranged from 19 per cent among 12-year-olds to 52 per cent among 16-year-olds. Corresponding figures for girls were six per cent and 39 per cent. Most students (70 per cent) who did not buy their last cigarette reported that they got it from a friend (Schofield et al. 1998).

For more information, see: Schofield WN, Lovelace KS, McKenzie JE, Burns L. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students Alcohol and Drugs Survey.* Sydney: NSW Health Department and NSW Cancer Council, 1998.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Deaths	Males	5356	4846	4727	4999	4551	4721	4693	4580	4583	4519
		Females	1949	1753	1741	1841	1754	1821	1845	1865	1839	1806
		Persons	7305	6599	6468	6840	6305	6542	6538	6445	6422	6325
	Separations	Males	30036	30184	31097	32205	32450	33119	33690	34483	36127	.
		Females	14748	14524	15259	15890	15749	16249	16689	17087	17850	.
		Persons	44784	44708	46355	48095	48199	49368	50379	51570	53977	.
Rate per 100,000	Deaths	Males	216.9	190.9	181.5	187.8	166.7	168.8	164.2	155.7	151.3	145.3
		Females	58.5	51.9	50.1	52.0	48.5	49.1	48.8	47.9	46.0	44.3
		Persons	124.1	110.1	105.3	108.9	98.2	99.6	97.2	93.4	90.6	87.3
	Separations	Males	1100.2	1083.7	1095.6	1114.3	1100.2	1102.0	1100.0	1100.2	1127.8	.
		Females	475.9	461.9	477.8	492.0	481.7	490.4	496.6	499.8	514.1	.
		Persons	753.5	740.4	754.1	771.0	760.7	766.5	768.6	771.5	792.9	.

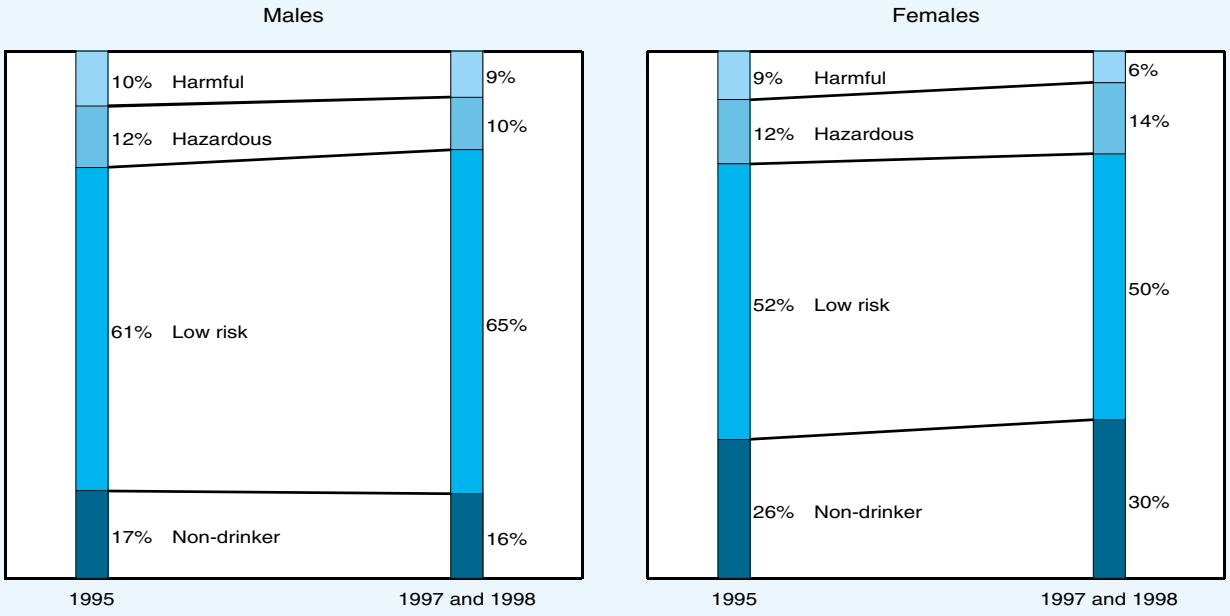
Note: Deaths and hospital separations attributable to smoking were calculated using age- and sex-specific aetiologic fractions from English et al 1995. Deaths are for calendar years. Separations are for financial years. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: Australian Institute of Health and Welfare (aetiologic fractions). NSW Health Department Inpatient Statistics Collection (ISC) and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Cigarette smoking contributes to many causes of death and illness, including cancers of the lung, larynx, mouth and cervix, coronary heart disease, stroke, chronic lung disease, sudden infant death syndrome and low birth-weight (English et al. 1995).
- The data presented here were derived by applying aetiologic fractions (the probability that a particular case of illness or death was caused by smoking) to death and hospital morbidity data for NSW. For more details, see the Methods section (page 265).
- In NSW in 1998, cigarette smoking caused an estimated 4,519 male deaths and 1,806 female deaths (representing 19 per cent and nine per cent of all male and female deaths, respectively).
- In 1997/98, smoking caused an estimated 36,127 hospitalisations among males and 17,850 hospitalisations among females (4.2 and 1.7 per cent of all hospitalisations for males and females, respectively).
- Between 1989 and 1998, the age-adjusted rate of deaths attributable to smoking among men declined by around 16 per cent, and among women declined by seven per cent. The rate of hospitalisations attributable to smoking, however, increased by around 20 per cent in both sexes over a comparable period.

For more information, see: English DR, Holman CDJ, Milne M G, et al. *The quantification of drug caused morbidity and mortality in Australia.* Canberra: Commonwealth Department of Human Services and Health, 1995.

Alcohol use by sex, persons aged 16 years and over, NSW 1995 and 1997/98



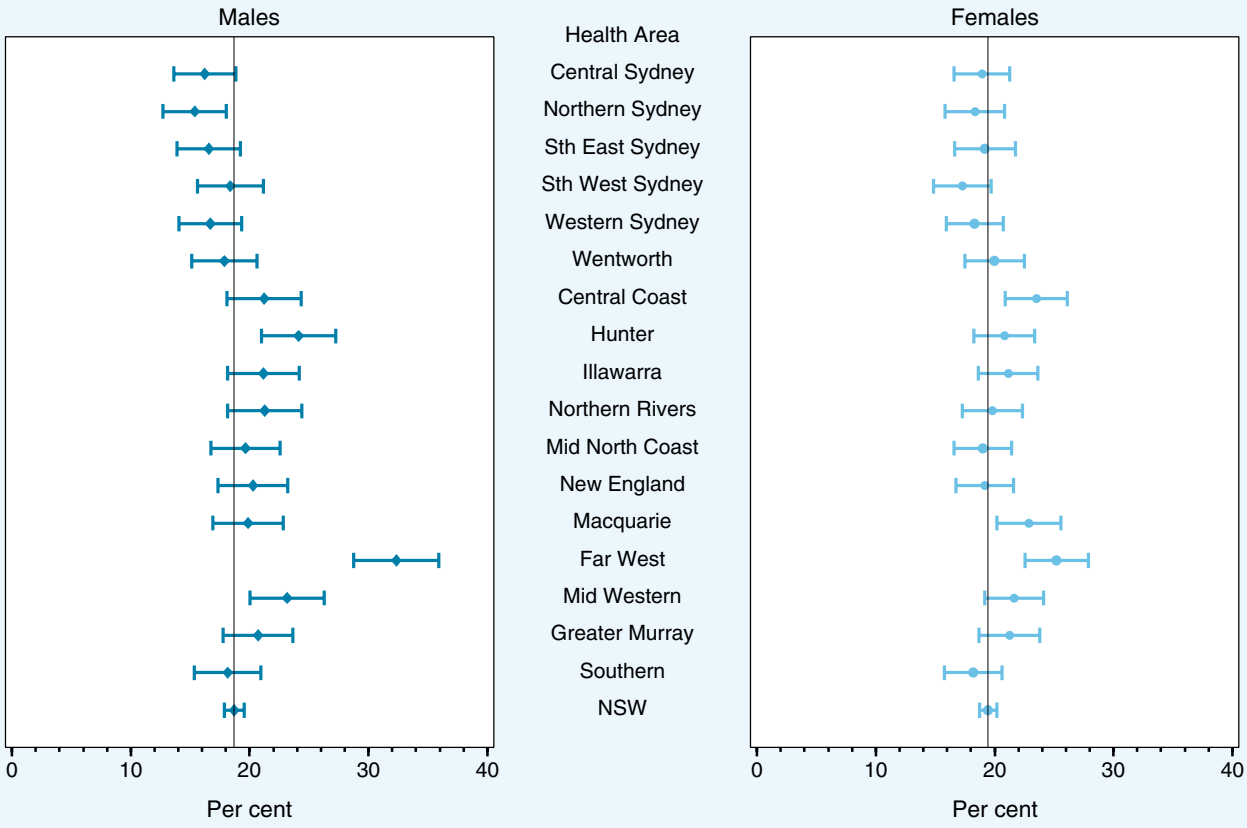
Note: Respondents were asked how often they had an alcoholic drink of any kind and how many 'standard drinks' they usually had on an occasion when they consumed alcohol. Hazardous use=usually consumes more than two (females) or four (males) drinks per occasion. Harmful alcohol use=usually consumes more than four (females) or six (males) drinks per occasion. 1995 data includes persons aged 14 years and over, 1997 and 1998 data include persons aged 16 years and over.

Source: Commonwealth Department of Human Services and Health, National Drug Strategy Household Survey report, 1995. Canberra: AGPS, 1996. NSW Health Survey 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Although light to moderate intake of alcohol may reduce the risk of coronary heart disease, intake above these levels is hazardous or harmful to health. Acute effects include intoxication, leading to loss of coordination and judgement and increasing the risk of road and other accidents. Chronic effects include liver and brain damage, heart disease and memory loss. Alcohol abuse is also associated with crime and social problems, and lost productivity.
- The data shown here compare self-reported alcohol consumption in the 1995 National Drug Strategy Household Survey and the 1997 and 1998 NSW Health Surveys. The 1995 survey used face-to-face interviews of persons aged 14 years and over, while in 1997 and 1998, data were collected by telephone from persons aged 16 years and over.
- Despite the different methods used, the surveys yielded similar prevalence figures for alcohol use.
- In 1997 and 1998, more NSW women (30 per cent) than men (16 per cent) reported that they did not drink any alcohol. However, similar proportions of men (19 per cent) and women (20 per cent) reported drinking at hazardous or harmful levels.
- The NSW Health Department adopts a policy approach of harm minimisation with respect to the use of alcohol, involving a range of strategies including demand reduction, supply control, controlled use, safer use, and abstinence.

For more information, see: Centre for Education and Information on Drugs and Alcohol Web site at: www.ceida.net.au.

Hazardous or harmful alcohol use by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998



Note: Respondents were asked how often they had an alcoholic drink of any kind and how many 'standard drinks' they usually had on an occasion when they consumed alcohol. Hazardous or harmful alcohol use=usually consumes more than two (females) or four (males) drinks per occasion. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department

- In NSW in 1997 and 1998, reported rates of hazardous or harmful alcohol use varied widely among Health Areas.
- In men, rates of hazardous or harmful alcohol use varied from 15 per cent in Northern Sydney Area to 32 per cent in Far West Area.
- In women, rates of hazardous or harmful alcohol use ranged from 17 per cent in South Western Sydney Area to 25 per cent in Far West Area.
- Variations in rates of alcohol use among Health Areas reflect the distribution of underlying social determinants of health. A European study showed that increases in alcohol use can take place quite rapidly under conditions of increasing social inequity and loss of social cohesion (Wilkinson and Marmot, 1998). Risk drinking is more prevalent among NSW adults who are single (rather than married), have not finished high school, live in rural areas and who are Australian-born (rather than overseas-born) (Harris et al. 1999).
- Variations in alcohol use by socioeconomic status are further examined in Chapter 3.5.

For more information, see: Collins D and Lapsley H. *The social costs of drug abuse in Australia in 1988 and 1992*. National Drug Strategy monograph series no. 30. Canberra: Commonwealth Department of Human Services and Health, 1996.

Harris E, Sainsbury P, Nutbeam D (editors). *Perspectives on health inequity*. Sydney: Australian Centre for Health Promotion, 1999.

Wilkinson R, Marmot M. *The solid facts: social determinants of health*. Copenhagen: WHO Centre for Urban Health, 1998.

Centre for Education and Information on Alcohol and Other Drugs Web site at: www.ceida.net.au.

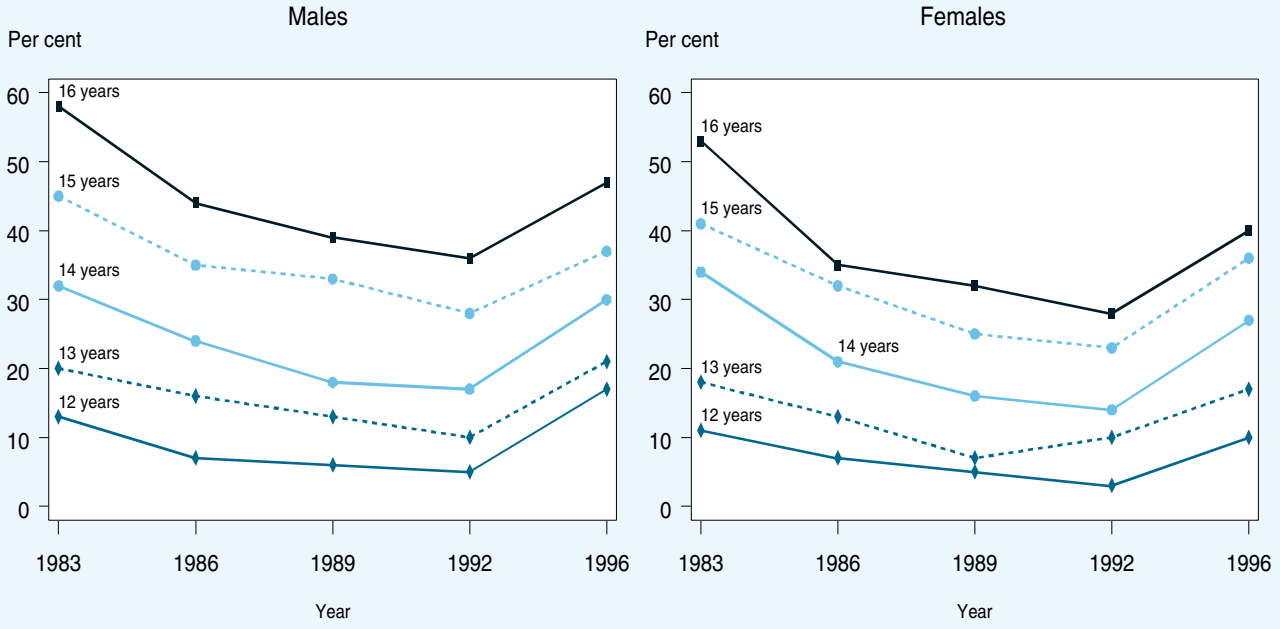
Hazardous or harmful alcohol use by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998.

Health Area	Sex	Per cent	LL 95% CI	UL 95% CI
Central Sydney	Males	16.2	13.6	18.8
	Females	18.9	16.6	21.3
	Persons	17.6	15.8	19.4
Northern Sydney	Males	15.4	12.7	18.0
	Females	18.3	15.8	20.8
	Persons	16.9	15.1	18.7
South Eastern Sydney	Males	16.6	13.9	19.2
	Females	19.2	16.6	21.7
	Persons	17.9	16.0	19.7
South Western Sydney	Males	18.4	15.6	21.1
	Females	17.3	14.8	19.7
	Persons	17.8	16.0	19.7
Western Sydney	Males	16.7	14.1	19.3
	Females	18.3	15.9	20.7
	Persons	17.5	15.7	19.3
Wentworth	Males	17.9	15.2	20.6
	Females	20.0	17.5	22.5
	Persons	19.0	17.1	20.8
Central Coast	Males	21.2	18.1	24.4
	Females	23.5	20.9	26.1
	Persons	22.4	20.4	24.4
Hunter	Males	24.1	21.0	27.2
	Females	20.8	18.2	23.4
	Persons	22.5	20.4	24.5
Illawarra	Males	21.2	18.1	24.2
	Females	21.1	18.6	23.7
	Persons	21.1	19.2	23.1
Northern Rivers	Males	21.3	18.2	24.4
	Females	19.8	17.3	22.3
	Persons	20.5	18.5	22.5
Mid North Coast	Males	19.7	16.8	22.6
	Females	19.0	16.6	21.4
	Persons	19.3	17.5	21.2
New England	Males	20.3	17.3	23.2
	Females	19.2	16.8	21.6
	Persons	19.7	17.8	21.6
Macquarie	Males	19.9	16.9	22.8
	Females	22.9	20.2	25.6
	Persons	21.4	19.4	23.4
Far West	Males	32.3	28.8	35.9
	Females	25.2	22.5	27.9
	Persons	28.9	26.7	31.2
Mid Western	Males	23.1	20.0	26.3
	Females	21.6	19.1	24.1
	Persons	22.4	20.4	24.4
Greater Murray	Males	20.7	17.8	23.6
	Females	21.2	18.7	23.8
	Persons	21.0	19.0	22.9
Southern	Males	18.2	15.4	21.0
	Females	18.2	15.8	20.6
	Persons	18.2	16.3	20.0
NSW	Males	18.7	17.9	19.5
	Females	19.5	18.7	20.2
	Persons	19.1	18.5	19.6

Note: Respondents were asked how often they had an alcoholic drink of any kind and how many "standard drinks" they usually had on an occasion when they consumed alcohol. Hazardous or harmful alcohol use=usually consumes more than two (females) or four (males) drinks per occasion. LL/UL95% CI=lower/upper limits of 95% confidence interval of the point estimate.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department

Recent consumption of alcohol by age and sex, secondary school students aged 12-16 years, NSW 1983 to 1996



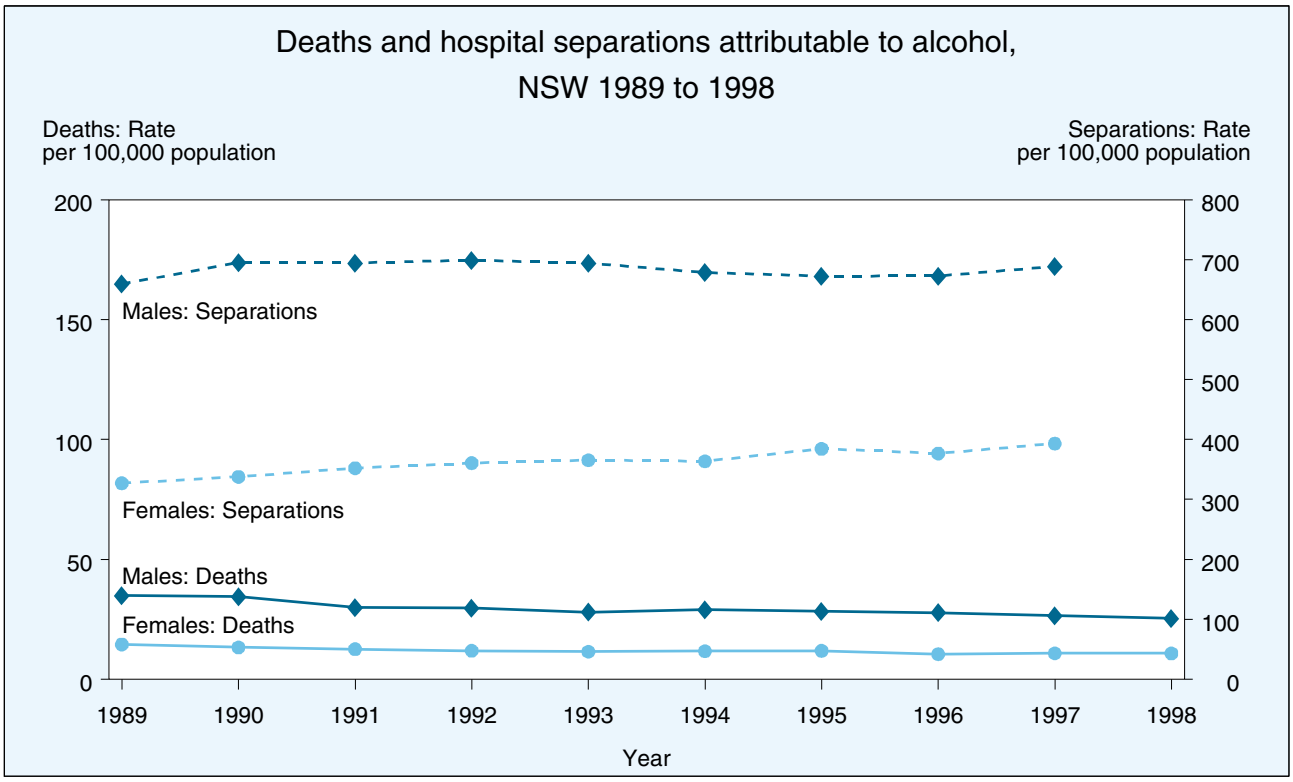
	Age (years)	1983	1986	1989	1992	1996
Males	12	13	7	6	5	17
	13	20	16	13	10	21
	14	32	24	18	17	30
	15	45	35	33	28	37
	16	58	44	39	36	47
Females	12	11	7	5	3	10
	13	18	13	7	10	17
	14	34	21	16	14	27
	15	41	32	25	23	36
	16	53	35	32	28	40

Note: Students were asked whether they drank alcohol during the week preceding the survey. Percentages are age-adjusted.

Source: Schofield WN et al. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students Alcohol and Drugs Survey*. Sydney: NSW Health Department and NSW Cancer Council, 1998.

- In NSW in 1996, most secondary students (88 per cent of boys and 86 per cent of girls) reported that they had drunk alcohol, although 30 per cent of boys and 34 per cent of girls reported having taken only a 'few sips'.
- Around one-third of students (34 per cent of boys and 29 per cent of girls) reported having had alcohol during the week preceding the survey ('recent' drinking).
- More students of both sexes reported recent drinking in 1996 than in 1992, across all age groups.
- Recent drinking increased with age: for boys, the prevalence of recent drinking increased by more than one and one-half times between the ages of 12 and 16 years. For girls, the prevalence of recent drinking increased threefold between these ages.
- Among recent drinkers, boys consumed more standard drinks per week than girls and were more likely to have drunk at hazardous levels (more than two drinks for females, four drinks for males) on two or more occasions during the past two weeks.
- The most common sources of alcohol for school students were their parents (36 per cent) and friends (22 per cent). About 11 per cent of boys and seven per cent of girls purchased their last alcoholic drink for themselves.

For more information, see: Schofield WN, Lovelace KS, McKenzie JE, Burns L. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students Alcohol and Drugs Survey*. Sydney: NSW Health Department and NSW Cancer Council, 1998.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Deaths	Males	952	955	846	851	815	850	854	850	828	809
		Females	473	439	421	413	410	427	442	400	427	431
		Persons	1426	1394	1268	1264	1226	1277	1295	1251	1256	1240
	Separations	Males	18757	20026	20207	20531	20576	20397	20486	20799	21562	.
		Females	10255	10766	11530	12039	12425	12601	13605	13710	14577	.
		Persons	29012	30792	31737	32570	33001	32998	34091	34508	36139	.
Rate per 100,000	Deaths	Males	34.9	34.4	29.9	29.7	28.0	28.9	28.3	27.7	26.6	25.4
		Females	14.5	13.3	12.6	11.9	11.5	11.7	11.9	10.5	10.8	10.8
		Persons	24.5	23.6	21.0	20.5	19.5	20.0	19.9	18.9	18.5	18.0
	Separations	Males	659.2	695.3	694.4	699.0	694.1	678.5	672.4	672.7	688.7	.
		Females	327.0	337.7	352.1	360.6	365.4	363.6	384.4	376.6	393.2	.
		Persons	498.1	520.1	526.6	533.2	533.7	524.9	532.6	528.5	545.1	.

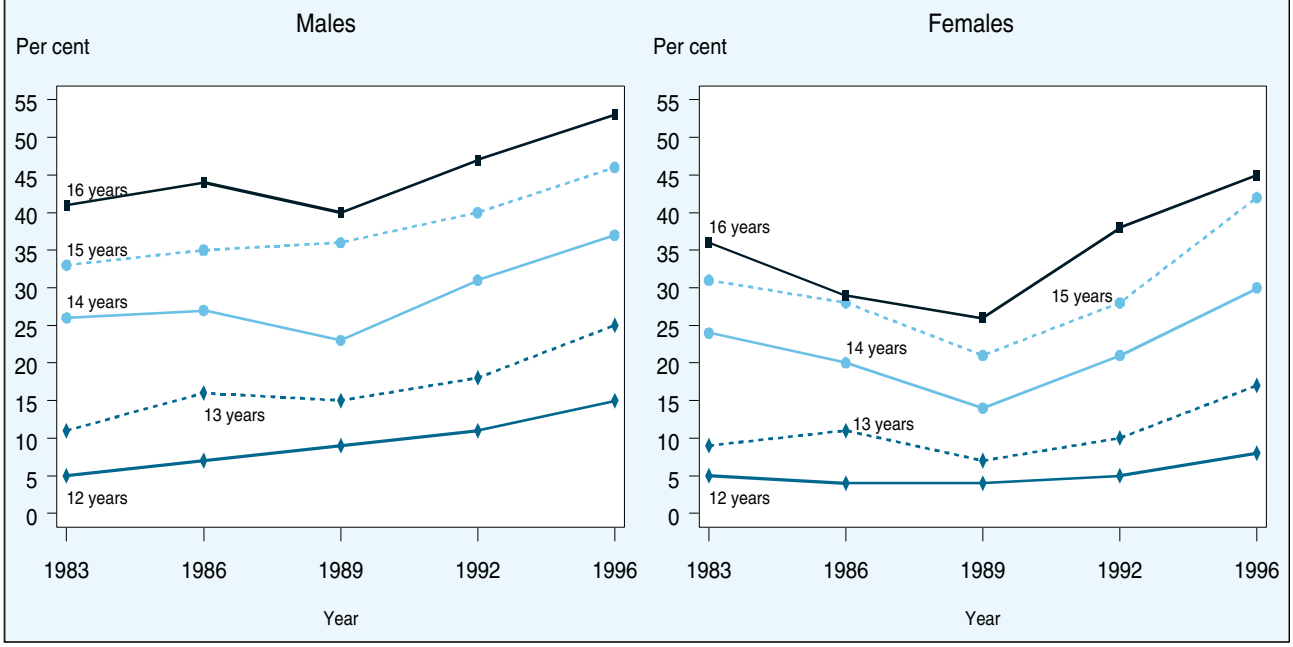
Note: Deaths and hospital separations attributable to alcohol use were calculated using age- and sex-specific aetiologic fractions from English et al. 1995. Deaths are for calendar years. Separations are for financial years. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: Australian Institute of Health and Welfare (aetiologic fractions). NSW Health Department Inpatient Statistics Collection (ISC) and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Excessive alcohol use contributes to many causes of death and illness, including cancers of the liver and mouth, hypertension, stroke, cirrhosis, low birth-weight, road injuries and suicide (English et al. 1995).
- The data presented here were derived by applying aetiologic fractions (the probability that a particular case of illness or death was caused by alcohol use) to death and hospital morbidity data for NSW. For more details, see the Methods section (page 265).
- In NSW in 1998, alcohol use caused an estimated 809 male deaths and 431 female deaths (representing 3.5 per cent and 2.0 per cent of all male and female deaths, respectively).
- In 1997/98, alcohol use caused an estimated 21,562 hospitalisations among males and 14,577 hospitalisations among females (2.5 and 1.4 per cent of all hospitalisations for males and females, respectively).
- Between 1989 and 1998, the age-adjusted rate of deaths attributable to alcohol use among both men and women declined by more than 25 per cent. The rate of hospitalisations attributable to alcohol use, however, increased by five per cent among males and 20 per cent among females over a comparable period.

For more information, see: English DR, Holman CDJ, Milne MG, et al. *The quantification of drug caused morbidity and mortality in Australia*. Canberra: Commonwealth Department of Human Services and Health, 1995.

Ever used cannabis by age and sex,
secondary school students aged 12-16 years, NSW 1983 to 1996



	Age	1983	1986	1989	1992	1996
Males	12 years	5	7	9	11	15
	13 years	11	16	15	18	25
	14 years	26	27	23	31	37
	15 years	33	35	36	40	46
	16 years	41	44	40	47	53
Females	12 years	5	4	4	5	8
	13 years	9	11	7	10	17
	14 years	24	20	14	21	40
	15 years	31	28	21	28	42
	16 years	36	29	26	38	45

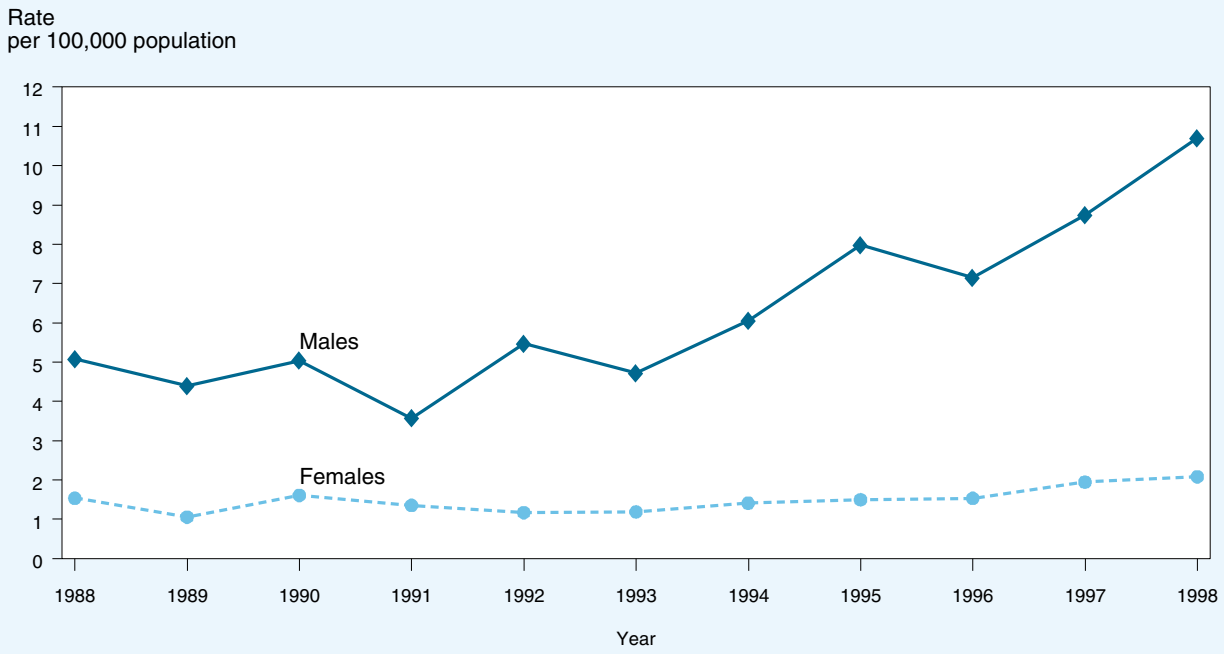
Note: Students were asked if they had ever 'smoked or used marijuana (grass, hash, cannabis, dope, mull, pot, a joint)'. Percentages are age-adjusted.

Source: Schofield WN et al. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students' Alcohol and Drugs Survey*. Sydney: NSW Health Department and NSW Cancer Council, 1998.

- More young people report using cannabis than any other illicit drug.
- In 1996, among NSW secondary school students aged 12–16 years, 39 per cent of boys and 31 per cent of girls reported ever having used cannabis.
- More boys than girls reported ever using cannabis, except among 14-year-olds.
- The proportion of students who reported ever using cannabis increased with age. Even at the age of 12 years, 15 per cent of boys and eight per cent of girls reported having used cannabis. This increased to 25 per cent for 13-year-old boys and 17 per cent for 13-year-old girls. By the age of 16 years, 53 per cent of boys and 45 per cent of girls reported having tried cannabis.
- The prevalence of self-reported cannabis use was higher in 1996 than in previous school surveys. This might have been due to changes in the wording of the question about cannabis use. In 1996, students were asked if they had ever 'smoked or used marijuana (grass, hash, cannabis, dope, mull, pot, a joint)', while in 1992, students were asked 'have you ever used marijuana (grass, pot) or hashish (hash, hash oil)?'.

For more information, see Schofield WN, Lovelace KS, McKenzie JE, Burns L. *Self reported tobacco and alcohol use among NSW secondary school students. The 1996 Australian School Students Alcohol and Drugs Survey*. Sydney: NSW Health Department and NSW Cancer Council, 1998.

Deaths from heroin, methadone and other opiates, by sex, NSW 1988 to 1998



		1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Males	145	128	147	105	162	141	180	241	216	265	324
	Females	43	30	46	39	34	35	41	44	46	58	63
	Persons	188	158	193	144	196	176	221	285	262	323	388
Rate/100,000	Males	5.1	4.4	5.0	3.6	5.5	4.7	6.1	8.0	7.1	8.7	10.7
	Females	1.5	1.1	1.6	1.4	1.2	1.2	1.4	1.5	1.5	1.9	2.1
	Persons	3.3	2.7	3.3	2.5	3.3	3.0	3.7	4.7	4.3	5.4	6.4

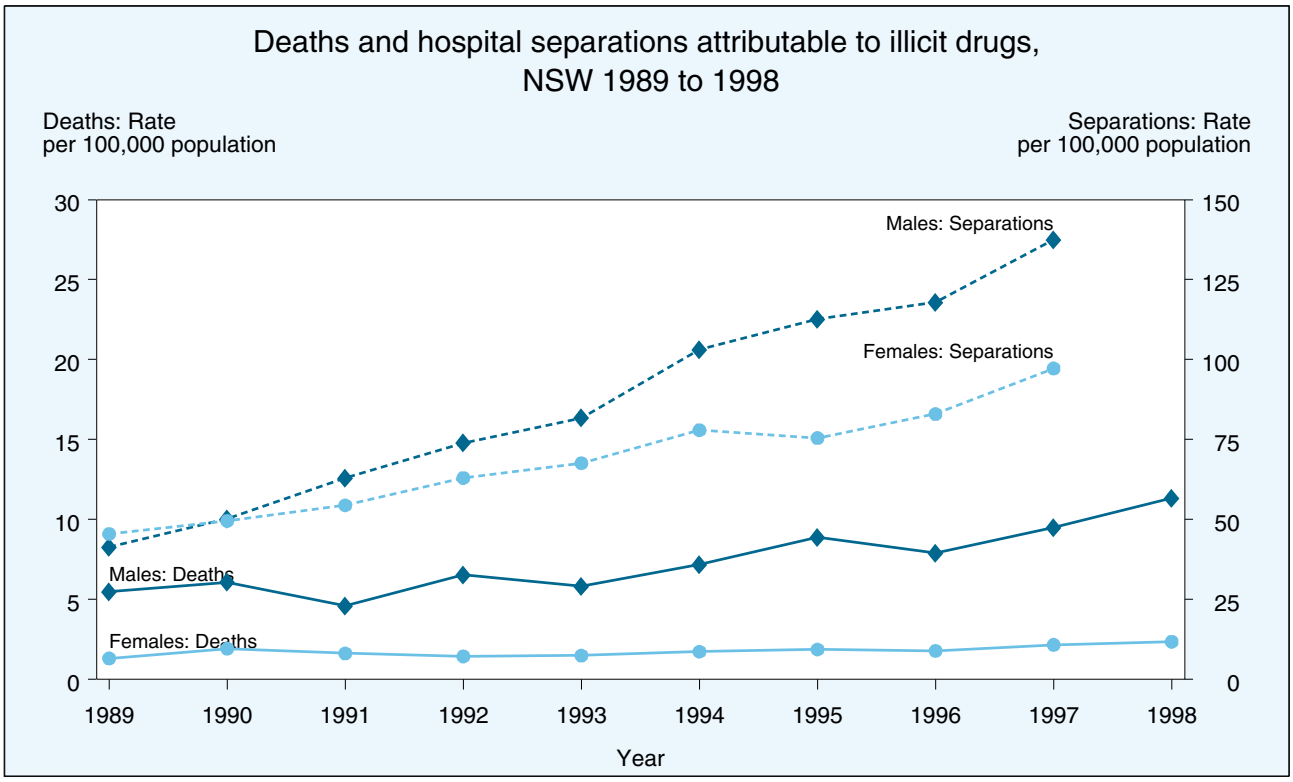
Note: Heroin, methadone and other opiates are classified according to the ICD-9 principal cause of death codes 304.0, 304.7, 305.5 and E850.0. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. NSW population estimates as at 30 June each year. Death rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1998, 324 men and 63 women died from opiate overdose. Types of opiates are not differentiated in coding systems used for death data. However, most opiate deaths (80 per cent) can be attributed to heroin (Zador, Sunjic and Darke, 1995).
- In the last decade there has been a big increase in opiate deaths, particularly among males. The age-adjusted death rate among males more than doubled between 1988 and 1998, (110 per cent increase) while it increased by 40 per cent among females in the same period.
- In every year since 1992, more than 80 per cent of opiate deaths were among males. This difference is larger than would be expected from clinical treatment populations. Males make up approximately 65 per cent of NSW Methadone Program clients (NSW Health Department, 1997).
- The data presented above include only deaths for which opiate overdose was recorded as the principal cause. The ABS introduced coding of multiple causes of death from 1997, allowing identification of deaths in which opiate drugs were a contributing cause. Opiates were a contributing cause in additional 31 deaths due to accidental poisoning in 1997 and 73 in 1998; an additional 36 deaths due to suicide in 1997 and 34 in 1998; and an additional four deaths due to assault by poisoning in 1998.

For more information, see: NSW Health Department. *NSW methadone program 1995/1996: annual statistical report.* Sydney: NSW Health Department, 1997.

Zador D A, Sunjic S and Darke S. *Toxicological findings and circumstances of heroin related deaths in NSW, 1992.* Sydney: National Drug and Alcohol Research Centre monograph no. 22, 1995.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Deaths	Males	160	177	135	194	174	213	268	238	287	343
		Females	37	55	47	42	44	50	55	53	64	71
		Persons	197	232	181	235	217	263	323	291	351	414
	Separations	Males	1203	1468	1855	2186	2418	3047	3344	3520	4106	.
		Females	1308	1432	1593	1842	1979	2271	2219	2461	2884	.
		Persons	2511	2901	3448	4029	4396	5318	5563	5981	6990	.
Rate per 100,000	Deaths	Males	5.5	6.1	4.6	6.5	5.8	7.2	8.9	7.9	9.5	11.3
		Females	1.3	1.9	1.6	1.4	1.5	1.7	1.9	1.8	2.2	2.3
		Persons	3.4	4.0	3.1	4.0	3.7	4.5	5.4	4.8	5.8	6.9
	Separations	Males	41.4	50.2	62.9	73.9	81.7	103.1	112.7	118.0	137.4	.
		Females	45.5	49.5	54.4	63.0	67.6	77.9	75.5	83.0	97.2	.
		Persons	43.4	49.8	58.7	68.5	74.6	90.5	94.1	100.6	117.4	.

Note: Deaths and hospital separations attributable to alcohol use were calculated using age- and sex-specific aetiologic fractions from English et al 1995. Deaths are for calendar years. Separations are for financial years. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: Australian Institute of Health and Welfare (aetiologic fractions). NSW Health Department Inpatient Statistics Collection (ISC) and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The harmful use of illicit drugs contributes to many causes of death and illness, including poisoning by overdose, Hepatitis B, Hepatitis C, AIDS, psychoses, suicide and low birth-weight (English et al. 1995).
- The data presented here were derived by applying aetiologic fractions (the probability that a particular case of illness or death was caused by use of specific illicit drugs) to death and hospital morbidity data for NSW (see the Methods section, page 265).
- In NSW in 1998, illicit drugs caused an estimated 343 male deaths and 71 female deaths (representing 1.5 per cent and 0.3 per cent of all male and female deaths, respectively). Almost all of these deaths were due to opiates.
- In 1997/98, illicit drugs caused an estimated 4,106 hospitalisations among males and 2,884 hospitalisations among females (0.5 and 0.3 per cent of all hospitalisations for males and females, respectively). Opiate dependence and drug psychoses were the major contributors to drug-caused hospital morbidity.
- Between 1989 and 1998, the age-adjusted rate of deaths attributable to illicit drug use more than doubled among men and rose by more than one and a half times among women. Over a comparable period, the rate of hospitalisations attributable to illicit drugs also rose sharply, increasing more than threefold among men, and more than doubling among women.

For more information, see: English D R, Holman C D J, Milne M G, et al. *The quantification of drug caused morbidity and mortality in Australia*. Canberra: Commonwealth Department of Human Services and Health, 1995.

Overall health status

Section 2

Chapter 2.1

Mortality and life expectancy

- In NSW between 1965 and 1998, life expectancy at birth increased steadily from 67.1 to 76.5 years for men and from 73.7 to 81.9 years for women.
- Life expectancy at age 65 years also increased over the same period, from 77.3 to 82.0 years for men and from 80.8 to 85.2 years for women.
- The age-adjusted death rate in NSW decreased by 44 per cent over the period 1972 to 1998, from 1,070 to 602 per 100,000 population.
- In the period 1994 to 1998, the State's lowest age-adjusted death rates were found in the Northern Sydney Health Area, with the highest death rates in the Far West Health Area.
- In 1998, most deaths in NSW of children aged 0–4 years occurred in the first two years of life, and were due to perinatal conditions and congenital anomalies. Injury or poisoning was the next most common cause of death in this age group.
- The most important causes of death in males and females aged 15–64 years were cancer, circulatory diseases and injury and poisoning.
- Circulatory diseases were the most important causes of death in people aged 65 years and over, followed by cancers and respiratory diseases.

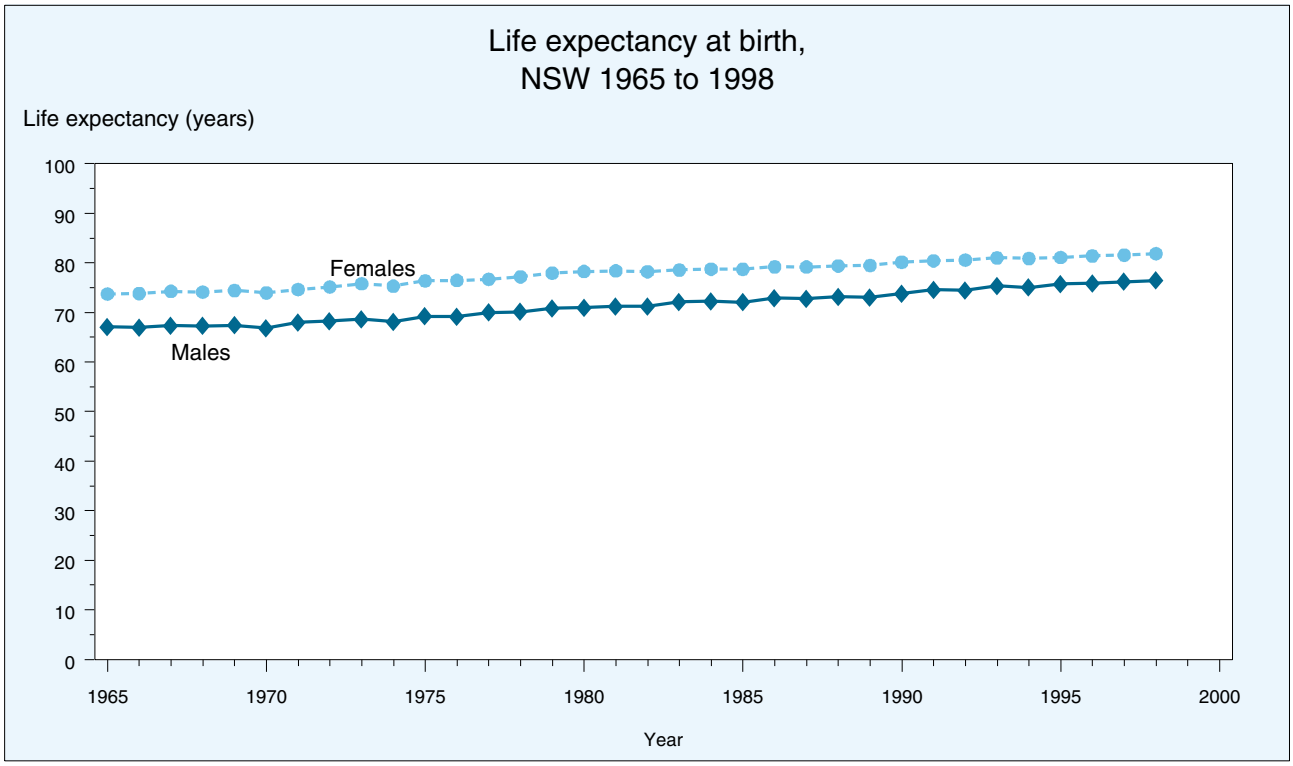
In this chapter

Introduction

This chapter focuses on trends in life expectancy and death rates in NSW, and examines major causes of death. It uses data on deaths compiled by the Australian Bureau of Statistics (ABS).

Since Federation in 1900, all deaths for which a coronial inquiry is not required must be certified as to cause and date by a registered medical practitioner and the certificate registered by the Registrar of Births, Deaths and Marriages in each State or Territory. Most deaths due to accidental causes, deaths occurring under suspicious circumstances (in which foul play cannot be excluded), deaths occurring shortly after anaesthesia or surgery, and deaths occurring in persons who had not been seen by a medical practitioner in the year preceding their death, automatically become coronial cases and are registered by a coroner at the conclusion of an inquiry into the circumstances of the death. This may take months to years. Each year, all State and Territory Registrars of Births, Deaths and Marriages—and all coroners—forward details of all deaths which they have registered in that calendar year to the ABS. Prior to 1997, a single code for a single underlying cause of death was applied. From 1997 onwards, multiple cause-of-death codes are applied to each death record if more than one cause contributes to the death.

Data presented in this chapter are based on year of death, rather than year of registration. Details of the methods used to calculate life expectancy, age-adjusted death rates, and how to calculate and interpret confidence intervals can be found in the Methods section (see page 265).



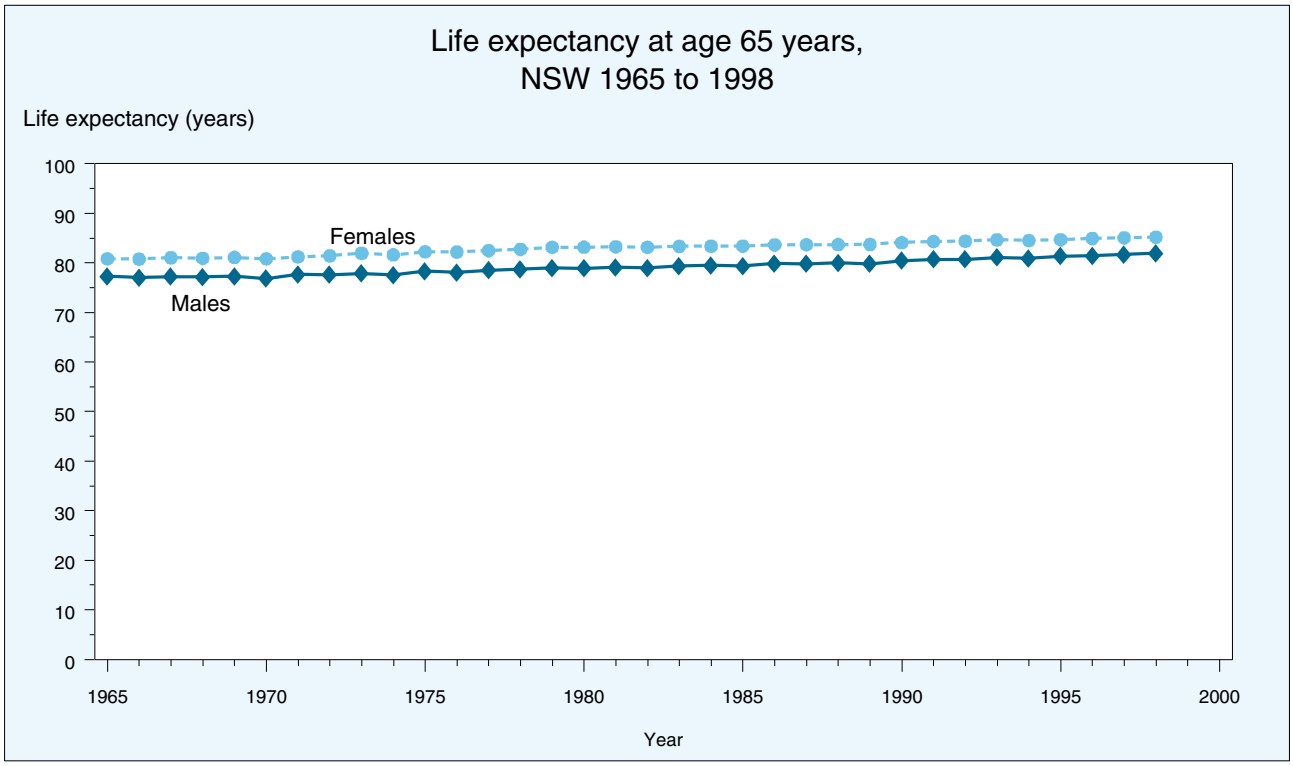
	Sex	1965	1970	1975	1980	1985	1990	1995	1998
NSW	Males	67.1	66.9	69.2	70.9	72.1	73.9	75.7	76.5
	Females	73.7	73.9	76.4	78.3	78.7	80.1	81.1	81.9
AUSTRALIA	Males	67.8	67.4	69.5	71.2	72.5	74.3	75.8	76.5
	Females	74.5	74.3	76.6	78.4	78.9	80.3	81.3	81.9

Note: Abridged current life tables with Greville's correction for neonatal mortality used to calculate life expectancy. This may result in slight differences from life expectancy figures published by ABS.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Life expectancy at birth is an estimate of the average length of time (in years) a person can expect to live, assuming that the currently prevailing rates of death for each age group will remain the same for the lifetime of that person.
- In fact, death rates will almost certainly change over the lifetime of a person born now, because of changes in social and economic conditions, lifestyle, nutritional and environmental factors, sanitation, immunisation, the quality of health care, and possibly the emergence of new diseases. However, because no-one knows what the death rates for each age group and sex will be in the future, the usual practice is to use the current rates of death to calculate life expectancy.
- A more precise measure is the expected age at death once a person has reached the age of 65 years (see page 64).
- Details of the methods used to calculate life expectancy and related measures can be found in the Methods section.
- In NSW, between 1965 and 1998, life expectancy at birth steadily increased, by 9.4 years for males (from 67.1 to 76.5 years) and by 8.1 years for females (from 73.7 to 81.9 years). These increases were similar to those for Australia overall.
- Though females can still expect to live longer than males, the difference between the sexes is decreasing. In NSW the difference in life expectancy between males and females dropped from 6.6 years in 1964 to 5.4 years in 1998.
- Life expectancy at birth for Aboriginal and Torres Strait Islander people is significantly lower than for the non-indigenous population. See Chapter 3.2 for more information regarding the health status of the Aboriginal and Torres Strait Islander population of NSW.

For more information, see: Australian Institute of Health and Welfare Web site at:
http://www.aihw.gov.au
Australian Bureau of Statistics Web site at:
http://www.abs.gov.au



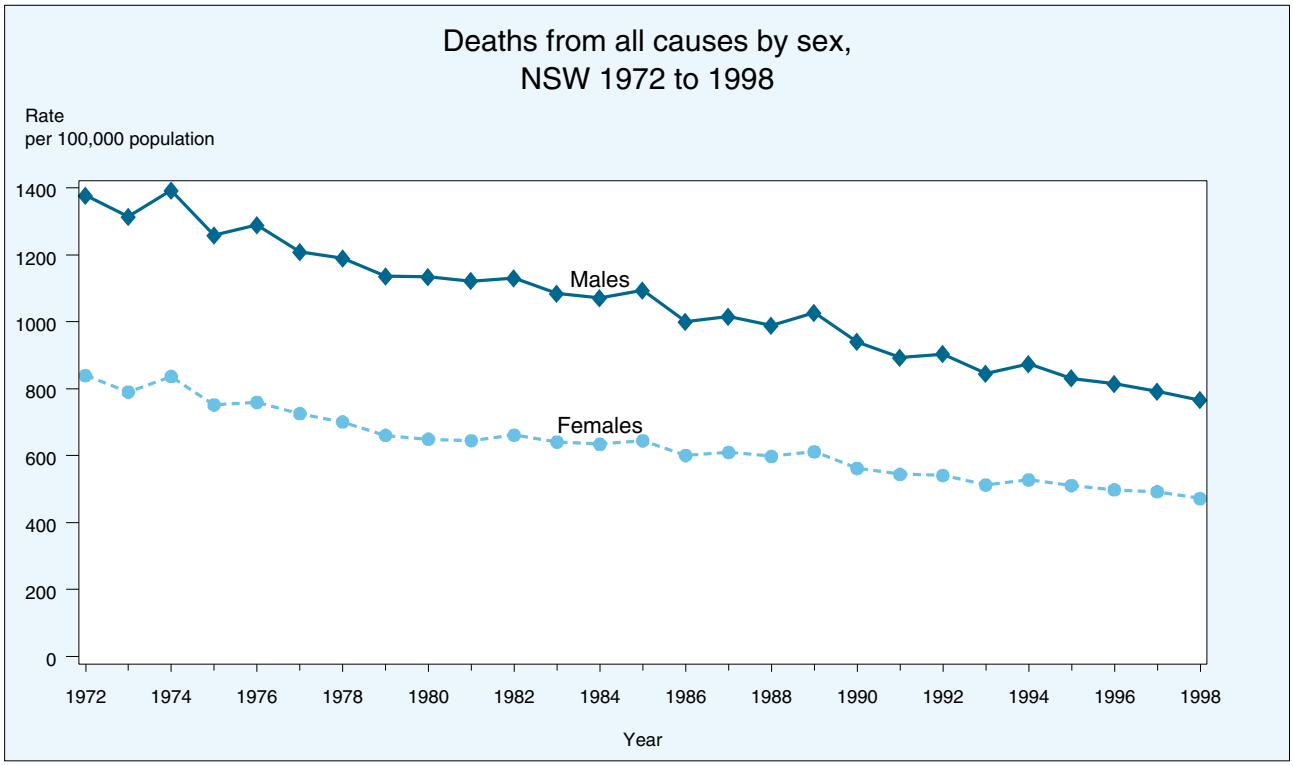
	Sex	1965	1970	1975	1980	1985	1990	1995	1998
NSW	Males	77.3	76.8	78.3	78.9	79.4	80.5	81.4	82.0
	Females	80.8	80.8	82.3	83.2	83.4	84.1	84.7	85.2
AUSTRALIA	Males	77.5	77.2	78.5	79.1	79.7	80.7	81.4	82.0
	Females	81.1	81.0	82.4	83.3	83.5	84.3	84.8	85.3

Note: Abridged current life tables used to calculate life expectancy. This may result in slight differences from life expectancy figures published by ABS.

Source: ABS mortality data and population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- Life expectancy at the age of 65 years is an estimate of the average age of death for someone who has already reached the age of 65, assuming that current rates of death prevail for the remaining lifetime of that person. This measure assumes that death rates will remain constant for the next 20 to 30 years, a much more conservative assumption than the one used to calculate life expectancy at birth. See the Methods section for details of the method used to calculate expected age at death.
- Expected age at death at the age of 65 years is an overall indicator of the effect of the many different factors that influence the health of the elderly in the population. These factors include lifestyle, nutritional and environmental factors and the quality and availability of health care.
- In NSW, between 1964 and 1998, the expected age at death for persons aged 65 increased slightly, for males from 77.3 to 82.0 years, and for females from 80.8 to 85.2 years.
- Life expectancy for persons aged 65 increased slightly more rapidly in NSW than in Australia overall.
- Although women who have reached the age of 65 can still expect to live longer than men of the same age, the difference is less than the sex difference for expectation of life at birth. This reflects the fact that males are at greater risk of dying before they reach the age of 65, primarily from accidents, suicide and cardiovascular disease.

For more information, see: Australian Institute of Health and Welfare Web site at:
http://www.aihw.gov.au.
Australian Bureau of Statistics Web site at:
http://www.abs.gov.au.



	Sex	1972	1973	1974	1975	1976	1977	1978	1979	1980
Number	Males	22,940	22,358	23,833	22,095	22,866	21,728	21,856	21,185	21,657
	Females	18,753	18,091	19,634	18,013	18,800	18,251	18,054	17,422	17,599
	Persons	41,693	40,449	43,467	40,108	41,666	39,979	39,910	38,607	39,256
Rate	Males	1377.4	1314.0	1392.9	1259.5	1290.0	1208.8	1190.9	1136.5	1135.1
per 100,000	Females	839.7	790.4	837.0	752.1	759.7	726.2	701.4	661.1	649.7
	Persons	1070.0	1016.0	1072.6	968.0	984.7	929.2	908.2	862.1	855.7

	Sex	1981	1982	1991	1992	1993	1994	1995	1997	1998
Number	Males	21,842	22,499	22,647	23,468	22,532	23,858	23,302	23,556	23,443
	Females	18,037	18,922	19,890	20,391	19,871	21,154	21,020	21,685	21,269
	Persons	39,879	41,421	42,537	43,859	42,403	45,012	44,322	45,241	44,712
Rate	Males	1122.0	1131.2	894.2	904.1	845.5	874.3	831.3	791.4	766.3
per 100,000	Females	645.3	661.6	544.5	541.1	512.5	527.9	511.2	492.8	472.1
	Persons	846.7	860.4	696.4	698.8	657.2	678.9	649.9	624.2	601.9

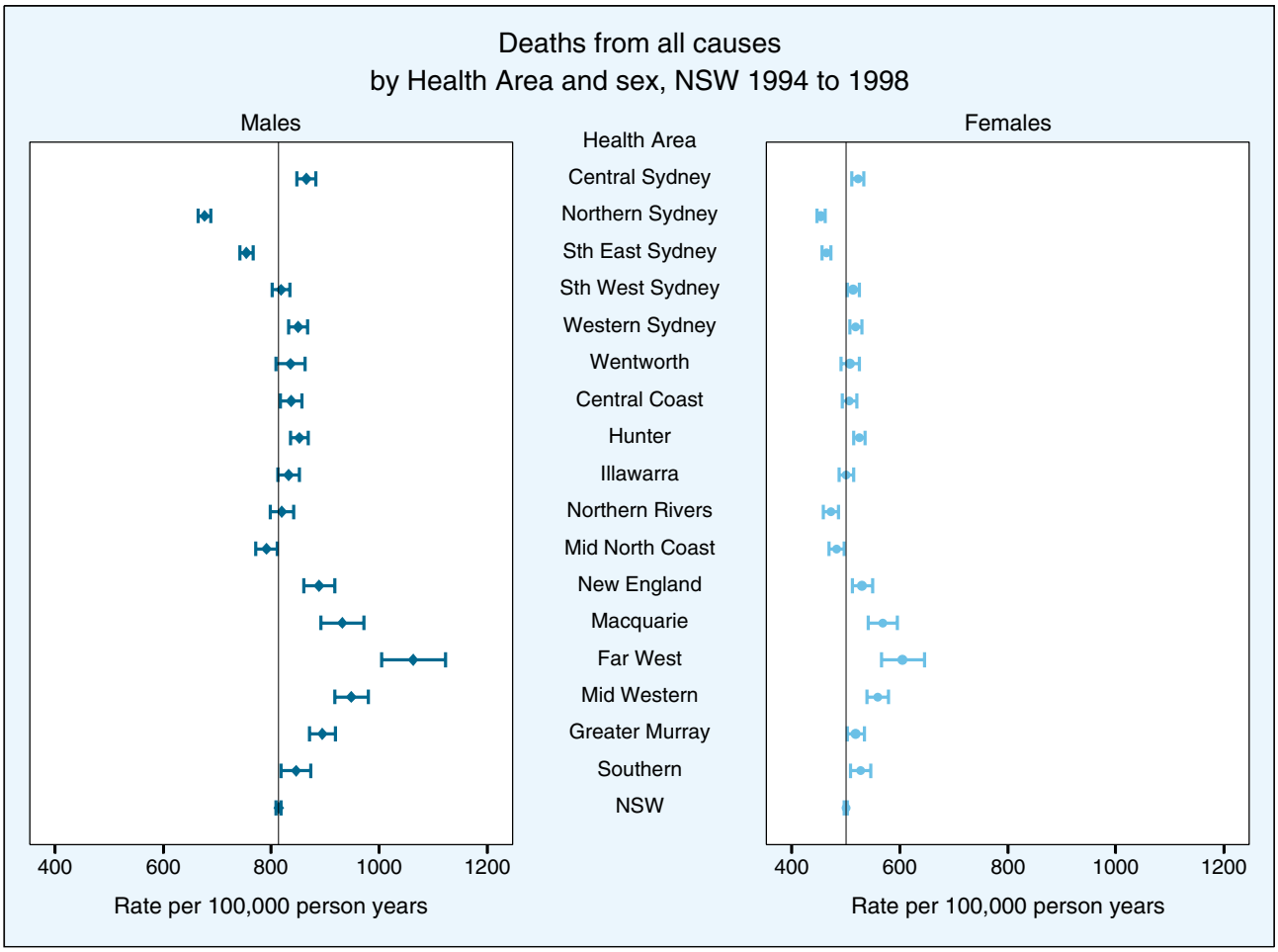
Note: Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Rates were age-adjusted using the Australian Population as at 30 June 1991.

Source: ABS mortality data and NSW population estimate (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Older people are more likely to die than younger people, so that as the proportion of older people in the population increases, the overall (crude) death rate is expected to increase also. Age-adjustment controls for the effect of changes in the age structure of the population, allowing for valid comparisons of death rates over time.
- The age-adjusted death rate in NSW decreased by 43.7 per cent over the period 1972 to 1998 (44.4 per cent for males and 43.8 per cent for females).
- Throughout this period, the age-adjusted male death rate was consistently around 1.6 times greater than the female death rate.
- Owing to this decline in the underlying death rate, the absolute number of deaths in NSW residents per annum rose by only 7.2 per cent, from 41,693 in 1972 to 44,712 in 1998, despite a 32 per cent increase in the NSW population over the same period.

For more information, see: Australian Institute of Health and Welfare Web site at:
http://www.aihw.gov.au.

Australian Bureau of Statistics Web site at:
http://www.abs.gov.au.



Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Death rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for the death rate are shown.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Older people are more likely to die than younger people, so a geographical area with a large proportion of older people would be expected to have a higher overall (crude) death rate than one with a smaller proportion of older people. Age-adjustment controls for the effect of such differences in the age distribution of populations, allowing for valid comparisons of death rates in different populations.
- In NSW in the period 1994 to 1998, the lowest age-adjusted death rates were found in the Northern Sydney Health Area, with a female death rate 9 per cent lower than the NSW average and a male death rate 17 per cent lower than the NSW average.
- In the same period, the highest age-adjusted death rate was seen in the Far West Health Area, with a female death rate 21 per cent higher than the NSW average, and a male death rate 31 per cent higher than the NSW average.
- Variations in death rates among Health Areas reflect the distribution of underlying social determinants of health. Variations in death rates by socioeconomic status are further examined in Chapter 3.5.

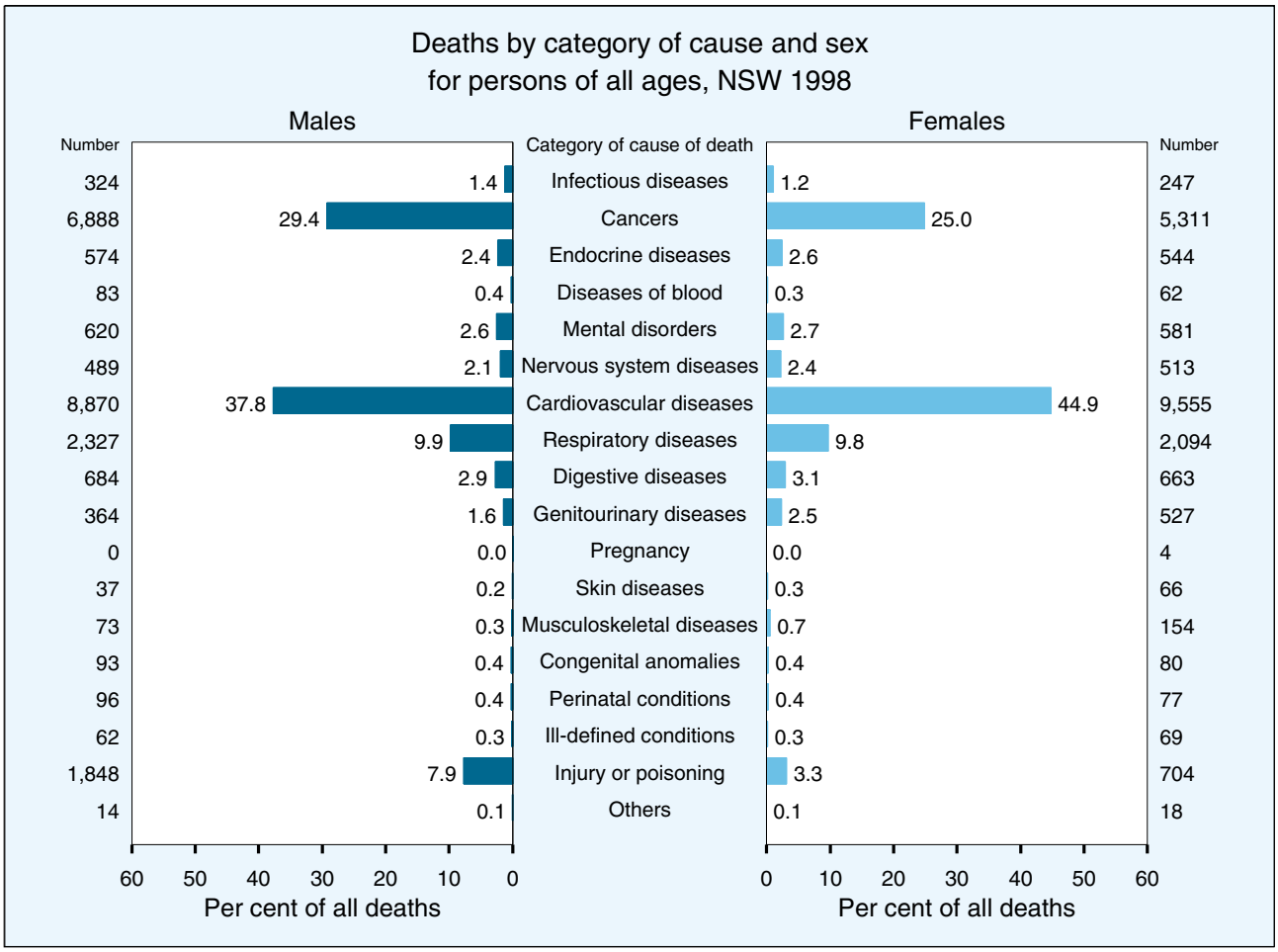
For more information, see: Australian Institute of Health and Welfare Web site at:
http://www.aihw.gov.au.
Australian Bureau of Statistics Web site at:
http://www.abs.gov.au.

Deaths from all causes by Health Area and sex, NSW 1994 to 1998

Health Area		Deaths	Crude rate	Age-adjusted rate	LL 95% CI	UL 95% CI
Central Sydney	Males	9641	818.1	865.1	847.8	882.6
	Females	8841	742.3	522.2	510.9	533.7
	Persons	18482	780.0	674.3	664.5	684.2
Northern Sydney	Males	12818	700.2	676.8	665.1	688.7
	Females	15554	805.9	453.9	446.2	461.6
	Persons	28372	754.4	544.2	537.7	550.8
Sth East Sydney	Males	14023	760.5	754.2	741.7	766.9
	Females	13381	718.4	463.8	455.6	472.0
	Persons	27405	739.3	590.7	583.6	597.8
Sth West Sydney	Males	10448	571.4	818.5	802.1	835.1
	Females	8787	480.6	513.6	502.9	524.5
	Persons	19236	526.0	646.6	637.4	655.9
Western Sydney	Males	9548	592.0	849.6	831.8	867.6
	Females	8493	525.3	518.1	507.0	529.3
	Persons	18041	558.6	657.0	647.4	666.7
Wentworth	Males	4041	539.8	835.6	809.0	862.7
	Females	3395	448.7	507.9	490.8	525.4
	Persons	7436	494.0	648.1	633.3	663.2
Central Coast	Males	6924	1051.5	837.0	817.1	857.3
	Females	5920	856.3	506.2	492.9	519.9
	Persons	12844	951.5	653.3	641.8	665.0
Hunter	Males	10977	846.6	852.0	835.9	868.2
	Females	9922	756.5	525.0	514.4	535.7
	Persons	20899	801.3	669.8	660.7	679.0
Illawarra	Males	6851	821.6	832.1	812.0	852.7
	Females	5509	657.9	500.6	487.3	514.1
	Persons	12360	739.6	647.8	636.4	659.4
Northern Rivers	Males	5872	955.2	819.9	798.7	841.5
	Females	4534	726.3	471.7	457.7	486.1
	Persons	10406	839.9	630.4	618.2	642.9
Mid North Coast	Males	6180	1010.4	791.0	770.9	811.5
	Females	4898	779.4	482.4	468.4	496.6
	Persons	11078	893.4	625.1	613.2	637.2
New England	Males	3782	849.4	888.6	860.3	917.6
	Females	3303	733.8	530.3	511.7	549.3
	Persons	7086	791.3	688.4	672.3	704.7
Macquarie	Males	2204	857.1	931.5	892.5	971.8
	Females	1882	732.3	568.0	542.0	594.8
	Persons	4086	794.7	729.0	706.7	751.8
Far West	Males	1302	1003.9	1062.9	1004.8	1123.3
	Females	949	787.8	605.1	566.3	645.7
	Persons	2251	899.8	815.4	781.9	849.9
Mid Western	Males	3700	890.5	948.2	917.7	979.5
	Females	3268	792.2	559.0	539.4	579.1
	Persons	6967	841.6	728.6	711.5	746.1
Greater Murray	Males	5515	858.6	895.0	871.3	919.1
	Females	4575	716.8	518.3	502.9	534.0
	Persons	10090	788.0	684.6	671.2	698.2
Southern	Males	3853	855.2	845.8	818.7	873.5
	Females	3154	712.7	527.1	508.6	546.1
	Persons	7007	784.6	673.3	657.5	689.3
NSW	Males	117679	764.2	814.0	809.3	818.7
	Females	106366	681.9	499.9	496.8	503.0
	Persons	224045	722.8	637.4	634.7	640.0

Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Death rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL 95% CI=Lower/upper limits of the 95 per cent confidence interval for the age-adjusted rate.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



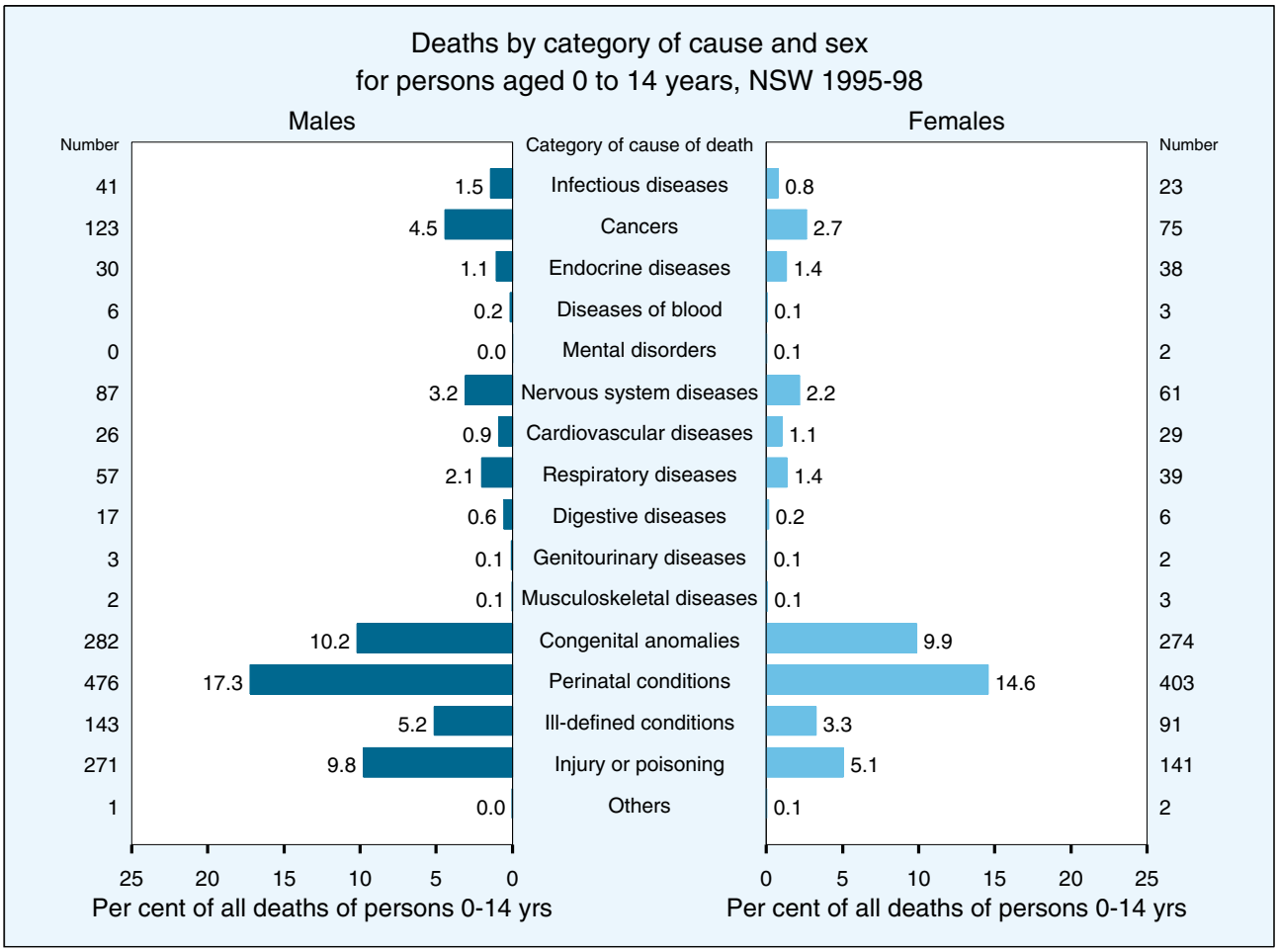
Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There were approximately 44,900 deaths among NSW residents in 1998, comprising 23,570 male deaths and 21,330 female deaths.
- Cardiovascular diseases were the leading cause of death overall, and were responsible for 38 per cent of male deaths and 45 per cent of female deaths.
- Cancers were the second most important cause of death among both sexes (29 per cent of male deaths and 25 per cent of female deaths), followed by respiratory diseases (9.9 per cent of male deaths and 9.8 per cent of female deaths) and injury and poisoning (7.9 per cent of male deaths, 3.3 per cent of female deaths).
- Since most deaths occur among older people, causes of death that are most common among older people (such as cardiovascular and respiratory diseases) tend to dominate when all ages are grouped together. Separate information for children aged 0–14 years, persons aged 15–64 years, and persons aged 65 years and over, is presented on the following pages.

For more information, see: Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.

Australian Bureau of Statistics Web site at: http://www.abs.gov.au.



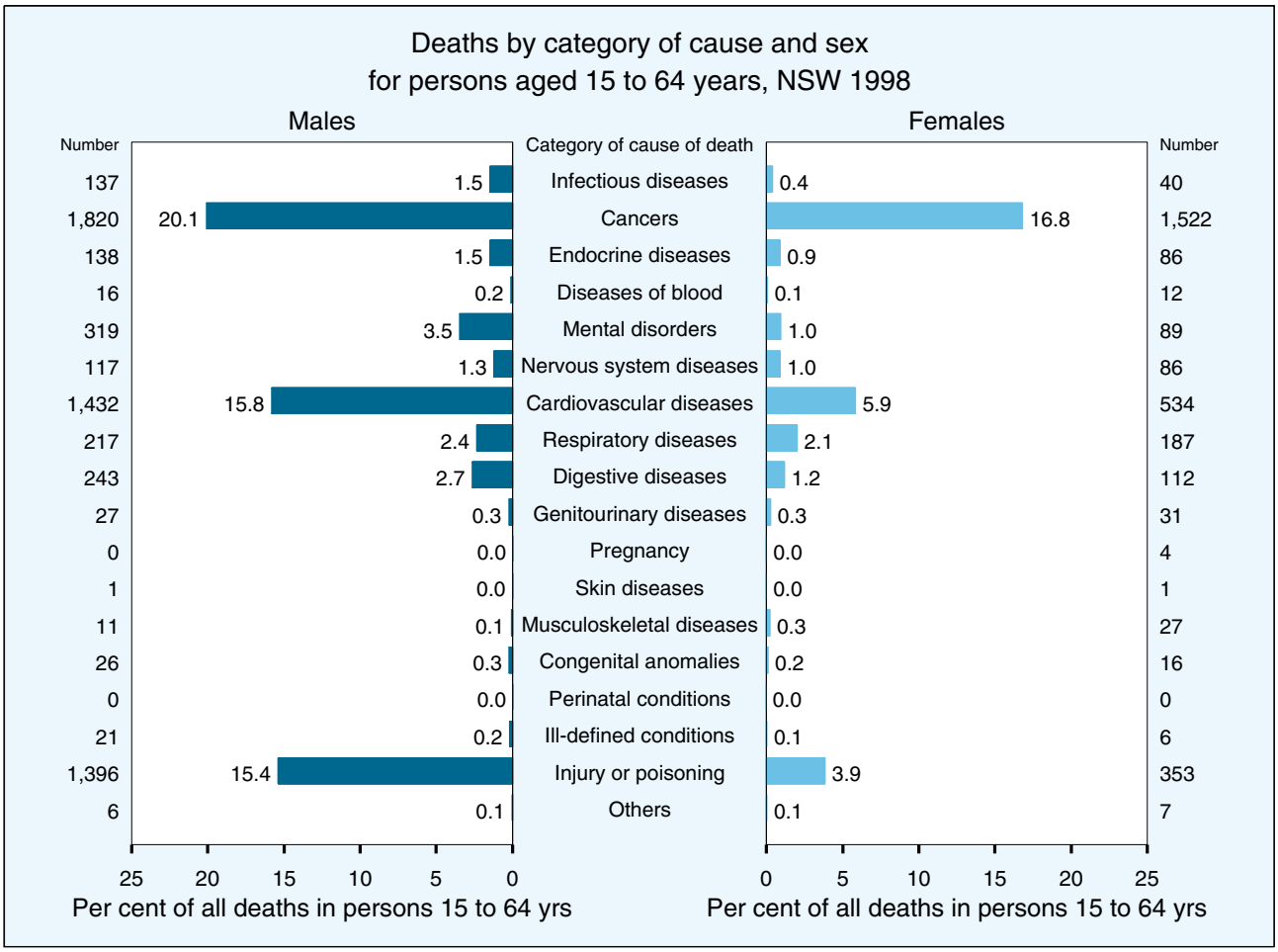
Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There were approximately 600 deaths among NSW children aged under 15 years in 1998, representing only 1.3 per cent (compared to 1.6 per cent in 1994) of all deaths in NSW in that year.
- Approximately 32 per cent of all deaths in this age group were attributable to perinatal conditions, a further 20 per cent were due to congenital anomalies, and 15 per cent were due to injury and poisoning.
- For all of the major causes of death, boys were more likely to die than girls, particularly due to injury or poisoning (twice the risk of girls), perinatal conditions and childhood cancers.

For more information, see: Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.

Australian Bureau of Statistics Web site at: http://www.abs.gov.au.



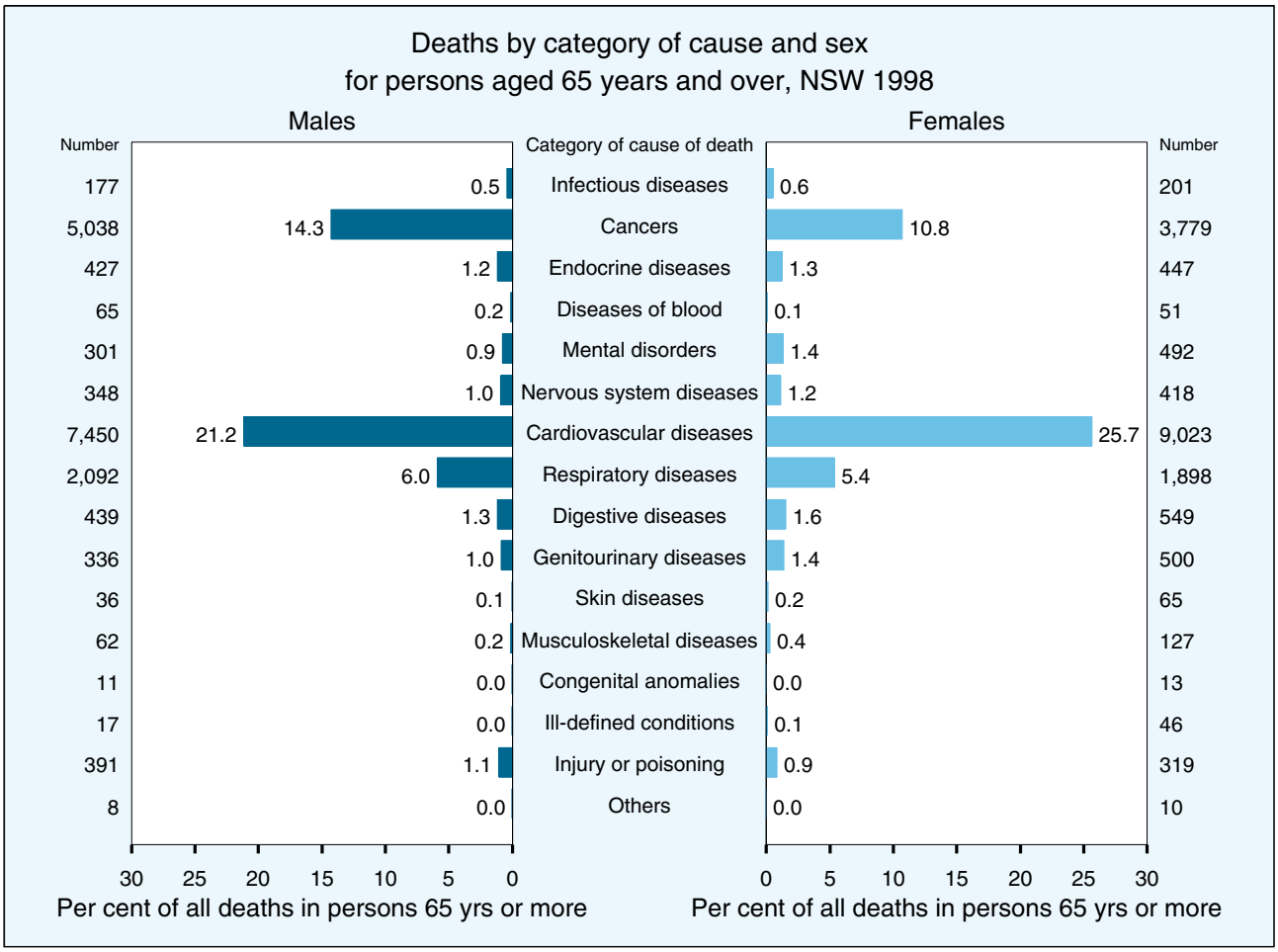
Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1998, there were approximately 9,200 deaths among persons aged 15–64 years, accounting for 20 per cent of all deaths. Nearly two-thirds (approximately 6,020) of the deaths in the 15–64 years age group were in males. Males suffered a higher death rate in every category in this age group.
- The leading causes of death in 15–64 year olds were cancers, followed by cardiovascular diseases and injury and poisoning.
- There were marked differences in the leading causes of death between the sexes.
- Approximately half of all deaths in females in the 15–64 year age group were due to cancer. Of these cancer deaths, approximately 17 per cent were due to breast cancer, 15 per cent due to lung cancer, and 11 per cent due to colon cancer. The other leading causes of deaths in females were cardiovascular disease, and injury and poisoning.
- Although the three major causes of death in males aged 15–64 years were the same as females, their relative importance varied. Cancer caused almost one-third of deaths in males in this age group, and of these deaths, 25 per cent were due to lung cancer, 13 per cent were due to prostate cancer and 9 per cent were due to colon cancer. Cardiovascular disease, and injury and poisoning, each caused about one-quarter of male deaths in the 15–64 years age group. Suicide was the most important cause of male deaths due to injury in this age group, followed by motor vehicle accidents.

For more information, see: Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.

Australian Bureau of Statistics Web site at: http://www.abs.gov.au.



Note: Cause of death was classified according to ICD-9 chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869, E880–929, E950–9. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1998, there were approximately 35,130 deaths among persons aged 65 years or more, accounting for 78 per cent of all deaths. These deaths comprised approximately 17,190 male deaths and 17,940 female deaths.
- In distinct contrast to the younger age groups, cardiovascular diseases were by far the most common cause of death among people aged 65 years and over, killing approximately half of both males and females.
- Cancer was the next most common cause of death, accounting for just over one quarter of all deaths, followed by respiratory diseases. Injury and poisoning was a much less common cause of death in this age group than in those aged 15–64 years.

For more information, see: Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.

Australian Bureau of Statistics Web site at: http://www.abs.gov.au.

Chapter 2.2

Illness

- At the 1997 and 1998 NSW Health Surveys, very good or excellent health was reported with similar frequency by males (54 per cent) and females (56 per cent), as was fair or poor health (15 per cent and 16 per cent, respectively). The proportion of both men and women rating their health as fair or poor increased steadily with age.
- At the 1997 and 1998 NSW Health Surveys, 83 per cent of men and 90 per cent of women reported visiting a GP in the previous 12 months, while 20 per cent of men and 28 per cent of women reported visiting a GP in the previous 2 weeks.
- Fourteen per cent of men and 12 per cent of women reported visiting an emergency department in the previous 12 months, while 12 per cent of men and 15 per cent of women reported being admitted to hospital for at least one night in the previous 12 months.
- In the financial year 1997/98, 'V codes', including admissions of live-born infants, and symptoms and signs without a specific diagnosis, were the most common causes of hospitalisation in the 0–14-years age group, followed by respiratory diseases, mainly childhood chest infections and asthma.
- Pregnancy and delivery-related causes were the most common reason for hospitalisation in females aged 15–65 years. 'V codes', including symptoms and signs without a specific diagnosis, were the most common reason for hospitalisation of males in this age group, and the second most common reason for hospitalisation of females.
- 'V codes', including admissions for rehabilitation and respite care, were the most common reason for hospitalisation of people aged 65 years or more. Diseases of the cardiovascular system, principally ischaemic heart disease, cardiac failure and stroke, were the next the most common cause of hospitalisation for both sexes in this age group.

In this chapter

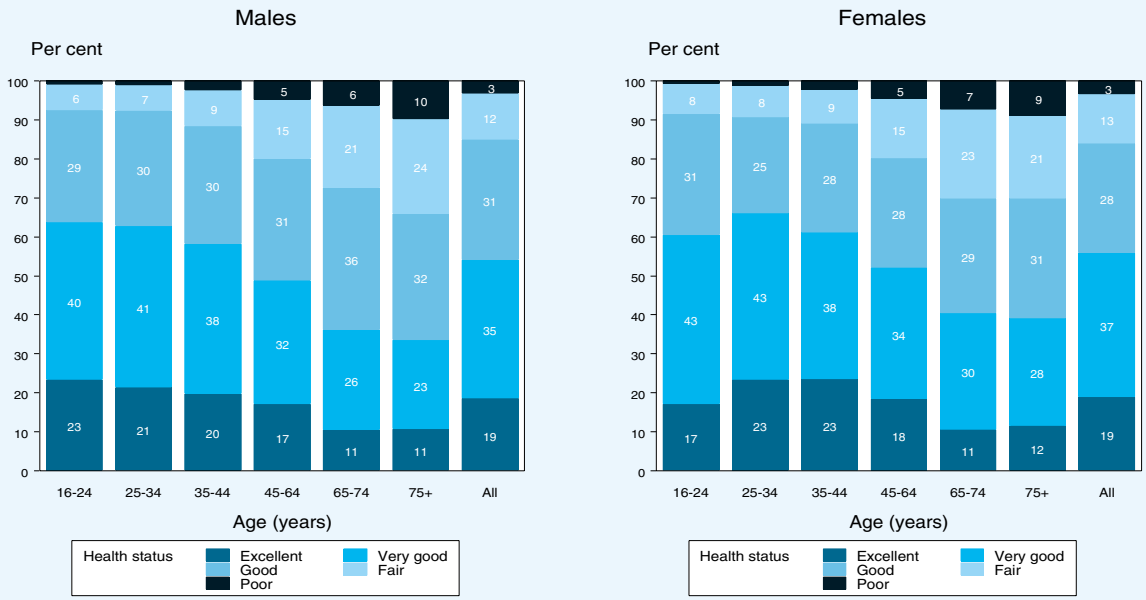
Introduction

This chapter presents NSW data on self-reported health and health service use from the 1997 and 1998 NSW Health Surveys. The data on health service use appear here for the first time.

This chapter also includes information on trends in hospitalisation rates, and the principal causes of hospitalisation, from the NSW Health Department Inpatient Statistics Collection (ISC). Although ISC data give an indication of the occurrence of illnesses or injuries requiring hospital treatment, they also reflect access to hospital services and admission policies. Also, the data are episode-based rather than person-based, so an individual who is admitted more than once for the same problem is counted multiple times.

These data collections and the analytic methods used are described further in the Methods section (see page 265).

Self-rated health status, persons aged 16 years and over, NSW 1997 and 1998

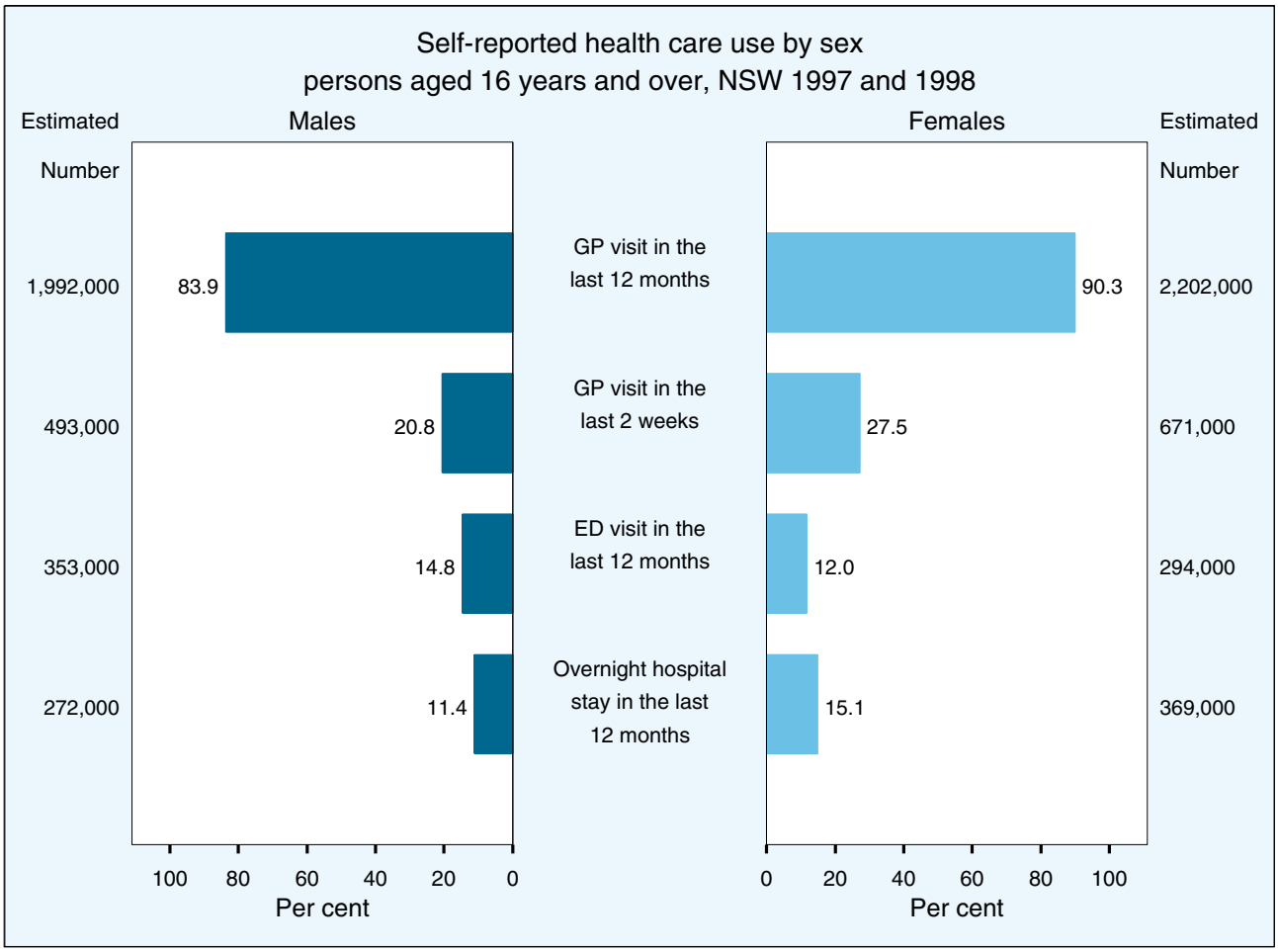


Note: Respondents were asked to rate their health, using the following question: 'In general, would you say your health is excellent, very good, good, fair or poor?'

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Self-rated health agrees well with objective measures of health. Poor self-reported health is a good predictor of subsequent illness and premature death. A recent Australian study that followed people aged 60 years and over for seven years found that people with self-reported health status of fair or poor (women) and poor (men) at the beginning of follow-up were significantly more likely to die. This association remained after controlling for demographic factors, a range of illnesses, disability, depression and social support (McCallum et al. 1994).
- At the 1997 and 1998 NSW Health Surveys, very good or excellent health was reported with similar frequency by males (54 per cent) and females (56 per cent), as was fair or poor health (15 per cent and 16 per cent, respectively).
- The proportion of women rating their health as very good or excellent declined steadily with age, falling from 63 per cent in the 16–24 year age group to 34 per cent among those aged 75 years and over.
- The proportion of men rating their health as very good or excellent rose from 60 per cent in the 16–24 years age group to peak at 66 per cent in the 25–34 year age group, before falling to 40 per cent for men aged 75 years and over.
- The proportion of both men and women rating their health as fair or poor increased steadily with age. Ten per cent of men and nine per cent of women aged 75 years or more rated their health as poor.
- Associations between self-rated health and socioeconomic status are examined in Chapter 3.5.

For more information, see: McCallum J, Shadbolt B, Wang D. Self-rated health and survival: a 7-year follow-up study of Australian elderly. *Am J Public Health* 1994; 84:1100–5.



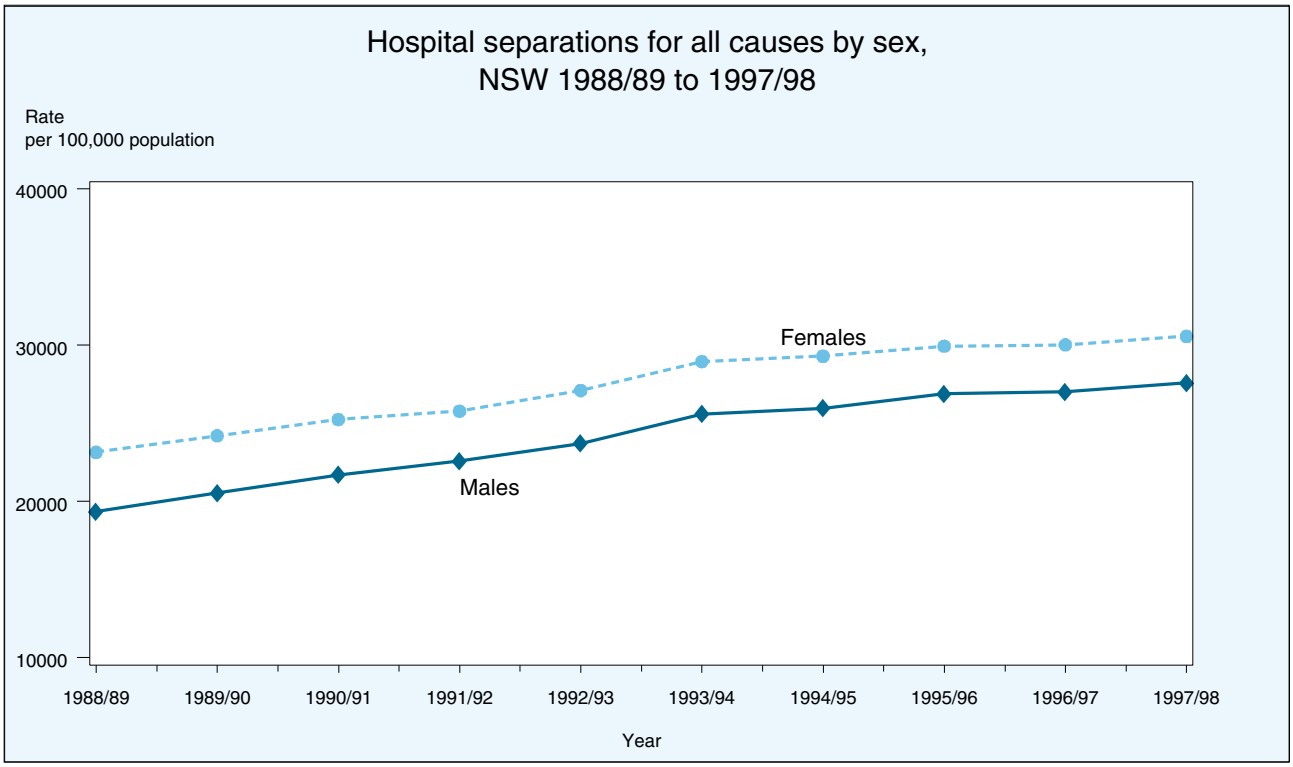
Note: GP=general practitioner. ED=emergency department. Respondents were asked how many times they had used specific health services in the past 2 weeks (GP services) or 12 months (all service types). Number=estimated number of NSW residents using each service in the specified period.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- This chart presents data from the 1997 and 1998 NSW Health Surveys on use of general practitioner (GP) and hospital services.
- Almost all respondents (84 per cent of men and 90 per cent of women) reported visiting a GP in the previous 12 months. More than one-quarter of women (28 per cent) and just over one-fifth of men (21 per cent) reported visiting a GP in the previous two weeks.
- These data are consistent with information on GP encounters. In 1998–99, 58 per cent of patient encounters were for female patients, with the greatest gender difference in the reproductive years (25–44 years). In that age group, 62 per cent of encounters were for female patients (Britt et al. 1999).
- In NSW in 1997 and 1998, women (15 per cent) were more likely than men (11 per cent) to report an overnight hospital stay in the previous 12 months. This reflects greater use of inpatient services by women, largely for reasons associated with pregnancy and childbirth.
- In contrast, more men (15 per cent) than women (12 per cent) reported having visited an emergency department in the last 12 months.

For more information, see: Britt H, Sayer P, Miller G, Charles J, Scahill S et al. *General Practice Activity in Australia 1998–99*. Canberra: Australian Institute of Health and Welfare (General Practice Series no. 2), 1999.

Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.



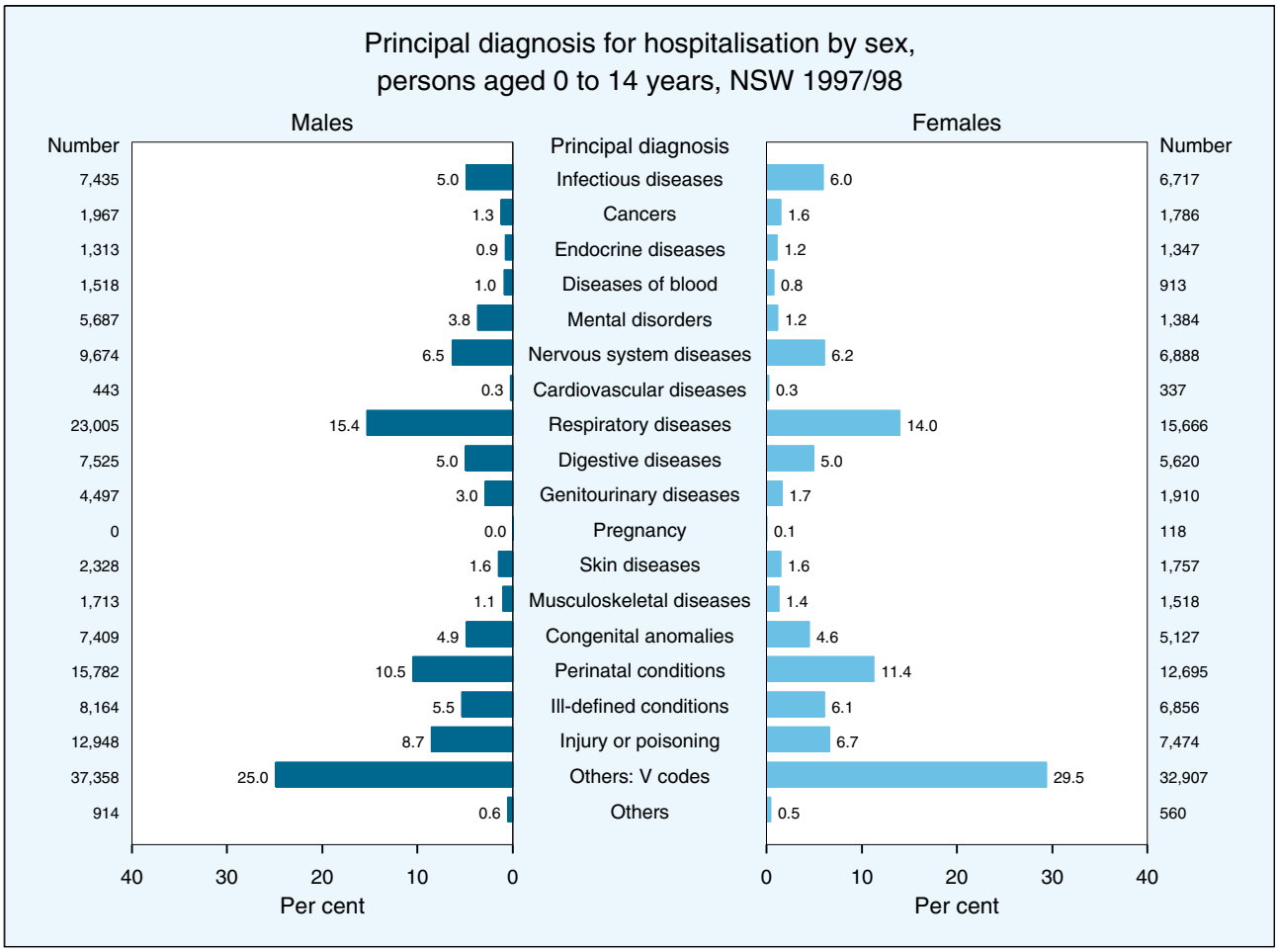
		1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	533100	573083	614482	650027	692001	758674	780866	821423	838546	869626
	Females	681327	722915	764950	794539	845556	910446	934733	971416	989330	1020176
	Persons	1214427	1295998	1379432	1444566	1537557	1669120	1715599	1792839	1827876	1889802
Rate per 100,000	Males	19353.0	20535.2	21703.5	22588.0	23710.3	25604.1	25968.2	26904.4	27002.5	27594.3
	Females	23146.7	24209.5	25244.8	25780.0	27101.4	28954.4	29302.8	29944.7	30029.8	30574.7
	Persons	21075.8	22186.5	23288.5	24003.1	25225.0	27095.5	27456.9	28250.9	28360.7	28923.8

Note: Data are reported by year of separation. Separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Older people use hospitals more than younger people, so that as the proportion of older people in the population increases, the overall (crude) hospital separation rate is expected to increase also. Age-adjustment controls for the effect of changes in the age structure of the population, allowing for valid comparisons of hospital separation rates over time.
- The age-adjusted hospital separation rate in NSW increased by 37 per cent over the period 1988/89 to 1997/98 (43 per cent for males and 32 per cent for females).
- Throughout this period, the age-adjusted female hospital separation rate was consistently around 1.1–1.2 times greater than the male rate.
- Changes in hospital separation rates reflect changes in reporting, admission and treatment practices as well as in the occurrence of conditions requiring hospitalisation.

For more information, see: Australian Institute of Health and Welfare Web site at: http://www.aihw.gov.au.



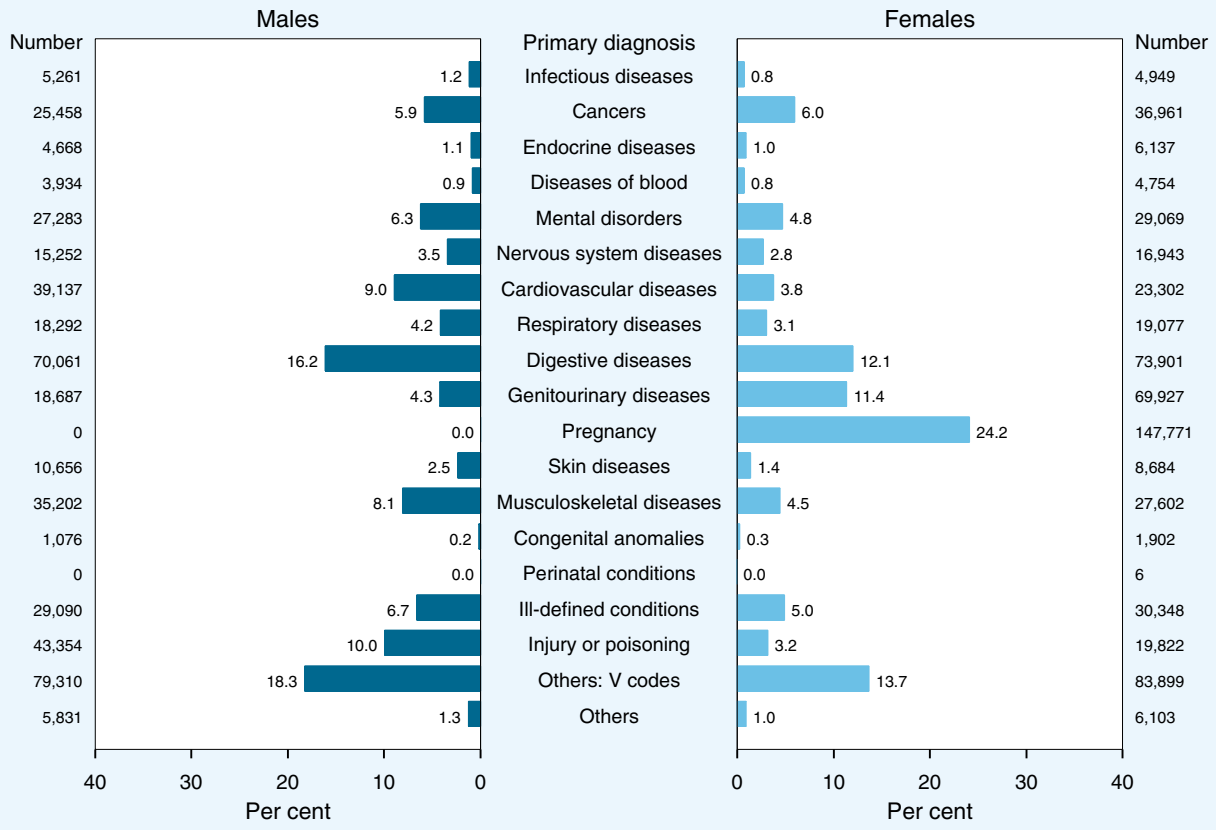
Note: Category of principal diagnosis was classified according to ICD-9-CM chapter headings, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869 E880–929 E950–999. The remainder were classified to either V-codes or the 'other' category.

Source: NSW Inpatient Statistics Collection (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In the financial year 1997/98, there were 261,260 hospital separations for NSW children aged 0–14 years, comprising 149,680 male separations and 111,580 female separations.
- The most common causes of hospitalisation were "V codes" which included symptoms and signs without a specific diagnosis or cause and, in this age group, admissions of live-born infants.
- Respiratory diseases, accounting for 14.8 per cent of all admissions, were the next most common cause of hospitalisation in this age group. Chest infections and asthma were the main conditions in this disease category.
- Perinatal conditions (occurring in the first year of life) were the next most common cause of hospitalisation. The majority of these admissions were for babies born prematurely.
- The fourth most common cause of admission was injury and poisoning. Boys in this age group were slightly more likely than girls to be admitted for injury or poisoning and mental disorders. Otherwise, there were minimal differences between the sexes.

For more information, see: Australian Institute of Health and Welfare. *Australia's health 1996: The fifth biennial report of the Australian Institute of Health and Welfare*. Canberra: AIHW, 1996.

Principal diagnosis for hospitalisation by sex, persons aged 15 to 64 years, NSW 1997/98



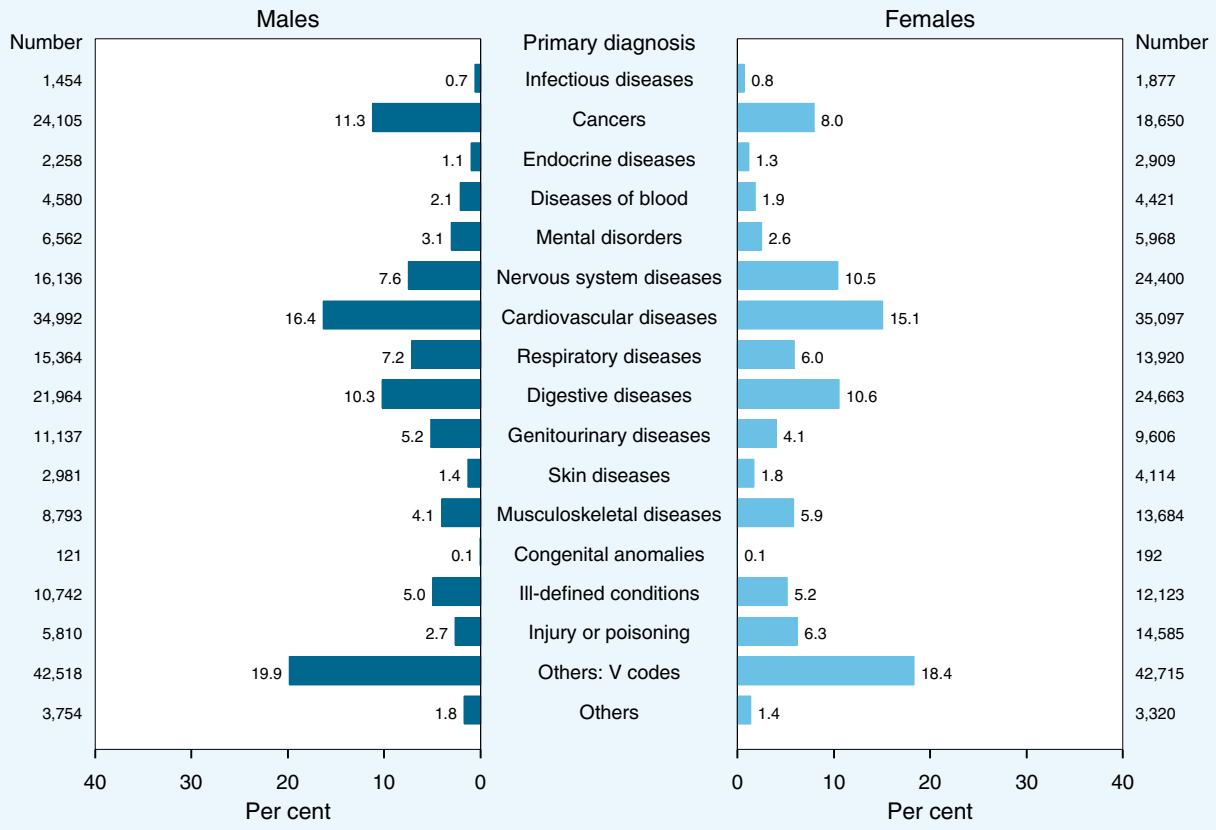
Note: Category of principal diagnosis was classified according to ICD-9, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869 E880–929 E950–999. The remainder were classified to either V-codes or the 'other' category.

Source: NSW Inpatient Statistics Collection (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the financial year 1997/98, there were 1,043,709 hospital separations for NSW residents aged 15–64 years, comprising 432,552 male separations and 611,157 female separations.
- Pregnancy and delivery were the most common reasons for hospitalisation among females aged 15–64 years.
- The most common causes of hospitalisation among males in this age group, and the second most common among females, were "V codes", which include symptoms and signs without a specific diagnosis or cause.
- Diseases of the gastro-intestinal system were the second most common cause of hospitalisation in males in this age group, and the third most common in females. Gastric and duodenal ulcers, oesophagitis and hernias were the leading reasons for admission within this group. The higher number of admissions for males in this group was due to inguinal hernias, which are rare in females.
- The next most common cause of admission in males was injury and poisoning. This includes sporting injuries, workplace injuries, injuries sustained in motor vehicle accidents and self-inflicted injuries (suicide attempts), all of which were more common in males.
- Genito-urinary conditions were the next most common cause of hospitalisation in females. These include admission for hysterectomy and for treatment of urinary incontinence.

For more information, see: Australian Institute of Health and Welfare. *Australia's health 1998: The sixth biennial report of the Australian Institute of Health and Welfare*. Canberra: AIHW, 1998.

Principal diagnosis for hospitalisation by sex, persons aged 65 years and over, NSW 1997/98



Note: Category of principal diagnosis was classified according to ICD-9, using the codes 000 to 799 when present, or using the injury/poisoning external cause codes E800–869 E880–929 E950–999. The remainder were classified to either V-codes or the 'other' category.

Source: NSW Inpatient Statistics Collection (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the financial year 1997/98, there were 584,823 hospital separations for NSW residents aged 65 years and over, comprising 287,394 male separations and 297,429 female separations.
- The most common causes of hospitalisation were "V codes" which include symptoms and signs without a specific diagnosis or cause, and admissions for rehabilitation, nursing home and respite care.
- Diseases of the cardiovascular system, principally ischaemic heart disease, cardiac failure and stroke, were the next most common causes of admission to hospital for both sexes in this age group.
- Diseases of the gastro-intestinal system and cancer were the other two main causes of hospitalisation.
- Admission for nervous system disorders, especially dementia, and respiratory diseases figure much more prominently in this older age group than in younger people.

For more information, see: Australian Institute of Health and Welfare. *Australia's health 1998*. Canberra: AIHW, 1998.

Health of specific populations

Section 3

Chapter 3.1

Overseas-born people

- More than one-quarter of NSW residents at the 1996 Census were born overseas. The most common countries of birth, other than Australia, were the United Kingdom, New Zealand, Italy and China.
- Twenty per cent of people in NSW at the 1996 Census spoke a language other than English at home. The most common non-English languages were Chinese, Arabic, Italian and Greek.
- In the period 1993 to 1998, NSW residents born in overseas countries continued to experience lower death rates than Australian-born residents.
- In the same period, babies of mothers born in the Philippines and Fiji were more likely to be born prematurely than NSW babies overall.
- In 1997/98, men and women born in Italy reported a higher prevalence of current diabetes or high blood sugar, than did Australian-born NSW residents.
- Between 1993 and 1997, new cases of breast cancer were more commonly reported among women born in Egypt, and less commonly reported among women born in many overseas countries, compared with Australian-born women.
- Over the same period, new cases of cervical cancer were more frequent among Vietnamese-born women compared with women generally.
- At the 1997 and 1998 NSW Health Surveys, men and women born in many overseas countries were less likely to report excellent or very good health compared with NSW residents overall.
- Men and women born in New Zealand, and men born in Vietnam and Lebanon were more likely to be smokers than NSW residents generally. Men and women born in New Zealand also had higher rates of harmful or hazardous alcohol consumption.
- Self-reported overweight or obesity was more prevalent among men and women born in Italy and Lebanon, men from Greece, and women from countries of the former Yugoslavia, than in the general population.
- In 1997 and 1998, NSW children born in many overseas countries had more teeth affected by decay than did their Australian-born counterparts.

In this chapter

Introduction

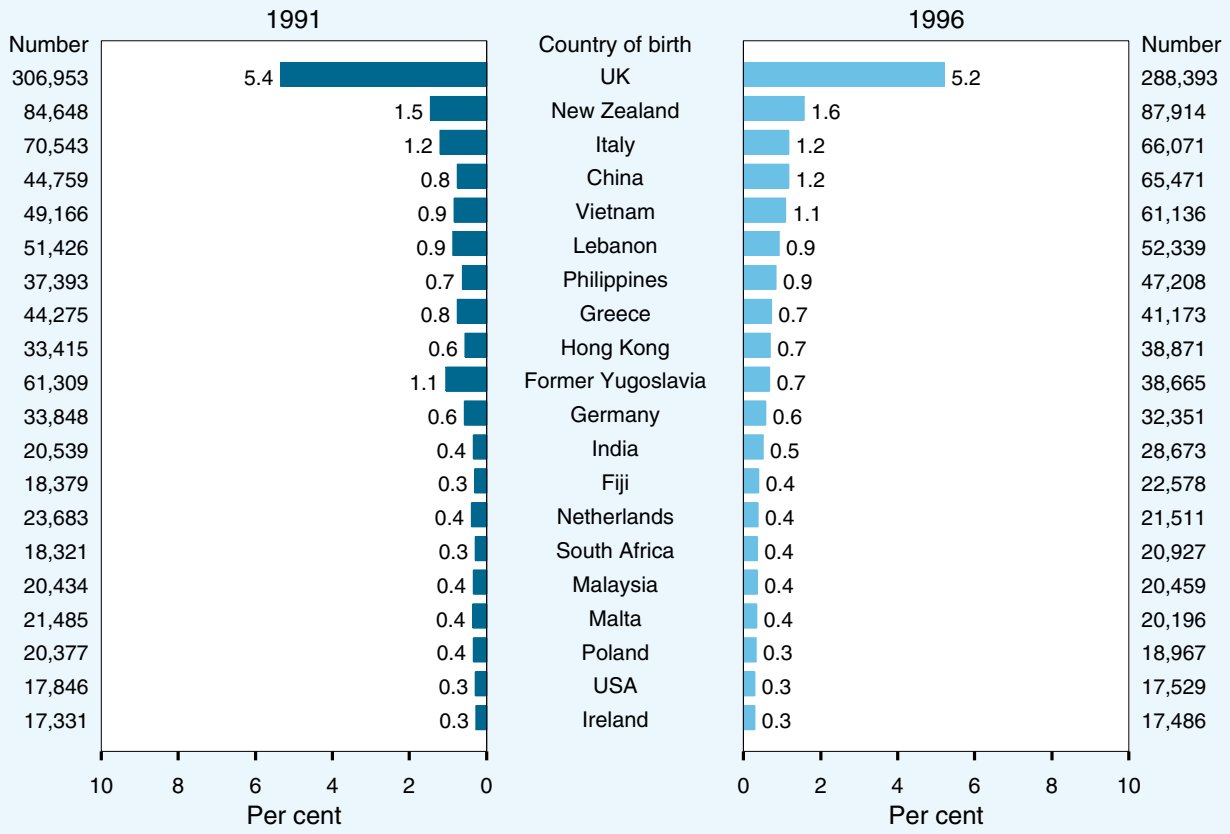
NSW has a population drawn from more than 100 different countries, and speaking a wide variety of languages. More than one in every four NSW residents was born overseas. The composition and age structure of the overseas-born population reflects patterns of migration. After World War II, there was a large migration of Europeans to NSW, initially from Eastern Europe, then from Britain and Northern Europe, Greece, Italy and Yugoslavia. These were followed by people from the Middle East, mainly from Turkey, Lebanon and Egypt. Most recently, immigrants have come in large numbers from Asian countries, particularly China, Vietnam and the Philippines.

In general, overseas-born residents have better health than Australian-born residents. This reflects the 'healthy migrant effect', whereby people in good health are more likely to meet eligibility criteria, and to be willing and economically able to migrate.

Despite the general good health of overseas-born populations, certain diseases and health risk factors are more prevalent among some country-of-birth groups. This reflects diverse social, economic, environmental, cultural and genetic influences. This chapter examines health differentials by country of birth. It includes, for the first time, country-of-birth analysis of data from the 1997 and 1998 NSW Health Surveys and the Save Our Kids Smiles oral health database. This information will assist in targeting those country of birth groups that are at risk for specific causes of morbidity and mortality.

More information on the methods used for analysing data is given in the Methods section (page 265). The Methods section also includes a table giving the numbers of overseas-born respondents who participated in the 1997 and 1998 NSW Health Surveys.

Country of birth: most common 20 countries excluding Australia, NSW 1991 and 1996



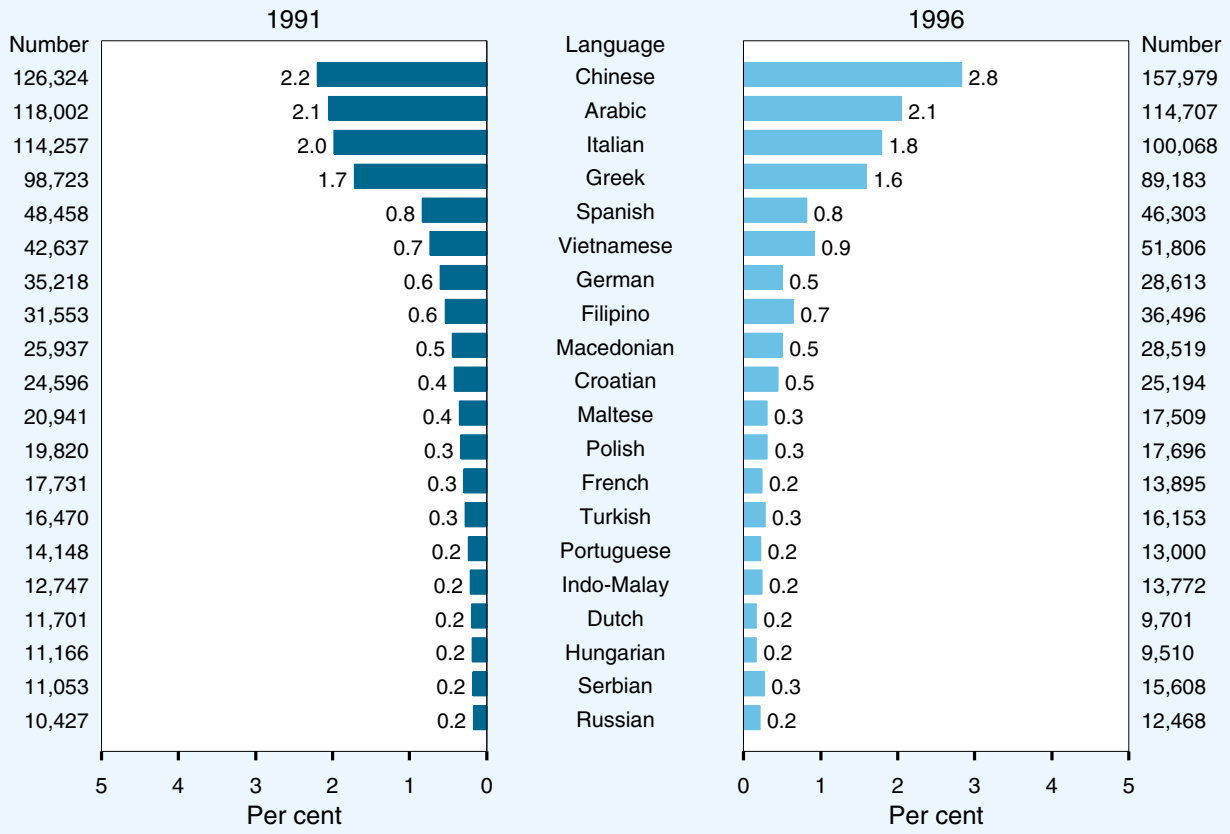
Note: 74.8 per cent and 79.7 per cent of 1991 and 1996 NSW residents, respectively, were Australian-born.

Source: ABS, 1996 Census Basic Community Profiles (HOIST), 1997 and special tabulations from the ABS 1991 census (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The percentage of the NSW population born overseas rose from 25.2 per cent in 1991 to 26.7 per cent in 1996.
- In 1996, the largest number of overseas-born residents came from the United Kingdom, followed by New Zealand, Italy, China, Vietnam, Lebanon and the Philippines.
- The highest rates of growth between 1991 and 1996 occurred among resident populations born in China, India, the Philippines, Vietnam and South Africa.
- Some overseas-born populations declined between 1991 and 1996, notably those born in the Netherlands, Greece, Poland, Italy and the United Kingdom. This indicates that losses due to death and out-migration exceeded the number of new arrivals from these countries.

For more information, see: Australian Bureau of Statistics. *1991 and 1996 Census Community Basic Profile.* Canberra: ABS, 1998.

Languages spoken at home: most common 20 languages, excluding English, NSW 1991 and 1996



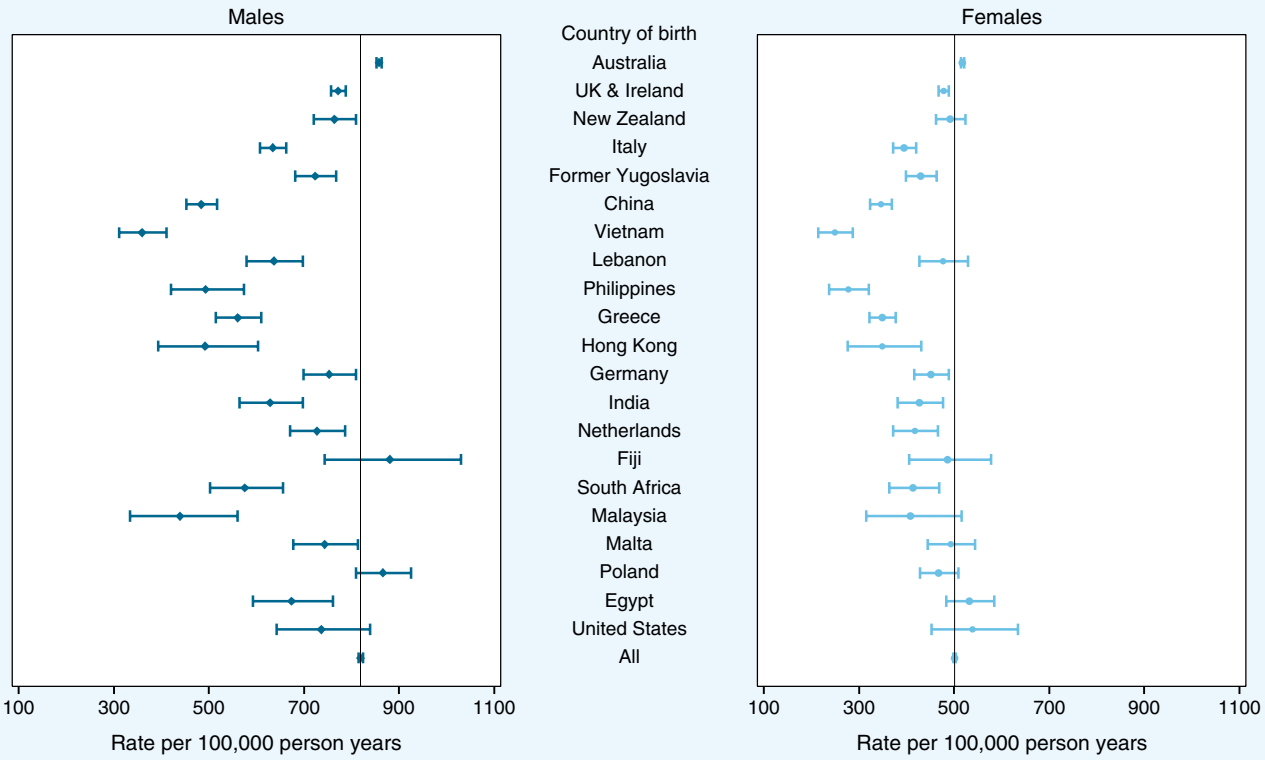
Note: 80.1 and 78.7 per cent, respectively, of 1991 and 1996 NSW residents spoke only English at home.

Source: ABS, 1996 Census Basic Community Profile (electronic), ABS, cat. no. 2020.0, ABS, Canberra, 1997 and special tabulations from the ABS 1991 census (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- The total proportion of the 1996 population who spoke a language other than English at home was 21.4 per cent, compared with 19.9 per cent in 1991.
- Changes in the leading languages spoken at home between 1991 and 1996 reflect shifting migration patterns. For example, between 1991 and 1996, people who reported their country of birth as China or Hong Kong increased by one-third. This change is reflected in the large increase (from 2.2 per cent to 2.8 per cent) in the NSW population who reported speaking Chinese languages at home.

For more information, see: Australian Bureau of Statistics. *1991 and 1996 Census Community Basic Profile*. Canberra: ABS, 1998.

Deaths from all causes
by country of birth and sex, NSW 1994 to 1998



Note: Country of birth population estimates were derived from ABS national estimated resident populations for country of birth. Death rates were age-adjusted using the Australian population as at 30 June 1991. Countries were selected and ordered according to size of resident population. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- NSW residents born in many overseas countries experience lower death rates compared with Australian-born residents.
- In the period 1994 to 1998, people born in the United Kingdom and Ireland, Italy, countries of the former Yugoslavia, China, Vietnam, the Philippines, Greece, Hong Kong, Germany, India, the Netherlands and South Africa, and males born in Lebanon, Malaysia and Egypt all had lower death rates than for the NSW population as a whole.
- Only people born in Australia had higher overall death rates than the general NSW population.
- Lower death rates among the overseas-born reflect the 'healthy migrant effect', whereby people in good health are more likely to meet eligibility criteria, and to be willing and economically able to migrate.

For more information, see: Donovan J, d'Espaignet ET, Merton C and van Ommeren M (eds). *Immigrants in Australia: a health profile.* Canberra: AIHW Ethnic health series no. 1, 1992.

Strong K, Trickett P, Bhatia K. The health of overseas-born Australians 1994–1996. *Australian Health Review* 1998; 21: 124–133.

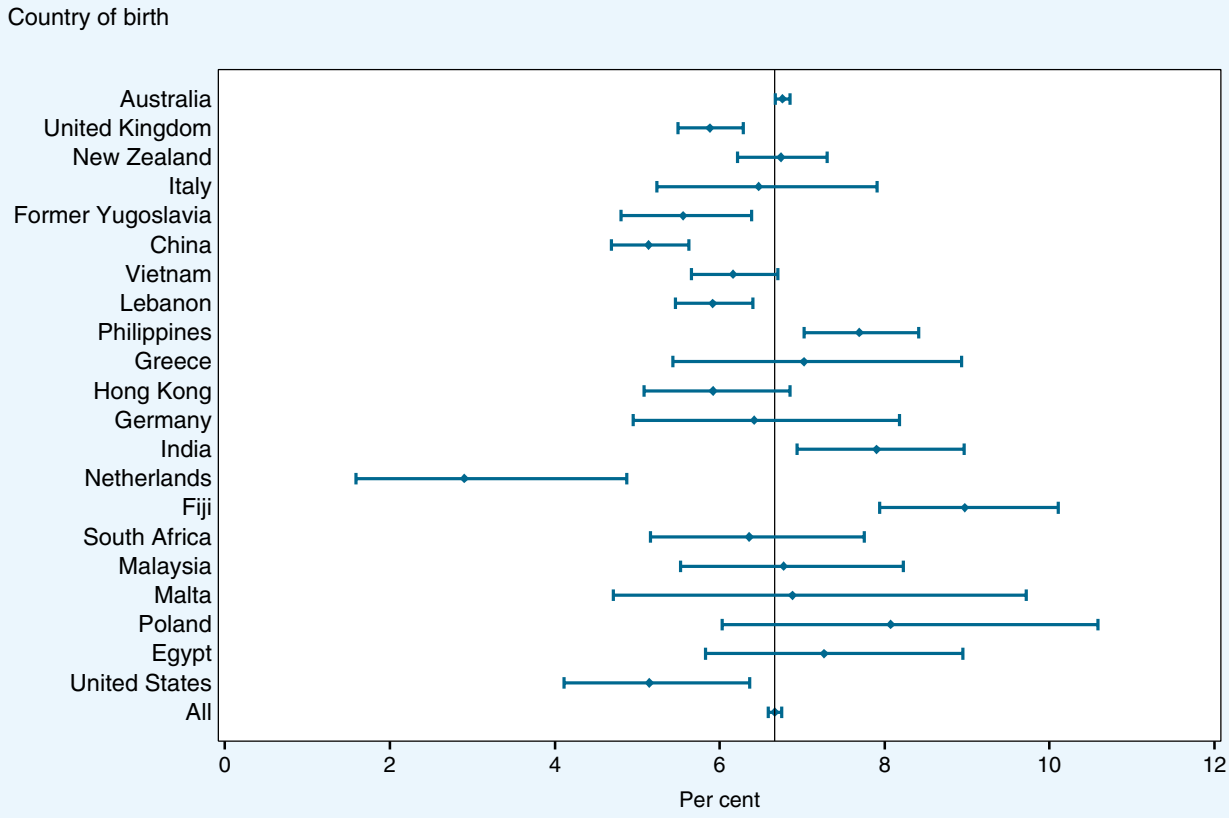
Deaths from all causes by country of birth and sex, NSW 1994 to 1998

Country of birth	Sex	Deaths	Rate/100,000	LL99 % CI	UL95 % CI
Australia	Males	85812	858.1	852.3	863.9
	Females	81064	517.6	513.9	521.3
	Persons	166876	662.5	659.3	665.7
UK & Ireland	Males	12050	771.9	756.7	787.4
	Females	10939	477.9	467.5	488.4
	Persons	22989	614.3	605.2	623.5
New Zealand	Males	1344	764.2	720.8	809.3
	Females	1147	491.7	461.3	523.5
	Persons	2492	614.3	588.8	640.6
Italy	Males	2678	634.7	607.5	662.7
	Females	1621	395.2	371.4	419.9
	Persons	4299	517.0	499.1	535.4
Former Yugoslavia	Males	1513	723.7	681.4	767.5
	Females	804	429.8	398.5	462.7
	Persons	2317	579.3	553.2	606.3
China	Males	940	484.1	452.8	516.8
	Females	901	345.6	322.9	369.4
	Persons	1841	404.6	386.0	423.9
Vietnam	Males	321	359.1	310.9	411.5
	Females	227	248.9	214.2	287.1
	Persons	548	298.7	269.9	329.3
Lebanon	Males	643	636.6	578.5	698.1
	Females	406	476.4	427.2	529.5
	Persons	1048	560.0	521.4	600.4
Philippines	Males	235	493.3	420.3	573.6
	Females	245	277.1	237.3	320.9
	Persons	480	351.5	315.1	390.5
Greece	Males	1049	560.9	514.4	609.6
	Females	708	348.9	322.1	377.3
	Persons	1757	455.7	428.8	483.5
Hong Kong	Males	143	492.2	393.8	603.7
	Females	113	348.3	276.7	430.6
	Persons	256	412.1	352.6	477.4
Germany	Males	936	752.7	698.6	809.5
	Females	841	451.2	415.7	488.6
	Persons	1777	571.8	541.8	602.9
India	Males	388	628.5	564.8	697.1
	Females	320	427.3	381.5	477.1
	Persons	708	520.1	481.7	560.7
Netherlands	Males	882	727.3	670.4	787.1
	Females	541	417.3	371.5	466.0
	Persons	1423	566.9	530.8	604.4
Fiji	Males	225	880.3	743.9	1030.9
	Females	155	486.3	404.9	578.0
	Persons	380	650.0	576.4	729.5
South Africa	Males	242	575.7	502.4	656.4
	Females	268	413.7	363.7	468.4
	Persons	510	482.8	440.4	528.0
Malaysia	Males	108	439.3	334.7	560.0
	Females	102	408.0	315.3	515.5
	Persons	210	423.8	353.0	502.3
Malta	Males	607	743.4	677.5	813.4
	Females	415	492.4	444.2	544.3
	Persons	1022	615.2	575.0	657.3
Poland	Males	1310	865.7	809.1	924.6
	Females	659	467.5	428.7	508.7
	Persons	1968	667.1	633.5	701.9
Egypt	Males	500	674.0	592.4	761.3
	Females	448	532.2	483.3	584.7
	Persons	948	604.2	555.6	655.2
United States	Males	267	736.1	642.2	839.0
	Females	160	538.6	453.1	634.7
	Persons	427	635.4	573.7	701.6
All	Males	112191	819.2	814.4	824.0
	Females	102083	501.0	497.9	504.2
	Persons	214275	639.9	637.2	642.6

Note: Country of birth population estimates were derived from ABS national estimated resident populations for country of birth. Death rates were age-adjusted using the Australian population as at 30 June 1991. Countries were selected and ordered according to size of resident population. LL/UL95% CI = lower/upper limits of 95 per cent confidence interval of the standardised rate.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Premature births by country of birth of mother, NSW 1994 to 1998



Note: Births where gestational age was less than 37 weeks were classified as premature births. Infants of at least 400 grams birth weight or at least 20 weeks gestation were included. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

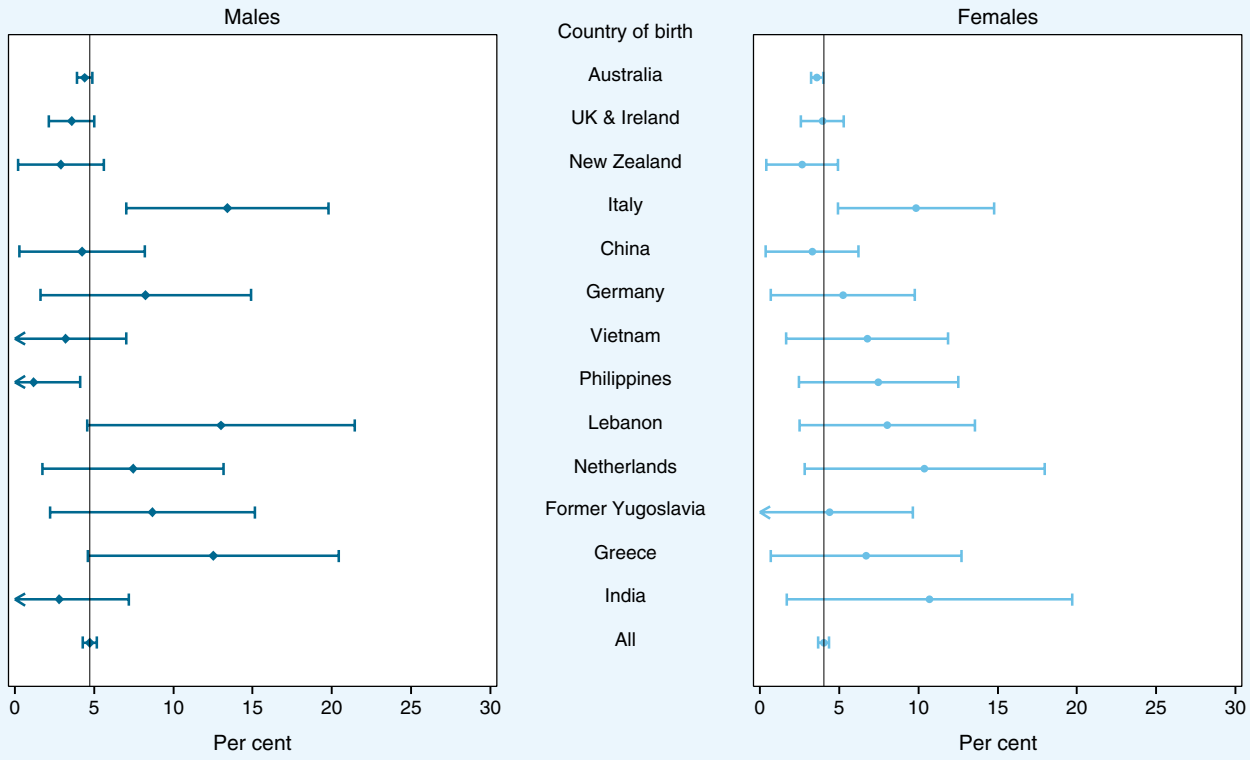
Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the period 1994 to 1998, premature births varied by maternal country of birth, from 3.3 per cent for mothers born in the Netherlands to 8.8 per cent for mothers born in Fiji.
- Mothers born in the United Kingdom and Ireland, countries of the former Yugoslavia and China were less likely to give birth prematurely, while mothers born in Lebanon and Malta were more likely to have premature births.
- Premature birth is responsible for many illnesses in newborn infants and sometimes for longer-term disabilities. Premature birth is associated with respiratory distress syndrome, chronic lung disease, neurological injury and sensory neural impairments.
- Most premature births occur in women without any pre-existing medical condition. However, the majority of premature babies who require admission to neonatal intensive care are born to mothers with pregnancy complications. Common complications include premature rupture of the membranes, antepartum haemorrhage, pre-eclampsia, intrauterine growth restriction, infection and cervical incompetence.
- Premature birth is also more common with multiple birth. The incidence of preterm birth increases with the number of fetuses in a pregnancy. For spontaneous pregnancies, the incidence is 7 per cent for single births, 30 per cent for twins and 75 per cent for triplets. The incidence is higher when conception is assisted by in vitro fertilisation (IVF) and related procedures, where the rate is 17 per cent for single births, 56 per cent for twins and 96 per cent for triplets (NHMRC, 1995).

For more information, see: Taylor L, Pym M, Bajuk B, et al. *New South Wales Mothers and Babies 1998.* NSW Public Health Bulletin Supplement no. 1. Sydney: NSW Health Department, 2000. This publication may be viewed at the NSW Health Department Web site at: www.health.nsw.gov.au/public-health/mdc98

National Health and Medical Research Council. *Perinatal morbidity.* Canberra: NHMRC, 1995.

Current doctor-diagnosed diabetes or high blood sugar by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998



Note: Current diabetes classified where respondents reported ever being diagnosed with diabetes or high blood sugar by a doctor or at a hospital, excluding those reporting that they no longer had diabetes of high blood sugar. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department

- Non insulin dependent diabetes mellitus (NIDDM) is the predominant form of diabetes in Australia.
- Risk factors such as obesity, inappropriate nutrition and inactivity predispose people to its development.
- In Australia, NIDDM is more common among Indigenous Australians, and people from the South Pacific Islands, the Middle East, Southern Europe and some Asian countries (McGrath et al. 1991; Strong et al. 1998; Welborn et al. 1995).
- At the 1997 and 1998 NSW Health Surveys, men and women born in Italy reported a higher prevalence of current doctor-diagnosed diabetes or high blood sugar, than NSW residents generally.
- The prevalence of current doctor-diagnosed diabetes or high blood sugar ranged from 2.8 per cent among the New Zealand-born, to 11.4 per cent among the Italian-born. Among men, prevalence ranged from 1.2 per cent among the Philippines-born to 13.0 per cent for the Lebanese-born. Among women, prevalence ranged from 2.7 per cent for the New Zealand-born to 10.7 per cent for the Indian-born.

For more information, see:

McGrath M, Collins V, Zimmett P and Dowse G. *Lifestyle disorders in Australian Aborigines: diabetes and cardiovascular disease risk factors — a review*. Canberra: International Diabetes Institute, 1991.

Strong K, Trickett P, Bhatia K. The health of overseas-born Australians 1994–1996. *Australian Health Review* 1998; 21: 124–133.

Welborn TA, Knuiman MW, Bartholomew HC, Whittall DE. 1989–90 National Health Survey: prevalence of self-reported diabetes in Australia. *Med J Aust* 1995; 163:116–7.

NSW Health Department. *Principles of care and guidelines for the management of diabetes mellitus in adults*. Sydney: NSW Health Department, 1996.

Australian Institute of Health and Welfare. National Health Priority Areas — Diabetes Mellitus 1998. AIHW Cat. No. PHE-10. Canberra: Australian Institute of Health and Welfare, 1998.

International Diabetes Institute, Melbourne at: http://www.idi.org.au.

Diabetes Australia, NSW Branch Web site at: http://www.diabetes-australia.com.au.

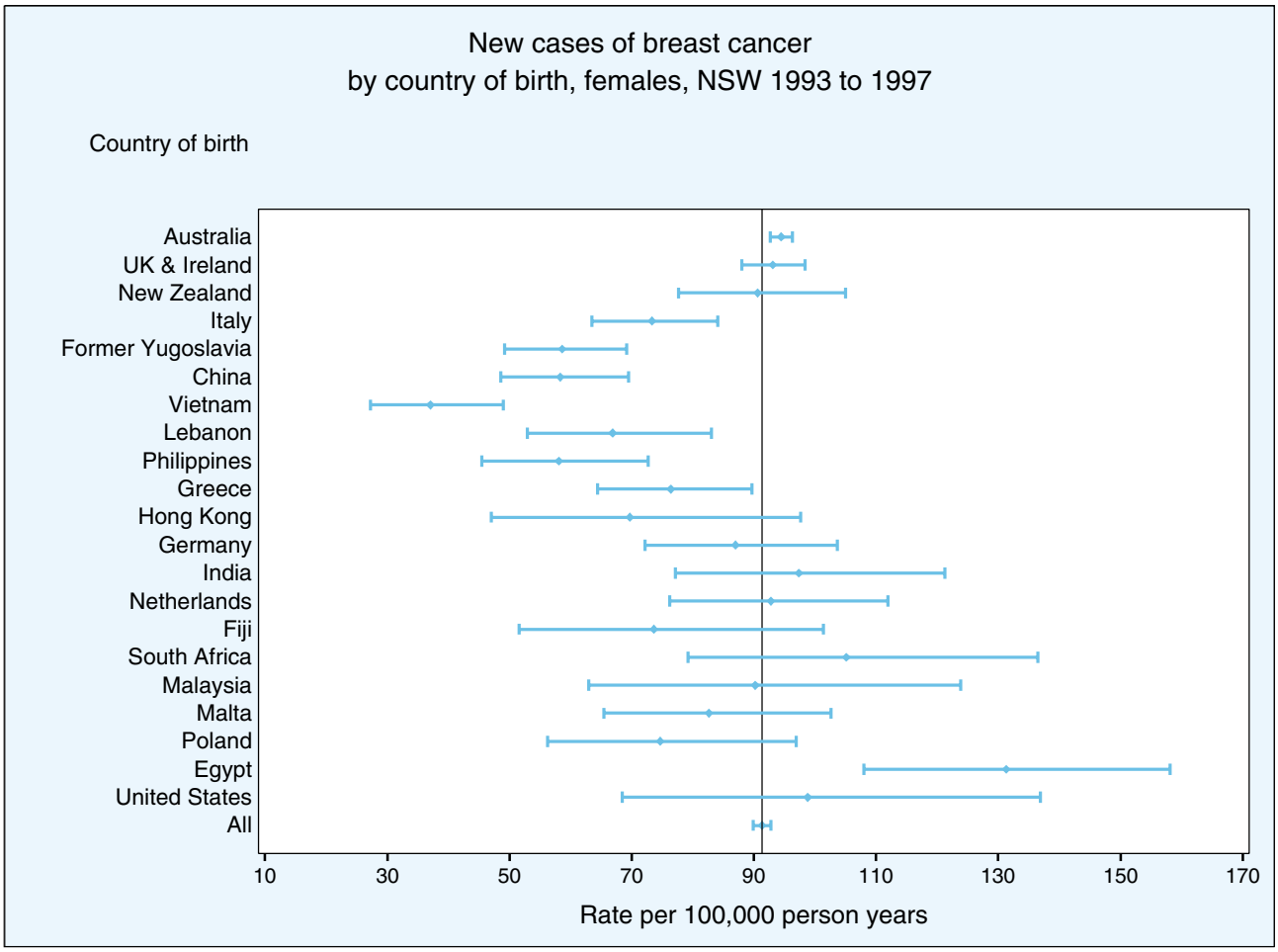
The NSW Health Survey 1997 report may be viewed at the NSW Health Department's Web site at: http://www.health.nsw.gov.au/public-health/hs97.

Current doctor-diagnosed diabetes or high blood sugar by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998.

Country of birth	Sex	Per cent	LL 95 % CI	UL 95 % CI
Australia	Males	4.4	3.9	4.9
	Females	3.6	3.2	4.0
	Persons	4.0	3.7	4.3
UK & Ireland	Males	3.6	2.1	5.0
	Females	3.9	2.6	5.3
	Persons	3.7	2.8	4.7
New Zealand	Males	2.9	0.2	5.6
	Females	2.7	0.4	4.9
	Persons	2.8	1.0	4.5
Italy	Males	13.4	7.0	19.8
	Females	9.8	4.9	14.8
	Persons	11.4	7.4	15.3
China	Males	4.2	0.3	8.2
	Females	3.3	0.4	6.2
	Persons	3.7	1.3	6.2
Germany	Males	8.2	1.6	14.9
	Females	5.2	0.7	9.8
	Persons	6.4	2.6	10.3
Vietnam	Males	3.2	0.0	7.0
	Females	6.8	1.6	11.9
	Persons	5.0	1.8	8.3
Philippines	Males	1.2	0.0	4.1
	Females	7.5	2.5	12.5
	Persons	5.0	1.6	8.4
Lebanon	Males	13.0	4.5	21.5
	Females	8.0	2.5	13.5
	Persons	10.3	5.5	15.2
Netherlands	Males	7.4	1.7	13.2
	Females	10.4	2.8	18.0
	Persons	8.7	4.0	13.3
Former Yugoslavia	Males	8.7	2.2	15.1
	Females	4.4	0.0	9.6
	Persons	6.9	2.6	11.3
Greece	Males	12.5	4.6	20.4
	Females	6.7	0.7	12.7
	Persons	9.7	4.7	14.8
India	Males	2.8	0.0	7.2
	Females	10.7	1.7	19.7
	Persons	5.2	0.7	9.8
All	Males	4.7	4.3	5.2
	Females	4.0	3.7	4.4
	Persons	4.4	4.1	4.6

Note: Current diabetes classified where respondents reported ever being diagnosed with diabetes or high blood sugar by a doctor or at a hospital, excluding those reporting that they no longer had diabetes of high blood sugar. LL/UL95% CI = lower/upper limits of 95 per cent confidence interval of the point estimate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



Country of birth	New cases	Rate/100,000	LL95% CI	UL95%CI	Country of birth	New cases	Rate/100,000	LL95%CI	UL95%CI
Australia	11251	94.5	92.7	96.3	Germany	155	87.0	72.2	103.6
UK & Ireland	1345	93.1	88.0	98.4	India	81	97.4	77.1	121.3
New Zealand	202	90.6	77.7	105.0	Netherlands	116	92.8	76.2	111.9
Italy	270	73.3	63.4	84.1	Fiji	42	73.6	51.5	101.4
Former Yugoslavia	158	58.6	49.2	69.2	South Africa	61	105.1	79.2	136.5
China	128	58.3	48.5	69.5	Malaysia	52	90.2	62.9	123.8
Vietnam	57	37.0	27.2	49.0	Malta	95	82.6	65.5	102.6
Lebanon	98	66.9	52.9	83.1	Poland	63	74.7	56.2	96.9
Philippines	99	58.0	45.5	72.7	Egypt	113	131.3	108.0	158.1
Greece	194	76.4	64.4	89.7	United States	44	98.8	68.4	136.9
Hong Kong	51	69.7	47.0	97.7	All	14675	91.3	89.8	92.8

Note: Breast cancer was classified according to the ICD-9 code 174. Country of birth population estimates were derived from ABS national estimated resident populations for country of birth. Incidence: rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95%CI = lower/upper limits of 95 per cent confidence interval of the standardised rate.

Source: NSW Central Cancer Registry incidence data and ABS, population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

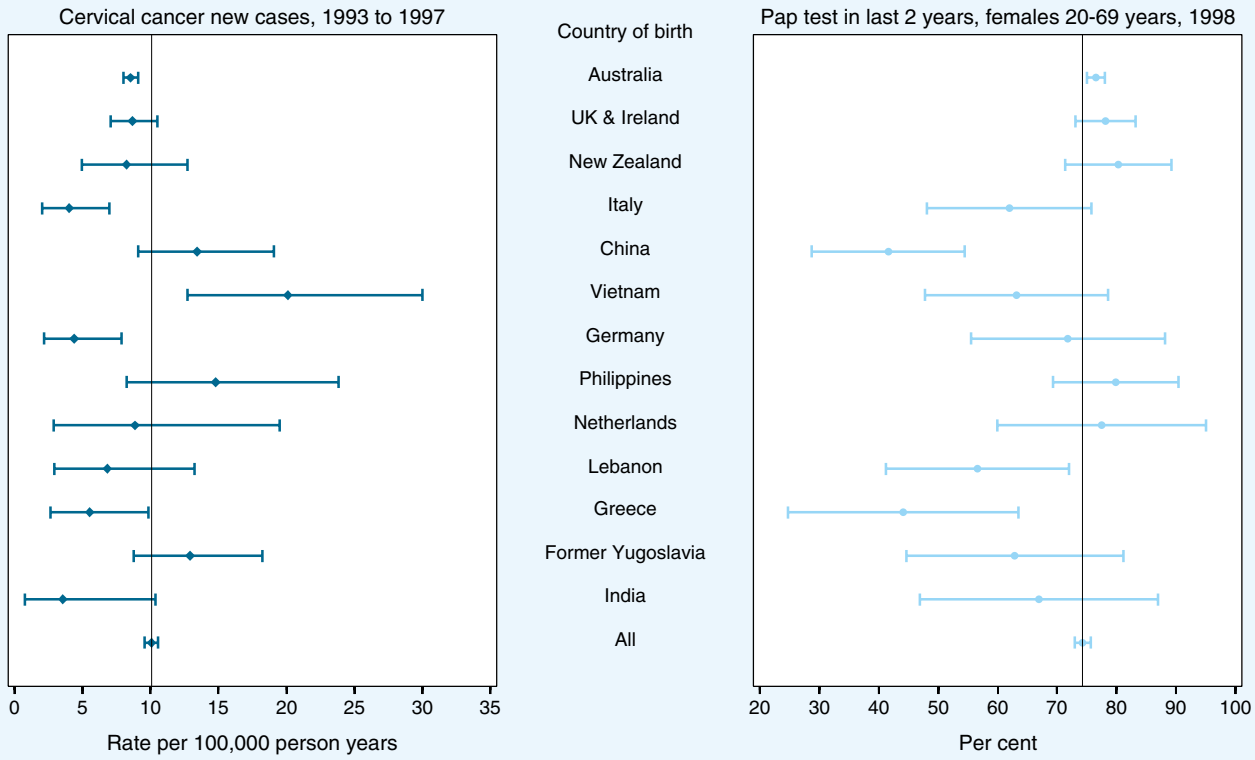
- In the period 1993 to 1997, rates of breast cancer were higher among women born in Egypt compared with Australian-born women.
- Rates of breast cancer were lower among women born in Italy, the former Yugoslavia, China, Vietnam, Lebanon, the Philippines and Greece, than among their Australian-born counterparts.
- Risk factors for breast cancer include having the first period early, no children, late age at menopause and genetic factors. Having children early in life and having a large number of children reduce the risk.

For more information, see: McCredie M, Coates M, Duque-Portugal F, Smith D, Taylor R. *Common cancers in migrants to New South Wales.* Cancer Epidemiology Research Unit. Sydney: NSW Cancer Council, 1993.

Supramaniam R, Smith DP, Coates MS and Armstrong BK. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

Coates M and Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

New cases of cervical cancer and screening pap tests by country of birth, NSW



Country of birth	New cases	Rate/100,000	LL95%CI	UL95%CI	% screened	LL95%CI	UL95 %CI
Australia	978	8.5	8.0	9.1	76.5	75.1	78.0
UK & Ireland	117	8.7	7.1	10.5	78.1	73.0	83.2
New Zealand	22	8.2	5.0	12.7	80.3	71.3	89.2
Italy	15	4.0	2.0	7.0	62.0	48.1	75.8
China	31	13.4	9.1	19.1	41.6	28.7	54.5
Vietnam	26	20.1	12.7	30.0	63.2	47.8	78.6
Germany	11	4.4	2.2	7.9	71.8	55.6	88.1
Philippines	22	14.8	8.2	23.8	79.9	69.4	90.4
Netherlands	7	8.9	2.9	19.5	77.5	59.9	95.1
Lebanon	9	6.8	2.9	13.2	56.6	41.2	72.0
Greece	14	5.5	2.6	9.8	44.1	24.7	63.5
Former Yugoslavia	34	12.9	8.8	18.2	62.9	44.6	81.1
India	3	3.5	0.7	10.4	67.0	46.9	87.0
All	1660	10.1	9.6	10.6	74.3	73.0	75.7

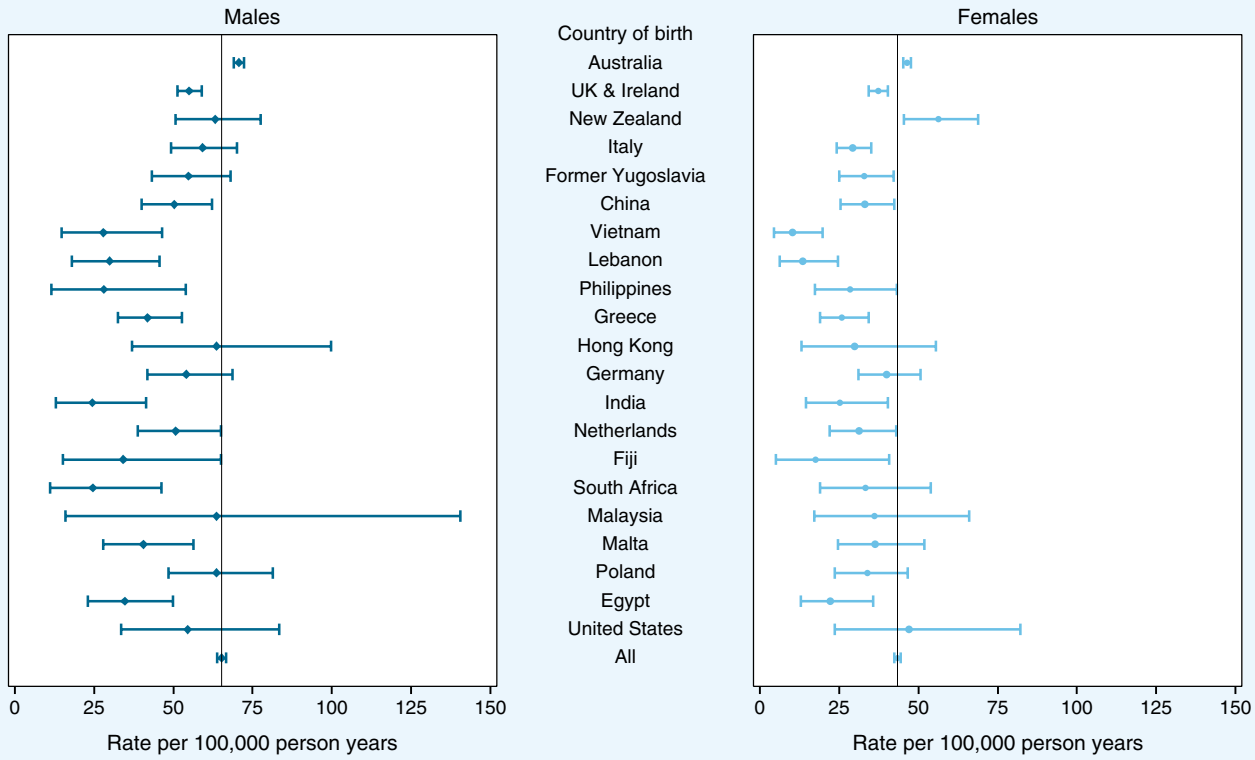
Note: Cervical cancer was classified according to the ICD-9 code 180. Country of birth population estimates were derived from ABS national estimated resident populations for country of birth. Incidence: rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95%CI = lower/upper limits of 95 per cent confidence interval of the point estimate.

Source: NSW Central Cancer Registry incidence data, ABS population estimates and 1998 NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the 1998 NSW Health Survey, women born in China and Vietnam reported less frequent Pap tests than Australian-born women, and these groups also had higher rates of new cases of cervical cancer.
- Women born in Italy, Lebanon and Greece also reported being screened less frequently than Australian-born women. However, these populations experienced slightly lower rates of new cases of cervical cancer.
- These variations may relate to differences in the prevalence of risk factors for cervical cancer, including the number of sexual partners and age at first sex.
- The rates shown here are imprecise, due to small numbers of women in some country-of-birth groups.

For more information, see: Kricker A, Bell J, Coates M, Taylor R and Armstrong BK. *Cancer of the cervix in NSW in 1972 to 1992*. Sydney: NSW Cancer Council, 1996.

New cases of colorectal cancer
by country of birth and sex, NSW 1992 to 1996



Note: Colorectal cancer was classified according to the ICD-9 codes 153-154. Death rates were age-adjusted using the Australian population as at 30 June 1991. Country of birth populations from the 1991 census were used. Upper and lower limits of the 95 per cent confidence interval for the standardised rate are shown.

Source: NSW Central Cancer Registry mortality data and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In the period 1992 to 1996, NSW residents born in many overseas countries experienced lower incidence rates of colorectal cancer than their Australian-born counterparts. Men born in India, Greece, Malta and Egypt, women born in Italy and both men and women born in China, Vietnam, Lebanon and the Philippines had relatively low incidence rates of colorectal cancer.
- These differences by country of birth may be related to known risk factors for colorectal cancer. These include diets high in fat or protein and low in vegetables and fibre.

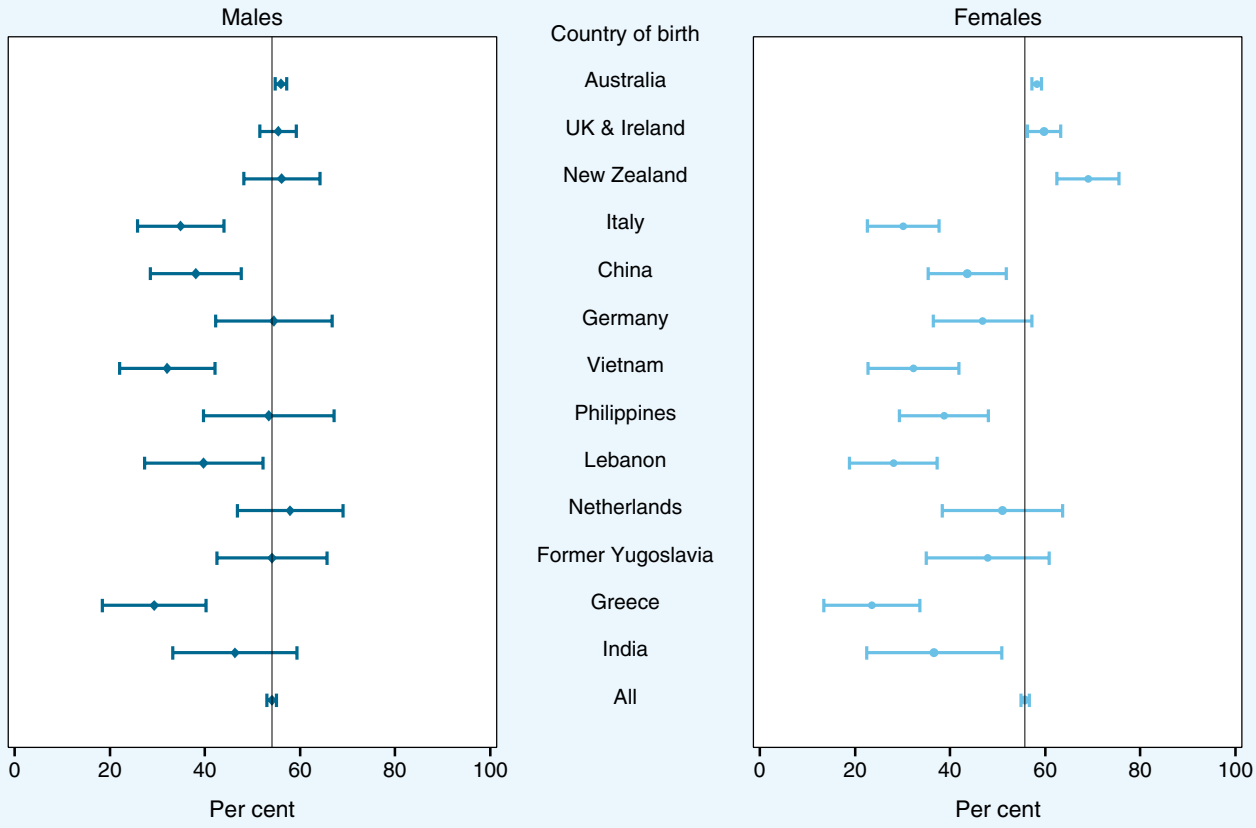
For more information, see: McCredie M, Coates M, Duque-Portugal F, et al. *Common cancers in migrants to New South Wales.* Sydney: Cancer Epidemiology Research Unit, NSW Cancer Council, 1993.

Australian Institute of Health and Welfare and Australasian Association of Cancer Registries. *Cancer in Australia 1996: Incidence and mortality data for 1996 and selected data for 1997 and 1998.* AIHW Catalogue no. CAN 7. Canberra: AIHW, 1999.

Supramaniam R, Smith DP, Coates MS and Armstrong BK. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

Coates M and Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Excellent or very good self reported health status by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998



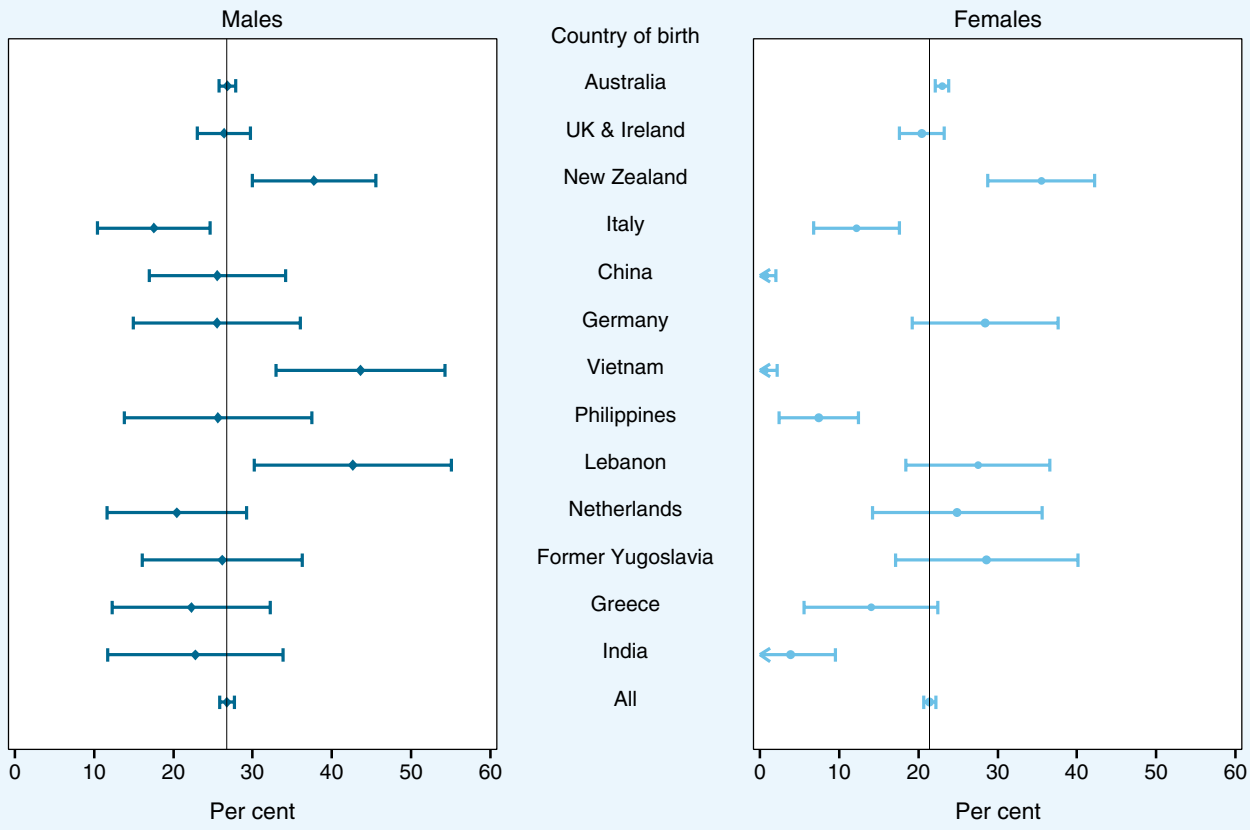
Note: Respondents were asked: 'In general, would you say your health is excellent, very good, good, fair or poor?'. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- At the 1997 and 1998 NSW Health Surveys, NSW residents born in many overseas countries were less likely than the Australian-born to report that their health was excellent or very good.
- People born in Italy, China, Vietnam, Lebanon, and Greece, and females born in India and the Philippines were less likely to report excellent or very good health than people born in Australia.
- Only women born in New Zealand were more likely to report excellent or very good health compared with the Australia-born.
- These findings are consistent with an analysis of the the 1989–90 National Health Survey, which found that both men and women born in Asian countries or continental Europe were more likely to report fair or poor health than their Australian-born counterparts (Mathers, 1994).
- The differences reported here reflect cultural differences in perceptions of health and in interpreting and answering survey questions. Multivariate analysis of 1989–90 National Health Survey data suggested that speaking a language other than English at home made a more important contribution than did lifestyle factors to country-of-birth variations in self-rated health (Mathers, 1994).

For more information, see: Mathers C. *Health differentials among adult Australians aged 25–64 years*. Canberra: Australian Institute of Health and Welfare: Health Monitoring Series no. 1, AGPS, 1994.

Current smoking by country of birth and sex,
persons aged 16 years and over, NSW 1997 and 1998



Note: Respondents were asked: 'Which of the following best describes your smoking status: I smoke daily, I smoke occasionally, I don't smoke now but I used to, I've tried it a few times but never smoked regularly, I've never smoked?'. Current smoking=daily + occasional smoking. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- At the 1997 and 1998 NSW Health Surveys, reported rates of current smoking in men ranged from 17.5 per cent among the Italian-born, to 43.6 per cent among the Vietnamese-born. In women, current smoking rates ranged from less than one per cent among women born in China and Vietnam, to 35.5 per cent among the New Zealand-born.
- Men born in New Zealand, Vietnam and Lebanon reported higher rates of current smoking than Australian-born men, while Italian-born men were less likely to report current smoking.
- Women born in Italy, China, Vietnam, the Philippines and India were much less likely to report current smoking than the Australian-born. Women born in New Zealand were more likely to report current smoking than Australian-born women.
- The current analysis highlights important differences at the country-of-birth level which are obscured when larger groupings, such as region of birth, are used.

For more information, see: Winstanley M, Woodward S and Walker N. *Tobacco in Australia facts and issues.* Melbourne: The Victorian Smoking and Health Program (QUIT Victoria), 1995.

The NSW Health Survey 1997 report may be viewed at the NSW Health Department's Web site at: www.health.nsw.gov.au/public-health.

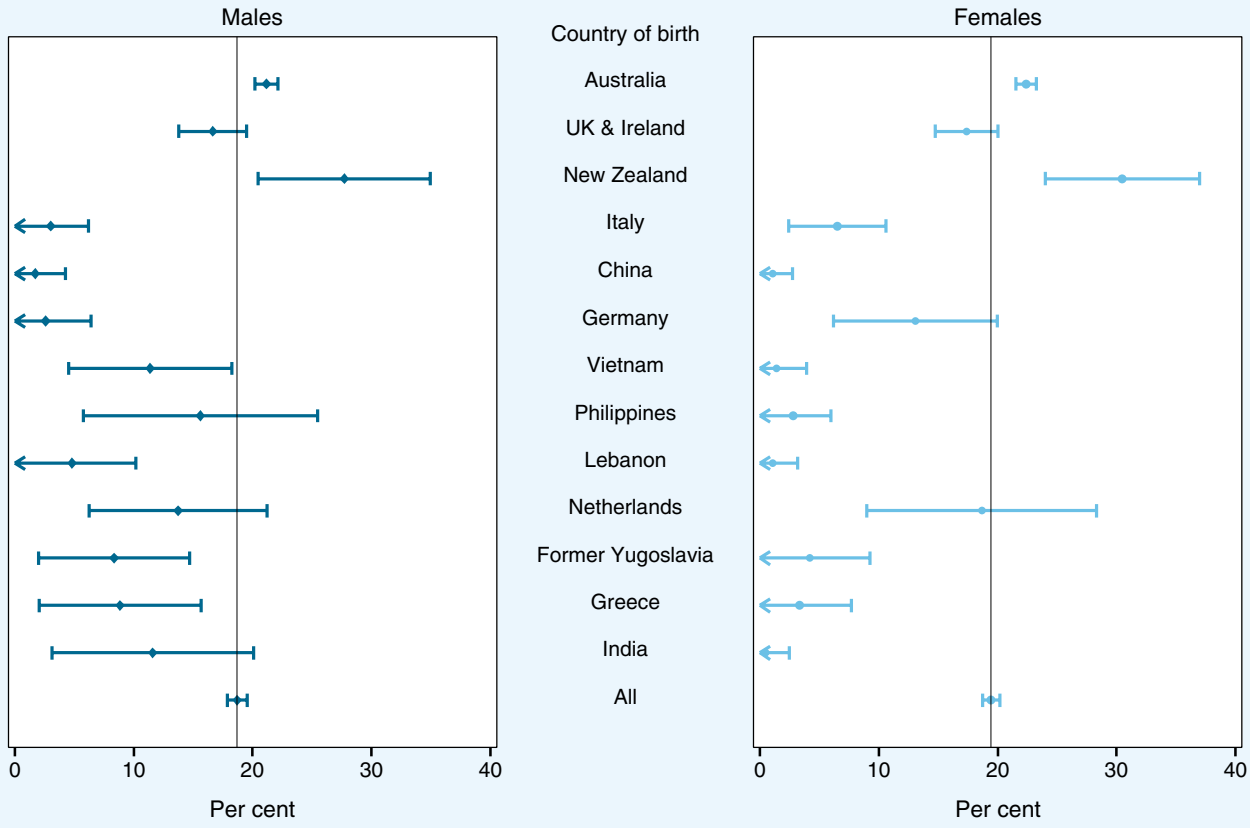
Current smoking by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998.

Country of birth	Sex	%	LL 95 % CI	UL 95 % CI
Australia	Males	26.8	25.8	27.9
	Females	23.0	22.1	23.8
	Persons	24.8	24.2	25.5
UK & Ireland	Males	26.4	23.0	29.8
	Females	20.5	17.6	23.3
	Persons	23.5	21.3	25.7
New Zealand	Males	37.7	29.9	45.6
	Females	35.5	28.8	42.3
	Persons	36.6	31.4	41.7
Italy	Males	17.5	10.4	24.7
	Females	12.2	6.7	17.6
	Persons	14.5	10.1	18.9
China	Males	25.6	17.0	34.1
	Females	0.7	0.0	2.0
	Persons	12.4	8.2	16.6
Germany	Males	25.5	15.0	36.0
	Females	28.4	19.2	37.7
	Persons	27.3	20.3	34.2
Vietnam	Males	43.6	32.9	54.3
	Females	0.6	0.0	2.2
	Persons	21.5	15.4	27.6
Philippines	Males	25.6	13.8	37.5
	Females	7.4	2.4	12.4
	Persons	14.6	9.0	20.2
Lebanon	Males	42.6	30.2	55.1
	Females	27.5	18.4	36.6
	Persons	34.5	26.9	42.1
Netherlands	Males	20.4	11.6	29.2
	Females	24.9	14.2	35.6
	Persons	22.2	15.4	29.1
Former Yugoslavia	Males	26.2	16.1	36.3
	Females	28.6	17.1	40.1
	Persons	27.2	19.5	34.8
Greece	Males	22.3	12.3	32.2
	Females	14.0	5.6	22.4
	Persons	18.3	11.7	24.9
India	Males	22.8	11.7	33.9
	Females	3.9	0.0	9.5
	Persons	17.0	9.3	24.6
All	Males	26.8	25.8	27.7
	Females	21.4	20.7	22.2
	Persons	24.1	23.5	24.6

Note: Respondents were asked: 'Which of the following best describes your smoking status: I smoke daily, I smoke occasionally, I don't smoke now but I used to, I've tried it a few times but never smoked regulalrly, I've never smoked?'. Current smoking=daily + occasional smoking. LL/UL95%CI=lower/upper limits of 95 per cent confidence interval for the point estimate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Harmful or hazardous alcohol consumption by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998



Note: Respondents were asked: 'How often do you have an alcoholic drink of any kind?' and 'On a day that you have alcoholic drinks, how many "standard" drinks do you usually have?'. Hazardous/harmful alcohol use=Current drinker who usually consumes 3 or more (females) or 5 or more (males) drinks on a day when he or she consumes alcohol. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Alcohol is the second leading cause of drug-related death in Australia. It affects health in a number of ways, including acute physical effects, such as intoxication and alcohol overdose; chronic physical effects, such as cirrhosis and heart disease; and effects on the health of others, such as road trauma from drink driving, and alcohol-related violence (English et al. 1995).
- At the 1997 and 1998 NSW Health Surveys, NSW residents born in many overseas countries were less likely than the Australian-born to report hazardous or harmful alcohol consumption.
- Among men, reported rates of hazardous or harmful alcohol consumption ranged from less than two per cent among the Chinese-born, to 27.7 per cent among the New Zealand-born. Among women, rates ranged from one per cent or less among women born in China, Lebanon and India, to 30.5 per cent among the New Zealand-born.
- Men and women born in Italy, China, Vietnam, Lebanon, Greece and the former Yugoslavia, men born in Germany and women born in the Philippines and India were less likely to report hazardous or harmful alcohol consumption than the general population.
- Men and women born in Australia and New Zealand were more likely to report hazardous or harmful alcohol consumption than NSW residents overall.

For more information, see: English DR, Holman CDJ, Milne MG, et al. *The quantification of drug caused morbidity and mortality in Australia.* Canberra: Commonwealth Department of Human Services and Health, 1995.

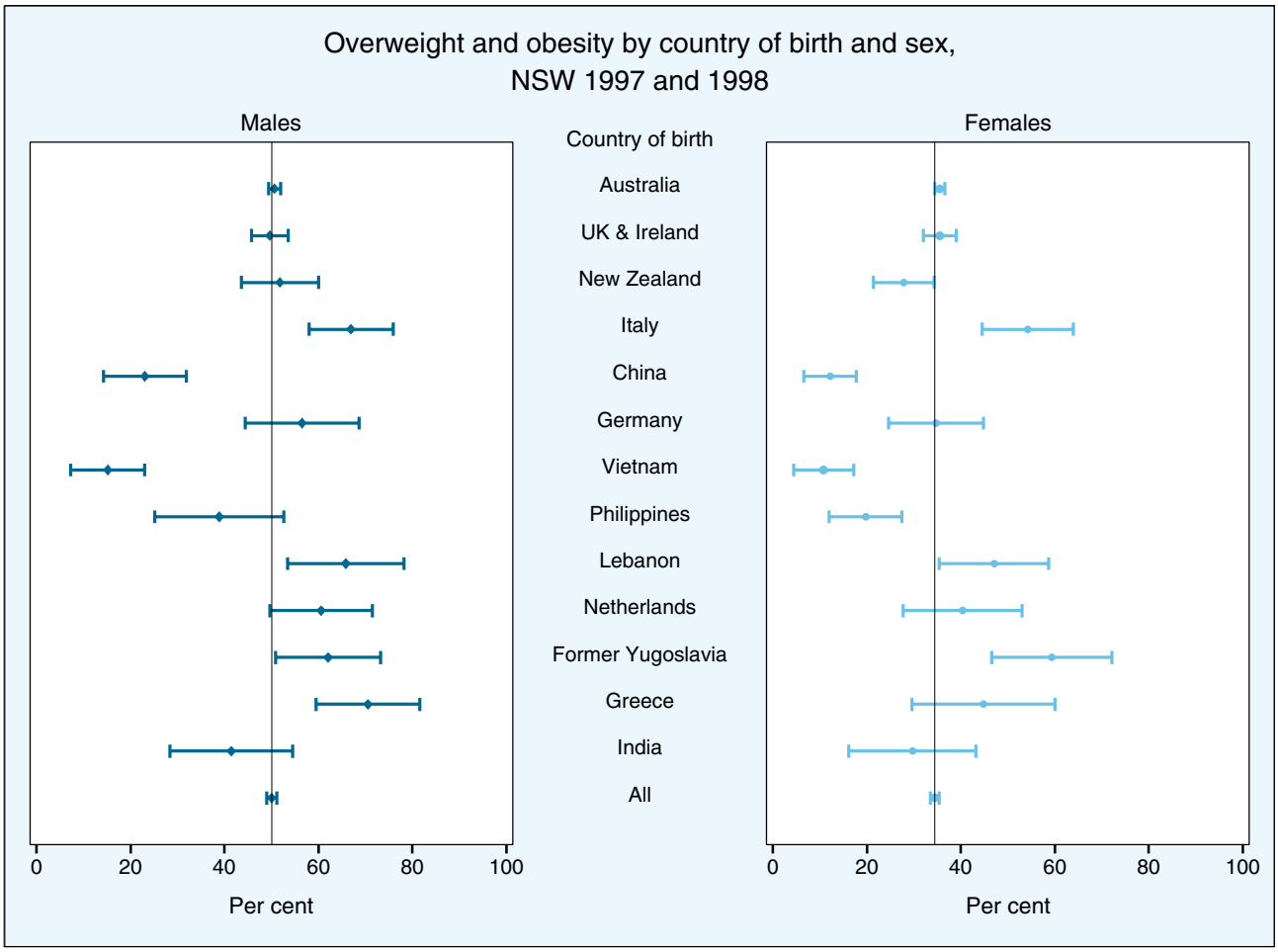
The NSW Health Survey 1997 report may be viewed at the NSW Health Department's Web site at: www.health.nsw.gov.au/public-health.

Hazardous or harmful alcohol consumption by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998.

Country of Birth	Sex	%	LL 95 % CI	UL 95 % CI
Australia	Males	21.2	20.2	22.1
	Females	22.4	21.6	23.3
	Persons	21.8	21.2	22.5
UK & Ireland	Males	16.7	13.8	19.5
	Females	17.4	14.7	20.0
	Persons	17.0	15.1	19.0
New Zealand	Males	27.7	20.5	34.9
	Females	30.5	24.0	37.0
	Persons	29.1	24.3	34.0
Italy	Males	3.0	0.0	6.2
	Females	6.5	2.4	10.6
	Persons	5.0	2.3	7.7
China	Males	1.7	0.0	4.2
	Females	1.0	0.0	2.7
	Persons	1.3	0.0	2.8
Germany	Males	2.6	0.0	6.4
	Females	13.1	6.2	20.0
	Persons	8.9	4.5	13.4
Vietnam	Males	11.4	4.5	18.2
	Females	1.4	0.0	3.9
	Persons	6.5	2.7	10.3
Philippines	Males	15.6	5.7	25.5
	Females	2.8	0.0	6.0
	Persons	7.9	3.6	12.2
Lebanon	Males	4.8	0.0	10.2
	Females	1.1	0.0	3.1
	Persons	2.8	0.2	5.4
Netherlands	Males	13.7	6.2	21.2
	Females	18.7	9.0	28.3
	Persons	15.7	9.8	21.7
Former Yugoslavia	Males	8.4	2.0	14.7
	Females	4.2	0.0	9.3
	Persons	6.6	2.4	10.9
Greece	Males	8.8	2.0	15.7
	Females	3.3	0.0	7.7
	Persons	6.2	2.1	10.3
India	Males	11.6	3.1	20.1
	Females	0.5	0.0	2.5
	Persons	8.1	2.5	13.7
All	Males	18.7	17.9	19.5
	Females	19.5	18.7	20.2
	Persons	19.1	18.5	19.6

Note: Respondents were asked: 'How often do you have an alcoholic drink of any kind?' and 'On a day that you have alcoholic drinks, how many "standard" drinks do you usually have?'. Hazardous/harmful alcohol use=Current drinker who usually consumes 3 or more (females) or 5 or more (males) drinks on a day when he or she consumes alcohol. LL/UL95%CI=lower/upper limits of 95 per cent confidence interval for the point estimate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



Note: Respondents were asked: 'How tall are you without shoes?' and 'How much do you weigh without clothes or shoes?' Body mass index (BMI) weight(kg)/height(m)*height(m). Overweight/obesity: BMI greater than or equal to 25. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Overweight or obesity is influenced by diet and physical activity. It predisposes people to cardiovascular disease, stroke, and diabetes.
- At the 1997/98 NSW Health Surveys, the prevalence of self-reported overweight and obesity varied by country of birth. Among men, it ranged from 15.1 per cent in the Vietnamese-born to 70.6 per cent in the Greek-born, while among women it ranged from 10.8 per cent in the Vietnamese-born to 59.3 per cent in women born in countries of the Former Yugoslavia.
- The prevalence of self-reported overweight or obesity was higher than in the general population among men and women from Italy and Lebanon, men from Greece and women from countries of the Former Yugoslavia.
- Self-reported overweight or obesity was less common among men and women from China and Vietnam, and women from the Philippines, than in the general population.
- Self-report underestimates the true prevalence of overweight and obesity (see page 40). It is not known whether the accuracy of self-report varies among country-of-birth groups.

For more information, see: The NSW Health Survey 1997 report may be viewed at the NSW Health Department's Web site at: www.health.nsw.gov.au/public-health.

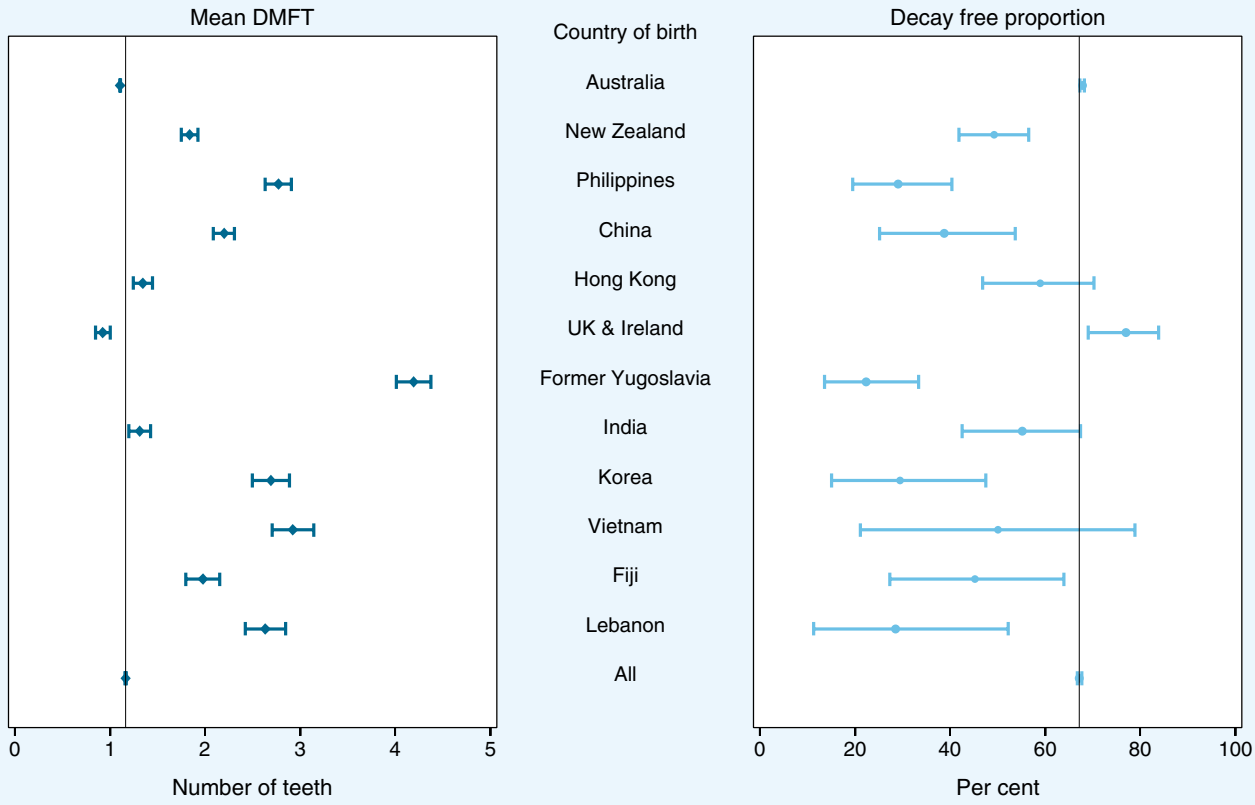
Overweight or obesity by country of birth and sex, persons aged 16 years and over, NSW 1997 and 1998.

Country of birth	Sex	%	LL 95 % CI	UL 95 % CI
Australia	Males	50.7	49.5	51.9
	Females	35.5	34.5	36.5
	Persons	43.0	42.2	43.8
UK & Ireland	Males	49.6	45.7	53.5
	Females	35.5	32.1	39.0
	Persons	42.9	40.3	45.5
New Zealand	Males	51.8	43.6	60.0
	Females	27.8	21.4	34.3
	Persons	39.5	34.2	44.9
Italy	Males	66.9	58.0	75.9
	Females	54.2	44.6	63.9
	Persons	60.5	53.8	67.1
China	Males	23.1	14.3	31.8
	Females	12.2	6.6	17.7
	Persons	17.2	12.2	22.2
Germany	Males	56.5	44.4	68.6
	Females	34.7	24.6	44.8
	Persons	43.6	35.7	51.6
Vietnam	Males	15.1	7.3	22.9
	Females	10.8	4.4	17.2
	Persons	12.9	7.9	17.9
Philippines	Males	38.9	25.1	52.6
	Females	19.7	11.9	27.5
	Persons	27.2	19.9	34.4
Lebanon	Males	65.8	53.5	78.2
	Females	47.1	35.4	58.7
	Persons	57.2	48.4	65.9
Netherlands	Males	60.6	49.7	71.5
	Females	40.3	27.7	53.0
	Persons	52.4	44.0	60.9
Former Yugoslavia	Males	62.1	50.9	73.2
	Females	59.3	46.5	72.2
	Persons	61.0	52.2	69.4
Greece	Males	70.6	59.5	81.6
	Females	44.8	29.6	60.0
	Persons	60.7	51.4	70.0
India	Males	41.5	28.4	54.5
	Females	29.7	16.2	43.2
	Persons	37.9	28.0	47.9
All	Males	50.0	49.0	51.1
	Females	34.4	33.5	35.3
	Persons	42.3	41.6	43.0

Note: Respondents were asked: 'How tall are you without shoes?' and 'How much do you weigh without clothes or shoes?'. Body mass index (BMI): weight(kg)/height(m)*height(m). Overweight/obesity: BMI greater than or equal to 25. LL/UL95%CI = lower/upper limits of 95 per cent confidence interval for the point estimate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Mean DMFT scores and decay free rate,
persons aged 5 to 12 years by country of birth, 1997 and 1998



Country of Birth	Mean DMFT	LL95% CI	UL95% CI	Decay free proportion	LL 95% CI	UL95% CI
Australia	1.1	1.1	1.1	67.3	68.3	
New Zealand	1.8	1.7	1.9	49.2	41.8	56.6
Philippines	2.8	2.6	2.9	29.1	19.4	40.4
China	2.2	2.1	2.3	38.8	25.2	53.8
Hong Kong	1.3	1.2	1.4	58.9	46.8	70.3
Former Yugoslavia	4.2	4.0	4.4	22.4	13.6	33.4
UK & Ireland	1.0	0.9	1.1	75.6	65.1	84.2
India	1.3	1.2	1.4	55.2	42.6	67.4
Other Middle East	2.6	2.5	2.8	41.0	28.6	54.3
Korea	2.7	2.5	2.9	29.4	15.1	47.5
Vietnam	2.9	2.7	3.1	50.0	21.1	78.9
Fiji	2.0	1.8	2.2	45.2	27.3	64.0
All	1.2	1.2	1.2	67.2	66.7	67.7

Note: Mean DMFT is the mean number of teeth affected by decay, including teeth filled or missing because of decay. Mean DMFT scores for children aged 5 to 12 years reflect caries experience in primary and permanent teeth. LL/UL95%CI = lower/upper limits of 95 per cent confidence interval for the point estimate.

Source: Save Our Kids Smiles (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Oral health of children is most commonly assessed by their dental caries (decay) experience. The score for decayed, missing or filled teeth (DMFT) is the sum of the number of teeth affected by decay, including teeth filled or missing because of decay.
- These data come from Save Our Kids Smiles (SOKS), a schools-based risk assessment and managed care program for NSW children in years K, 2, 4, 6 and 8.
- In 1997 and 1998, children born in many overseas countries had, on average, more teeth affected by decay than did Australian-born children.
- Sub-optimal oral hygiene in many overseas countries, as well as changes to a diet rich in sugar upon migration, may contribute to the poor oral health status of many children born overseas.

For more information, see: NSW Department of Health. *NSW Public Health Bulletin (Oral Health series)* [10(3), 10(4) 10(5) and 10(8)]. Sydney: NSW Department of Health, 1999.

National Health Strategy. *Improving dental health in Australia, National Health Strategy — Background paper no. 9.* Canberra: Commonwealth Department of Health, Housing and Community Services, 1992.

Chapter 3.2

Aboriginal and Torres Strait Islander peoples

- At the 1996 Census, the indigenous population in NSW numbered 109,925 —more than one-quarter of the national indigenous population.
- Aboriginal and Torres Strait Islander people constituted 1.8 per cent of the NSW population at the 1996 census.
- In 1996, 40 per cent of the NSW indigenous population was aged less than 15 years compared with 21 per cent of the non-indigenous population, while less than three per cent of the indigenous population was aged 65 years and over compared with 13 per cent of the non-indigenous population.
- Aboriginal people are socially disadvantaged compared to the rest of the community, with higher rates of unemployment, lower family weekly income and higher rates of families living in rented accommodation.
- In the period 1990 to 1998, rates of prematurity, low birth-weight and perinatal mortality were one and a half to two times higher among babies of indigenous mothers compared to babies of non-indigenous mothers.
- In 1998, the reporting of indigenous status on death certificates improved, making it possible to examine indigenous mortality rates for the first time in NSW. After taking age into account, the death rate of indigenous people was about 42 per cent higher than non-indigenous people.
- Results of the 1997 and 1998 NSW Health Surveys indicate that there were higher rates of smoking and hazardous or harmful alcohol consumption in the indigenous as compared to the non-indigenous people of NSW.
- The 1997 and 1998 NSW Health Surveys also showed a higher level of psychosocial distress, as measured by a standard questionnaire (K10), among indigenous people compared with non-indigenous people. This was particularly apparent among younger and older indigenous people.

In this chapter

Introduction

A range of issues affect the quality of available data about the health of the Aboriginal and Torres Strait Islander people of NSW, making interpretation of these data especially difficult. Even data about the number of indigenous people in the population (which are used to calculate rates) must be treated with caution. Estimates of the indigenous population have risen markedly in successive Censuses, with increasing participation by indigenous people, and increasing willingness to self-identify as an Aboriginal or Torres Strait Islander person. This report uses ABS population estimates and projections based on the 1996 Census. Reported rates may therefore differ from those given in the 1997 edition of this report.

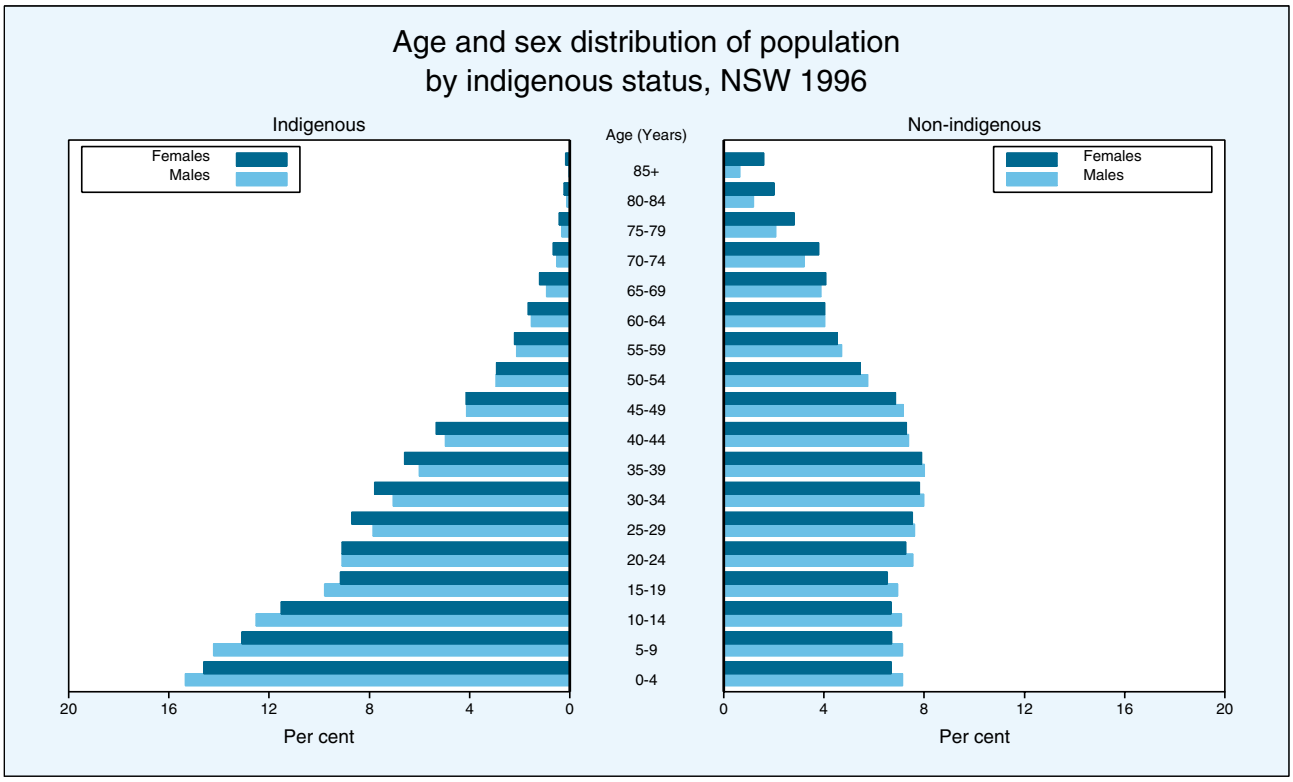
Indigenous status is substantially under-reported in both death and hospital morbidity data in NSW. It is reasonable to expect that the percentage of deaths and hospital separations in Aboriginal people would be approximately the same or greater than the percentage of Aboriginal people in the total population. Between 1991 and 1997, however, the percentage of recorded Aboriginal deaths (an average of 0.5 per cent) was consistently well below the percentage of Aboriginal people in the population (an average of 1.8 per cent). There was, however, an improvement of the recording of Aboriginal deaths in 1998, with the proportion of Aboriginal deaths rising to 1.0 per cent.

Between 1991/92 and 1997/98, the recording of Aboriginal hospitalisations was consistently better than that for deaths. However, on average 1.6 per cent of hospitalisations were for Aboriginal or Torres Strait Islander people, compared with 1.8 per cent of Aboriginal people in the population. A state-wide project to improve the recording of Aboriginality in health care settings is currently being undertaken as part of the NSW Aboriginal Health Information Strategy.

Estimates of the prevalence of health conditions and behaviours among Aboriginal people derived from the available sources of health survey data vary quite markedly. This reflects differences in sampling methods, modes of administration, and in the propensity of Aboriginal people to self-identify and to participate in surveys.

NSW Health is committed to improving health outcomes for Aboriginal people. The NSW Aboriginal Health Strategic Plan identifies the following key priorities: improving access to health services; addressing certain areas, in particular diabetes and diseases of the circulatory system, eye health, maternal health, infant and child health, and oral health; improving social and emotional well being; increasing the effectiveness of health promotion; and creating an environment supportive of good health.

For more information, see: NSW Health Department. *New South Wales Aboriginal Health Strategic Plan*. Sydney: NSW Health Department, 1999. This document may be viewed at the NSW Health Department's Web site at http://www.health.nsw.gov.au/health-public-affairs/ahealth.



Note: Population as at 30 June 1996.

Source: Australian Bureau of Statistics population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

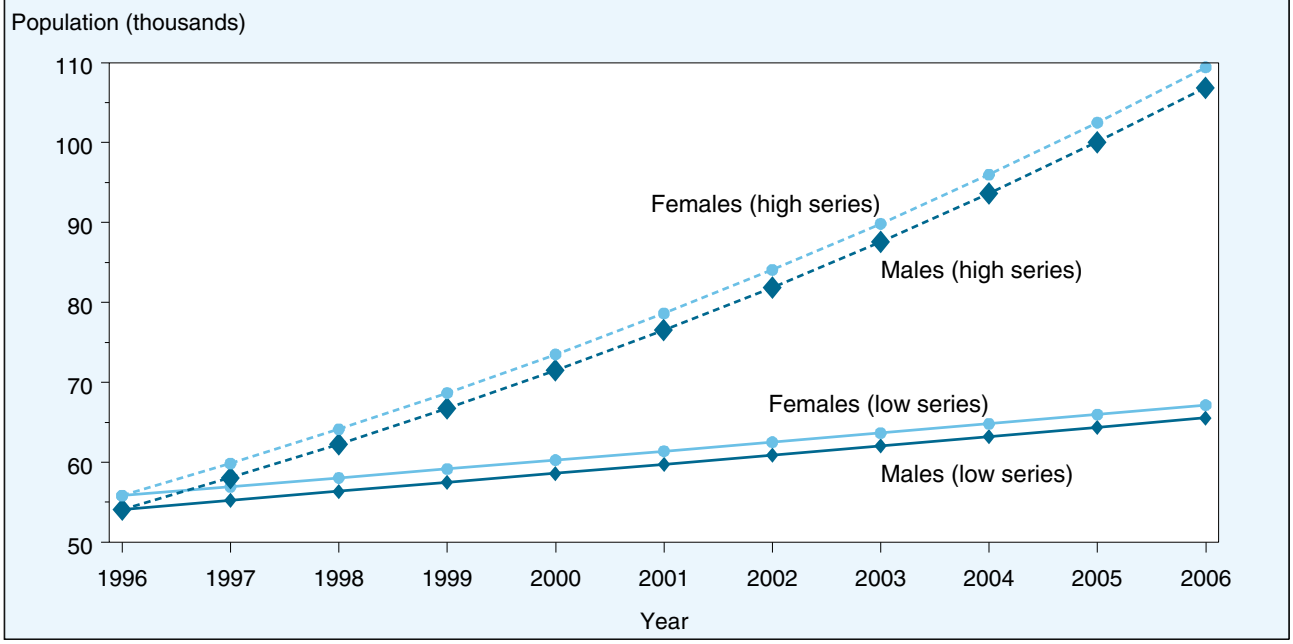
- At the 1996 Census, the age distributions of indigenous and non-indigenous people in NSW were quite different. As can be seen from the population pyramid, the indigenous population has more younger people and fewer older people compared with the non-indigenous population.
- The proportion of the indigenous population that was under 15 years of age was 40.7 per cent compared to 21.1 per cent for the non-indigenous population. Persons aged 65 years and over comprised 2.5 per cent of the indigenous population compared to 12.6 per cent of the non-indigenous population.
- The median age for the indigenous population was 19.9 years compared to the non-indigenous population median of 34.4 years.
- Almost 60 per cent (58.8 per cent) of indigenous people over 65 years of age were females, reflecting the relatively higher rate of premature deaths among indigenous males.
- The shape of the indigenous population pyramid reflects higher death rates and shorter life expectancy than the non-indigenous population.
- Estimates of life expectancy have not been available for indigenous people in NSW due to incomplete reporting of indigenous status on death certificates. However, reporting improved in 1998. Preliminary analyses indicate that somewhere between 47 and 84 per cent of all indigenous deaths were reported in that year. If reporting of indigenous status continues to improve, it is hoped that figures for the life expectancy of indigenous people in NSW will be available for the next edition of this report.

For more information, see: Australian Bureau of Statistics. *Aboriginal and Torres Strait Islander People, New South Wales.* Catalogue no. 2034.1. Canberra: ABS, 1998.

Australian Institute of Health and Welfare 1998. *Australia' s Health 1998: the sixth biennial health report of the Australian Institute of Health and Welfare.* Canberra: AIHW, 1998.

Anderson P, Bhatia K and Cunningham J. *Occasional paper: Mortality of indigenous Australians.* Catalogue no. 3315. Canberra: ABS, 1996.

Projected indigenous population
by sex, NSW 1996 to 2006



Sex		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Males	(low series)	54103	55232	56360	57484	58613	59749	60881	62029	63194	64366	65554
Females	(low series)	55822	56935	58051	59168	60282	61393	62524	63663	64812	65982	67162
Persons	(low series)	109925	112167	114411	116652	118895	121142	123405	125692	128006	130348	132716
Males	(high series)	54103	58060	62269	66743	71492	76527	81887	87583	93637	100069	106889
Females	(high series)	55822	59852	64133	68678	73502	78632	84071	89850	95992	102510	109434
Persons	(high series)	109925	117912	126402	135421	144994	155159	165958	177433	189629	202579	216323

Note: Projected indigenous population as at 30 June each year.

Source: Australian Bureau of Statistics. *30 June 1996 – 30 June 2006 Experimental projections of the Aboriginal and Torres Strait Islander Population.* Catalogue no. 3231.0. Canberra: ABS, 1998.

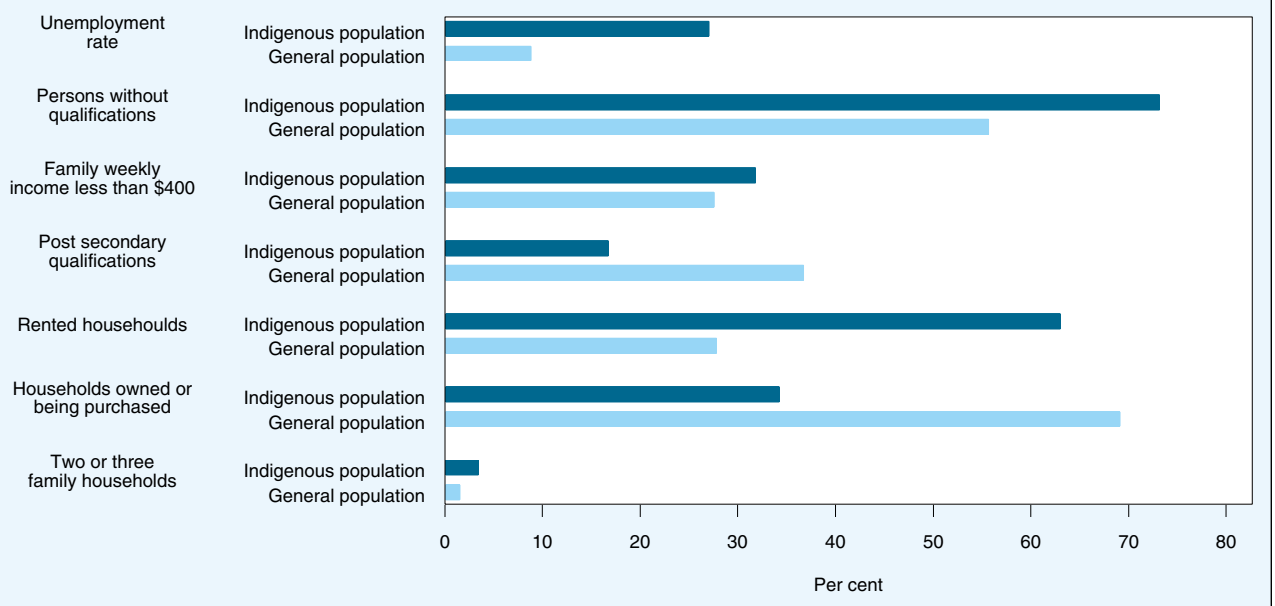
- The estimated indigenous population in Australia at 30 June 1996 was 386,049. In NSW, the indigenous population was estimated to be 109,925—the largest of any State or Territory, and 28.5 per cent of the national indigenous population. Aboriginal and Torres Strait Islander people comprised 1.8 per cent of the total NSW population.
- Assuming that recent trends in births and deaths do not change, it is expected that the Aboriginal and Torres Strait Islander population in NSW will increase to about 133,000 by 2006, shown as the low series in the graph.
- There is evidence that, with time, more indigenous people are participating in the national Census, and more indigenous people are willing to identify themselves as Aboriginal or Torres Strait Islander. If this continues the number of indigenous people in NSW will increase to about 216,000 in 2006, shown as the high series in the graph.

For more information, see: Australian Bureau of Statistics. *30 June 1996–30 June 2006: Experimental Projections of the Aboriginal and Torres Strait Islander population.* Catalogue no. 3231.0. Canberra: ABS, 1998.

Australian Bureau of Statistics. *Aboriginal and Torres Strait Islander People, New South Wales.* Catalague no. 2034.1. Canberra: ABS, 1998.

Australian Bureau of Statistics. *Aboriginal and Torres Strait Islander people, Australia.* Catalogue no. 2034.0. Canberra: ABS, 1998.

Socioeconomic factors among indigenous people and the general population, NSW 1996



Socioeconomic factor	Indigenous population (per cent)	General population (per cent)
Unemployment rate	27.1	8.8
Persons aged 15 yrs and over without qualifications	73.2	55.7
Family weekly income less than $400	31.8	27.6
Attainment of post-secondary qualifications	16.7	36.7
Rented households	63.0	27.8
Households owned or being purchased	34.2	69.1
Two or three family households	3.4	1.5

Source: Australian Bureau of Statistics 1996 Indigenous Profiles (HOIST). Epidemiology and Surveillance Branch, NSW Health Department. Australian Bureau of Statistics. *Census of Population and Housing, Aboriginal and Torres Strait Islander People New South Wales*. Catalogue no. 2034.1. Canberra: ABS, 1998.

- The association between socioeconomic status and health is well documented, with lower socioeconomic status associated with poorer health. Social disadvantage causes poor health through income, education, living conditions, working conditions, social support, behavioural influences, and differential access to health care.
- The indigenous population in 1996 had an unemployment rate over three times that of the general population, and were more than twice as likely to live in rented accommodation.
- Almost one third of indigenous families lived on less than $400 a week, compared to one in five non-indigenous families.
- The proportion of indigenous people who had obtained post-secondary qualifications rose from 13.7 per cent at the 1991 Census to 16.7 per cent at the 1996 Census. However, in 1996 indigenous people were still only half as likely as the general population to have obtained post-secondary qualifications.
- For information on the social determinants of health and the impact of socioeconomic status on health, see Chapters 1.2 and 3.5.

For more information, see: Australian Bureau of Statistics. *Aboriginal and Torres Strait Islander People, New South Wales.* Catalogue no. 2034.1. Canberra: ABS, 1996.

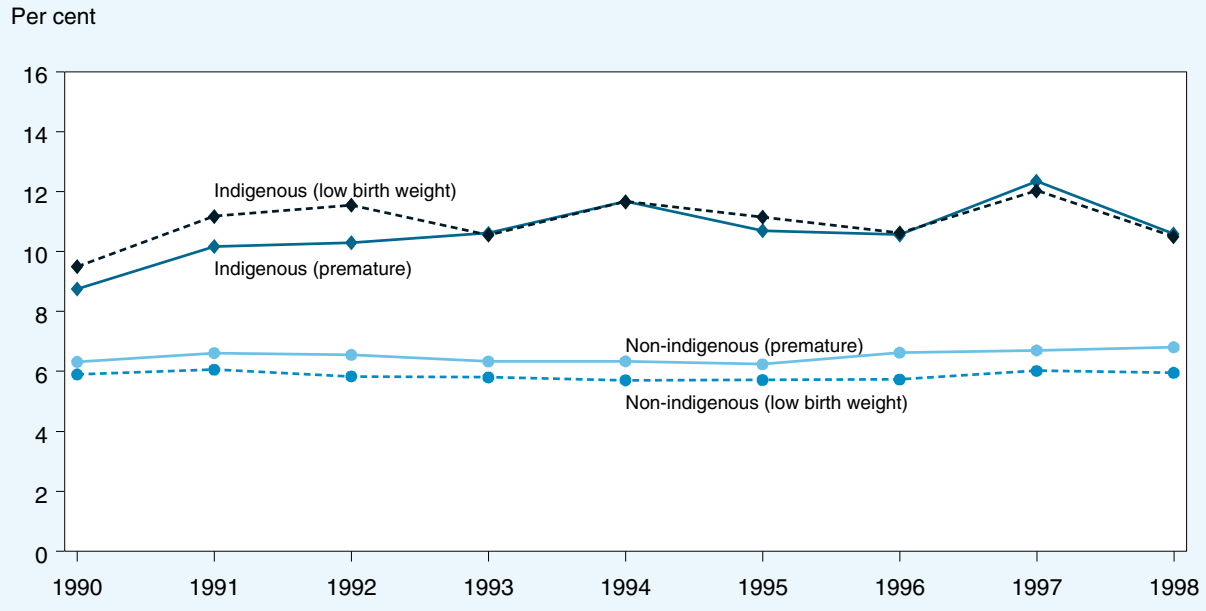
Aboriginal and Torres Strait Islander Commission. *As a matter of fact: Answering the myths and misconceptions about indigenous Australians*. Canberra: ATSIC Office of Public Affairs, 1998. This report may be obtained from the ATSIC Web site at http://www.atsic.gov.au.

Australian Bureau of Statistics. *Housing Characteristics and Conditions, National Aboriginal and Torres Strait Islander Survey*. Catalogue no. 4187.0. Canberra: ABS, 1996.

Australian Bureau of Statistics. *1994 National Aboriginal and Torres Strait Islander Survey - Sydney ATSIC Region. Catalogue no. 4196.0.00.004.* Canberra: ABS, 1996

Centre for Aboriginal Economic Policy Research web site at: http://www.anu.edu.au/caepr.

Premature and low birth weight babies
by mother's indigenous status, NSW 1990 to 1998



			1990	1991	1992	1993	1994	1995	1996	1997	1998
Premature	Number	Indigenous	106	142	149	156	180	188	182	229	219
		Non-indigenous	5454	5656	5737	5474	5480	5341	5614	5782	5735
		Total	5560	5798	5886	5630	5660	5529	5796	6011	5954
	%	Indigenous	8.7	10.2	10.3	10.6	11.7	10.7	10.6	12.4	10.6
		Non-indigenous	6.3	6.6	6.6	6.3	6.3	6.2	6.6	6.7	6.8
		Total	6.4	6.7	6.6	6.4	6.4	6.3	6.7	6.8	6.9
Low birth weight	Number	Indigenous	115	156	167	155	180	196	183	223	217
		Non-indigenous	5093	5182	5107	5013	4932	4895	4855	5191	5016
		Total	5208	5338	5274	5168	5112	5091	5038	5414	5233
	%	Indigenous	9.5	11.2	11.5	10.5	11.7	11.1	10.6	12.0	10.5
		Non-indigenous	5.9	6.1	5.8	5.8	5.7	5.7	5.7	6.0	6.0
		Total	5.9	6.1	5.9	5.9	5.8	5.8	5.8	6.1	6.1

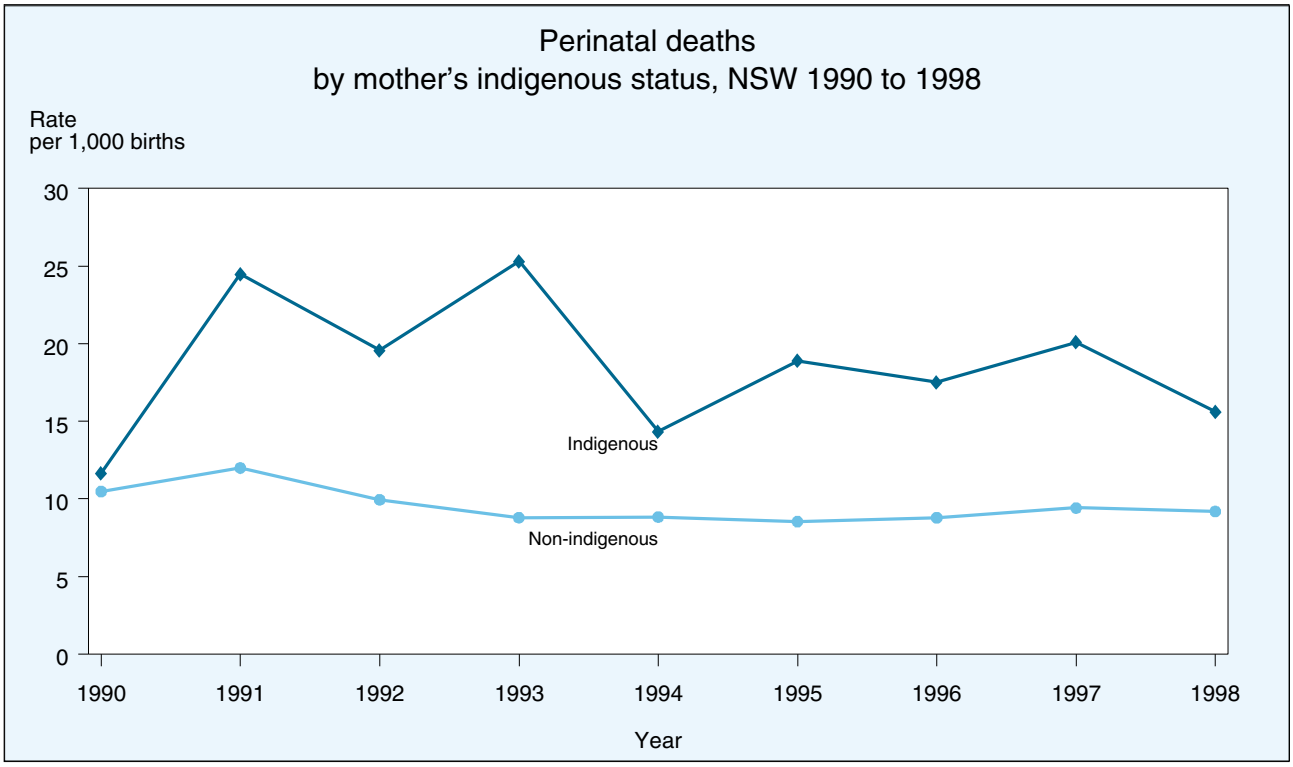
Note: Babies for which gestational age was less than 37 weeks were classified as premature births. Babies with birth-weight less than 2,500 grams were classified as low birth-weight. Infants with birth-weight of at least 400 grams or of at least 20 weeks gestation were included. Births for which mother's indigenous status was not stated were classified as non-indigenous.

Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1998, 2,068 babies were born to indigenous mothers in NSW, representing 2.4 per cent of all births. As the NSW Midwives Data Collection only collects information on the indigenous status of mothers, this is an underestimate of the total number of indigenous babies born.
- Since 1991, the rate of low birth-weight (less than 2,500 grams) in indigenous babies has been over 10 per cent. It was 10.5 per cent in 1998. This is substantially higher than the rate for NSW overall, which was 6.0 per cent in 1998.
- Similarly, the rate of prematurity in indigenous babies has been over 10 per cent since 1991 and was 10.6 per cent in 1998. The overall rate of prematurity in NSW was 6.8 per cent.
- In 1998, the highest rates of prematurity and low birth-weight among indigenous babies were in Central Sydney and Far West Areas (15.3 per cent in both Areas for prematurity, and 19.4 and 16.5 per cent respectively for low birth-weight).
- Smoking is a risk factor for both low birth-weight and prematurity. In 1998, 58.3 per cent of Aboriginal mothers reported smoking in pregnancy compared with 18.9 per cent of all mothers.

For more information, see: Day P, Sullivan EA, Ford J et al. *Australia's Mothers and Babies 1997*. Sydney: AIWH National Perinatal Statistics Unit, 1999.

Taylor L and Pym M. *New South Wales Mothers and Babies 1997*. Sydney: NSW Health Department, 1998. This publication is available on the NSW Health Departments Web site at http://www.health.nsw.gov.au/public-health/mdc97.



		1990	1991	1992	1993	1994	1995	1996	1997	1998
Perinatal deaths	Indigenous	14	34	28	37	22	33	30	37	32
	Non-indigenous	891	1016	863	753	757	725	738	806	768
	Total	905	1050	891	790	779	758	768	843	800
Rate per 1,000 births	Indigenous	11.6	24.5	19.6	25.3	14.4	18.9	17.5	20.1	15.6
	Non-indigenous	10.5	12.0	9.9	8.8	8.8	8.5	8.8	9.4	9.2
	Total	10.5	12.2	10.1	9.1	8.9	8.7	9.0	9.6	9.3

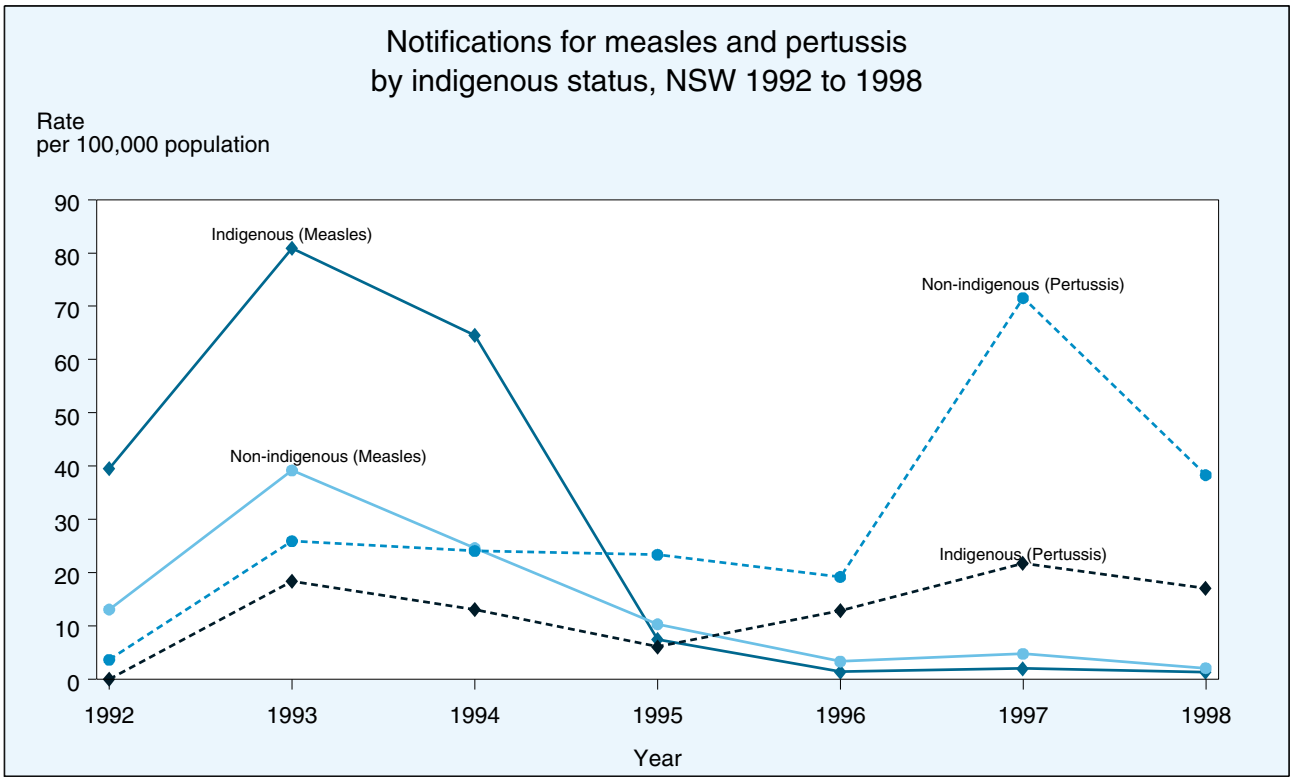
Note: Deaths within 28 days of birth were classified as perinatal deaths. Infants of at least 400 grams birth-weight or, where birth-weight is not available, at least 20 weeks' gestation were included. Births for which mother's indigenous status was not stated were classified as non-indigenous.

Source: NSW Midwives Data Collection and ABS perinatal mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Due to poor reporting of indigenous status on perinatal death certificates in NSW, the most reliable source of information on indigenous perinatal mortality in NSW is the NSW Midwives Data Collection (MDC). As the MDC only collects information on the indigenous status of mothers, this is an underestimate of the total number of indigenous babies. Also, some neonatal deaths, which occur after transfer or discharge from the hospital of birth, may not be reported to the MDC.
- Over the period 1990 to 1997, the perinatal mortality rate for indigenous babies in NSW varied from 11.6 to 25.3 per 1,000. This variation was primarily due to the relatively small number of perinatal deaths among Aboriginal babies, but may also reflect variations in the recording of indigenous status. These rates are higher than those reported in the *1997 Chief Health Officer's Report* due to the inclusion of deaths of babies of at least 400 grams birth weight or, if birth weight is not available, of at least 20 weeks gestation.
- Over this period the perinatal mortality rate was consistently higher among babies of indigenous mothers compared with non-indigenous mothers. Generally, the perinatal mortality rate for babies of indigenous mothers was about twice that for babies overall.
- In the period 1994 to 1996, the reported perinatal mortality rate for babies of indigenous mothers was 21.8 per 1,000 for Australia overall compared to 16.3 per 1,000 in NSW. The NSW rate was the lowest of all Australian States and Territories.

For more information, see: Day P, Sullivan EA, and Lancaster P. *Indigenous mothers and their babies Australia 1994–1996.* Sydney: AIHW National Perinatal Statistics Unit, 1999.

Taylor L and Pym M. *New South Wales Mothers and Babies 1997.* Sydney: NSW Health Department, 1998. This publication is available on the NSW Health Department's Web site at http://www.health.nsw.gov.au/public-health/mdc97.



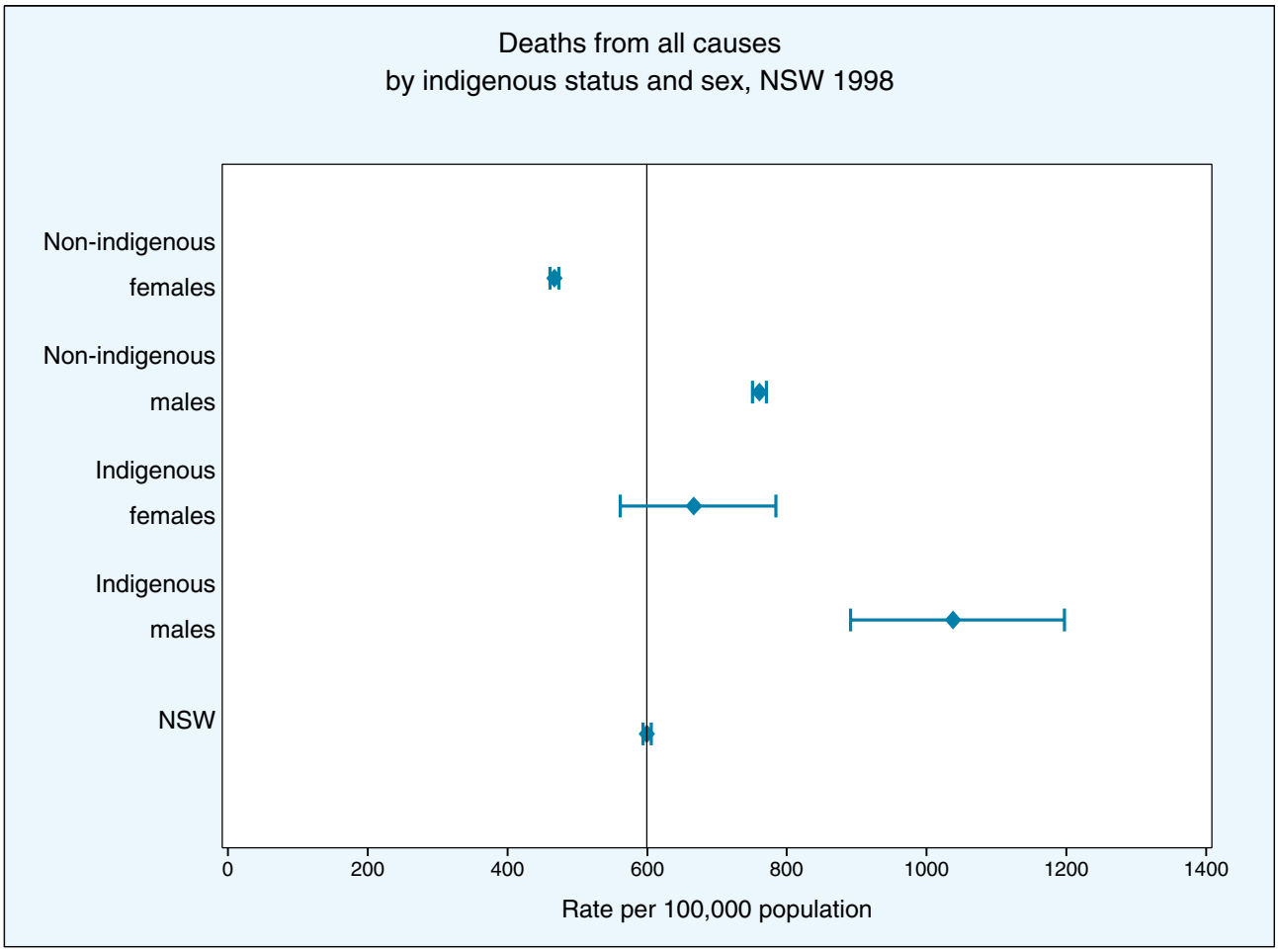
			1992	1993	1994	1995	1996	1997	1998
Notifications	Indigenous	Measles	73	150	115	14	3	4	3
		Pertussis	0	25	22	11	21	35	31
	Non-indigenous	Measles	726	2166	1361	574	187	265	116
		Pertussis	204	1470	1380	1351	1130	4187	2280
Rate per 100,000	Indigenous	Measles	39.5	80.9	64.6	7.5	1.4	2.0	1.4
		Pertussis	0.0	18.3	13.0	6.1	12.9	21.8	17.1
	Non-indigenous	Measles	13.1	39.2	24.6	10.3	3.3	4.8	2.1
		Pertussis	3.6	25.9	24.1	23.4	19.2	71.5	38.3

Note: Notifications where indigenous status was not stated were classified as non-indigenous. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source NSW Notifiable Diseases database and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Indigenous status was reported for only 49 per cent of all notifications for vaccine-preventable diseases in NSW in the period 1992–1998. The data presented here should be interpreted with caution as notifications where the indigenous status was not stated were classified as non-indigenous.
- Outbreaks of measles in the indigenous community in the period 1992 to 1994, and pertussis in 1997, are evident from the high notification rates for these years. The number of notifications of other vaccine preventable diseases for indigenous people is very low, with only nine notifications of rubella, six of *Haemophilus influenzae* type b, and three of mumps over the period 1992 to 1998. There were no tetanus notifications for indigenous people over the same period.
- There are no current statewide data on vaccination rates among indigenous children in NSW.

For more information, see: Communicable diseases on the the National Aboriginal and Torres Strait Islander Health Clearinghouse Web site at http://www.cowan.edu.au/clearinghouse/health.



	Sex	Deaths	Rate/100,000	LL95 % CI	UL95 % CI
Indigenous	Males	272	1037.4	891.3	1197.4
	Females	183	666.9	561.6	784.4
	Persons	455	847.0	758.0	942.3
Non-indigenous	Males	23112	760.3	750.4	770.2
	Females	20977	467.2	460.7	473.8
	Persons	44089	596.4	590.8	602.1
Total	Males	23384	764.3	754.5	774.3
	Females	21160	469.7	463.2	476.2
	Persons	44544	599.7	594.1	605.3

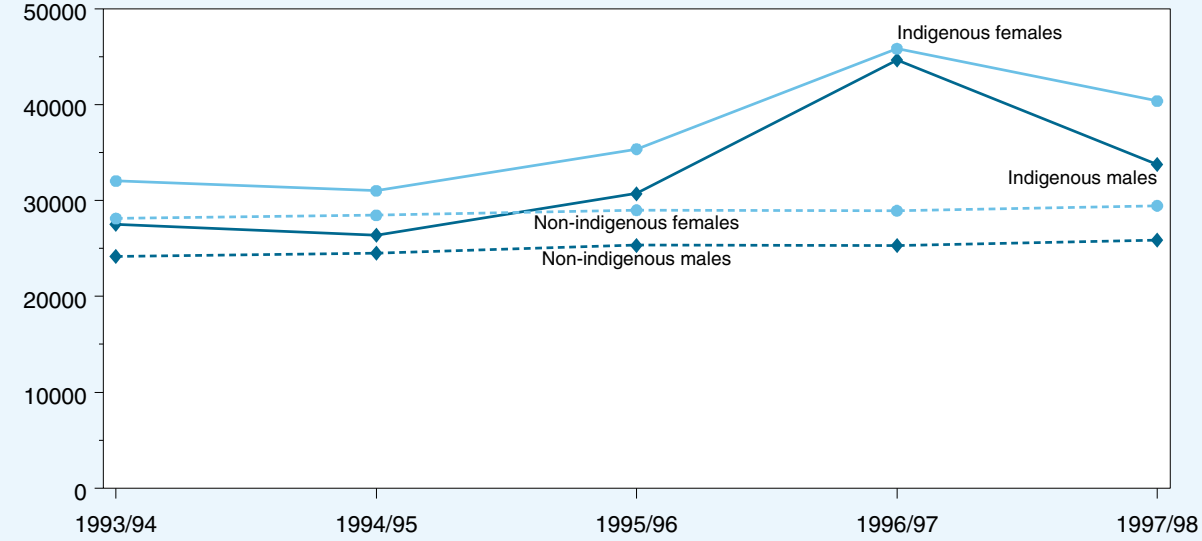
Note: Rates are for deaths registered in 1998. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95% CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: Australian Bureau of Statistics mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Registrations of indigenous deaths in NSW improved in 1998 compared with previous years. In 1998, 455 indigenous deaths were registered, compared with 88 in 1997 and 175 in 1996. However, preliminary analyses suggest that the 1998 figures still represented only somewhere between 47 and 84 per cent of total expected indigenous deaths in NSW.
- After taking age into account, the mortality rates for both sexes among indigenous people were about 42 per cent higher than among non-indigenous people.
- Deaths among indigenous people were more likely to occur at younger ages. Deaths in people aged less than 25 years made up 15 per cent of indigenous deaths compared with three per cent of non-indigenous deaths; and deaths in the 25–44 year age group comprised 22 per cent of indigenous deaths compared with five per cent of non-indigenous deaths. Deaths among people aged 65 years and over comprised only 27 per cent of indigenous deaths, compared to 79 per cent of non-indigenous deaths.

For more information, see: Anderson P, Bhatia K and Cunningham J. *Occasional paper: Mortality of indigenous Australians*. Catalogue no. 3315. Canberra: ABS, 1996.

Hospital separations for all causes
by indigenous status and sex, NSW 1993/94 to 1997/98



		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Indigenous	Number	Males	11029	10712	12292	16253	14106
		Females	14017	13630	15483	19241	18711
		Persons	25046	24342	27775	35494	32817
Non-indigenous		Males	747645	770154	809131	822293	855520
		Females	896429	921103	955933	970089	1001465
		Persons	1644074	1691257	1765064	1792382	1856985
Indigenous	Rate per 100,000	Males	27497.4	26375.1	30724.8	44655.2	33739.8
		Females	32032.9	31018.2	35363.7	45834.2	40371.2
		Persons	29741.5	28755.3	33068.1	45024.9	36987.7
Non-indigenous		Males	24169.4	24509.2	25332.2	25310.5	25878.6
		Females	28132.5	28455.9	28993.0	28936.6	29456.5
		Persons	26027.9	26363.8	27050.1	27025.6	27570.9

Note: Records where indigenous status was not stated were classified as non-indigenous. NSW population estimates as at 31 December each year. Rates were age-adjusted using the Australian population as at 30 June 1991.

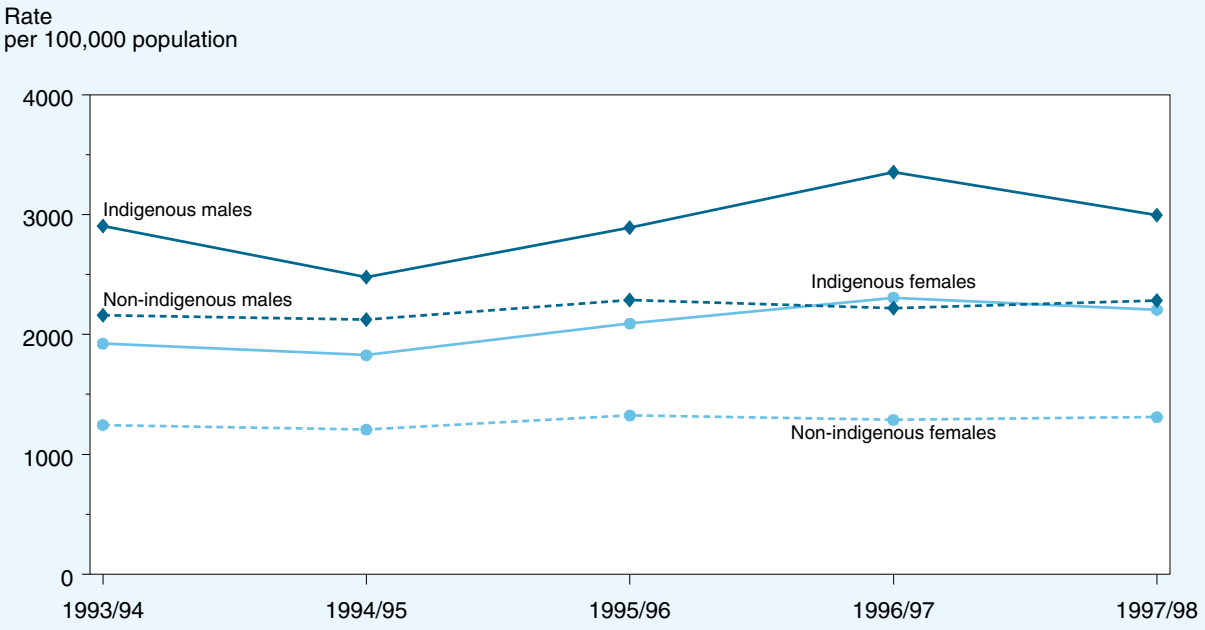
Source: NSW Inpatient Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Indigenous status is likely to be substantially under-reported in NSW hospital morbidity data. Despite this, age-adjusted hospital separation rates for all causes among indigenous people were consistently higher than those for non-indigenous people over the period 1993/94 to 1997/98.
- Data for hospital separations should be interpreted with caution. They are influenced by access to, and demand for, hospital services; as well as need for services (health status). They also represent episodes of care rather than persons (a person can be hospitalised more than once).
- Nevertheless, the relatively high rate of hospitalisation of indigenous people shown here clearly indicates that indigenous people continue to suffer a disproportionate burden of moderate to severe illness.
- In 1997/98 the most common conditions causing hospitalisation of indigenous people were respiratory diseases (11.4 per cent), pregnancy related conditions (10.7 per cent), and injury and poisoning (8.5 per cent).

For more information, see: Australian Bureau of Statistics and Australian Institute of Health and Welfare. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples.* Catalogue no. 4704.0. Canberra: ABS, 1999.

Australian Institute of Health and Welfare. *Australia's health 1998: the sixth biennial health report of the Australian Institute of Health and Welfare.* Canberra: AIHW, 1998.

Hospital separations for injury and poisoning by indigenous status and sex, NSW 1993/94 to 1997/98



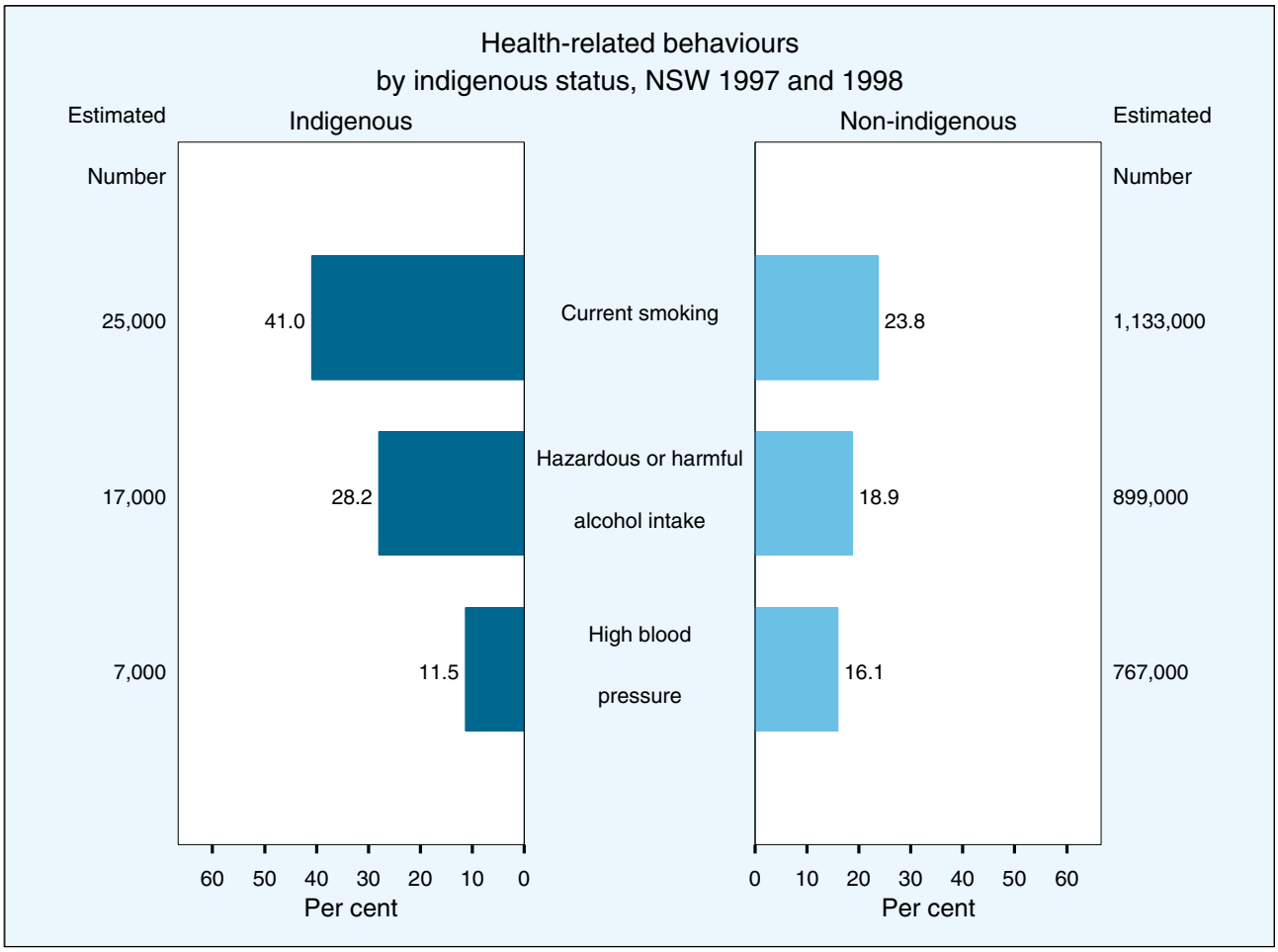
		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Indigenous	Number	Males	1365	1205	1442	1611	1542
		Females	962	903	1048	1124	1174
		Persons	2327	2108	2490	2735	2716
Non-indigenous		Males	63496	62944	68526	67427	69970
		Females	41868	41337	45866	45779	47452
		Persons	105364	104281	114392	113206	117422
Indigenous	Rate per 100,000	Males	2905.2	2477.8	2889.4	3353.3	2994.4
		Females	1923.5	1826.5	2090.6	2306.9	2206.6
		Persons	2391.8	2142.0	2481.9	2824.8	2588.4
Non-indigenous		Males	2159.0	2122.2	2286.2	2221.0	2282.2
		Females	1244.3	1206.8	1324.7	1287.0	1310.8
		Persons	1714.3	1676.7	1817.8	1765.5	1808.5

Note: Injury and poisoning was classified according to the ICD-9 external cause codes E800–E869, E880–E929 and E950–E999. Records where indigenous status was not stated were classified as non-indigenous. Rates were age-adjusted using the Australian population as at 30 June 1991. NSW population estimates as at 31 December each year.

Source: NSW Inpatient Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Indigenous status is substantially under-reported in NSW hospital morbidity data. Nevertheless, age-adjusted hospital separation rates for injury and poisoning among indigenous people were consistently higher than the rates for non-indigenous people over the period 1993/94 to 1997/98.
- Age-adjusted hospital separation rates for injury and poisoning were higher for males than for females in both the indigenous and non-indigenous population.
- The most common causes of injury-related hospital separations among indigenous people were falls (22 per cent), interpersonal violence (21 per cent), transport accidents (10 per cent), suicide and self-inflicted injury (seven per cent), and poisoning (six per cent).
- While reporting of indigenous deaths improved in NSW in 1998 compared to previous years, there is insufficient information at present to comment on the patterns of causes of death. However, in Western Australia, South Australia and the Northern Territory combined, in the period 1995 to 1997, death rates from injury and poisoning among indigenous people were three times the rates for non-indigenous people.

For more information, see: Australian Bureau of Statistics and Australian Institute of Health and Welfare. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples.* Catalogue no. 4704.0. Canberra: ABS, 1999.



Note: Current smoking: daily or occasional smoking. Hazardous/harmful alcohol intake: Current drinker who usually consumes three or more (females) or five or more (males) standard drinks in a day when alcohol is consumed. High blood pressure: self-report of doctor-diagnosed high BP. Rates are for persons aged 16 years and over.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

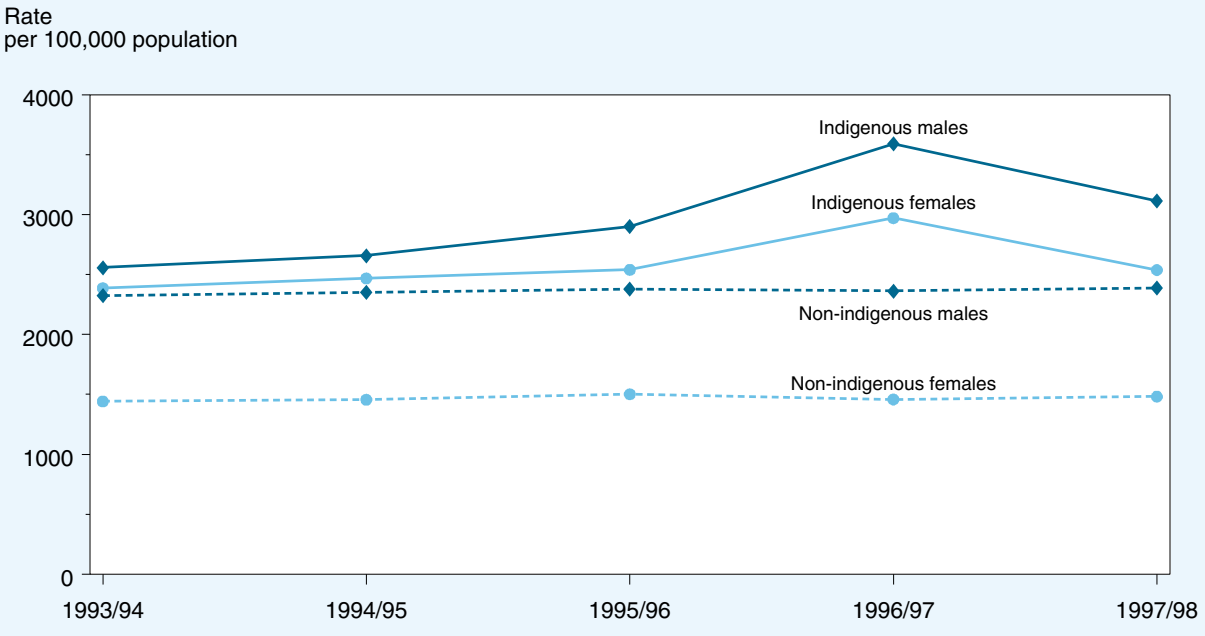
- The reported prevalence of health-related behaviours varies quite markedly among the available sources of survey data for Aboriginal and Torres Islander peoples. These differences may be explained by variations among surveys in the sampling and interview methods used, as well as differences in Aboriginal participation and self-identification.
- The NSW Health Surveys exclude people without telephones in their household and those who do not consent to be interviewed by telephone. This should be borne in mind when interpreting the survey data.
- In the NSW Health Surveys, 41.0 per cent of indigenous people aged 16 years and over reported smoking on a daily or occasional basis. This is lower than the 51 per cent of indigenous people aged 13 years or more who reported that they smoked daily at the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS).
- In 1997 and 1998, 28.2 per cent of indigenous people reported alcohol consumption at a hazardous or harmful level. The 1994 National Drug Strategy (NDS) household survey reported alcohol consumption rates about 20 per cent higher than this in the urban indigenous population in NSW. Rates were also 12 per cent higher in the non-indigenous population in this survey. The higher rates may result from the NDS data being collected as a self-administered, confidential sealed survey.
- In the 1997 and 1998 NSW Health Surveys rates of self-reported high blood pressure were lower in indigenous people compared to non-indigenous people. However, this may reflect lower levels of detection among indigenous people, rather than a real difference in the prevalence of high blood pressure.

For more information, see: Australian Bureau of Statistics. *1994 National Aboriginal and Torres Strait Islander Survey New South Wales.* Catalogue no. 4190.1. Canberra: ABS, 1996.

The National Drug Strategy Household Survey. *Urban Aboriginal and Torres Strait Islander Peoples Supplement, 1994.* Canberra: AGPS,1994.

Australian Bureau of Statistics. *1994 National Aboriginal and Torres Strait Islander Survey—Australia's indigenous youth.* Catalogue no. 4197.0. Canberra: ABS, 1996.

Hospital separations for cardiovascular diseases by indigenous status and sex, NSW 1993/94 to 1997/98



		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Indigenous	Number	Males	573	603	660	890	805
		Females	597	637	668	800	723
		Persons	1170	1240	1328	1690	1528
Non-Indigenous		Males	76201	78720	81587	83210	85867
		Females	58908	60529	63556	63341	65454
		Persons	135109	139249	145143	146551	151321
Indigenous	Rate per 100,000	Males	2557.3	2657.5	2900.5	3589.2	3113.5
		Females	2386.9	2468.1	2539.2	2970.6	2538.0
		Persons	2478.3	2554.5	2711.6	3267.5	2809.4
Non-Indigenous		Males	2324.7	2352.2	2379.3	2362.7	2386.8
		Females	1441.2	1456.3	1501.9	1457.9	1481.9
		Persons	1862.8	1884.9	1920.9	1890.0	1915.5

Note: Cardiovascular diseases were classified according to the ICD-9 codes 390 – 459. Records where indigenous status was not stated were classified as non-indigenous. Rates were age-adjusted using the Australian population as at 30 June 1991. NSW population estimates as at 31 December each year.

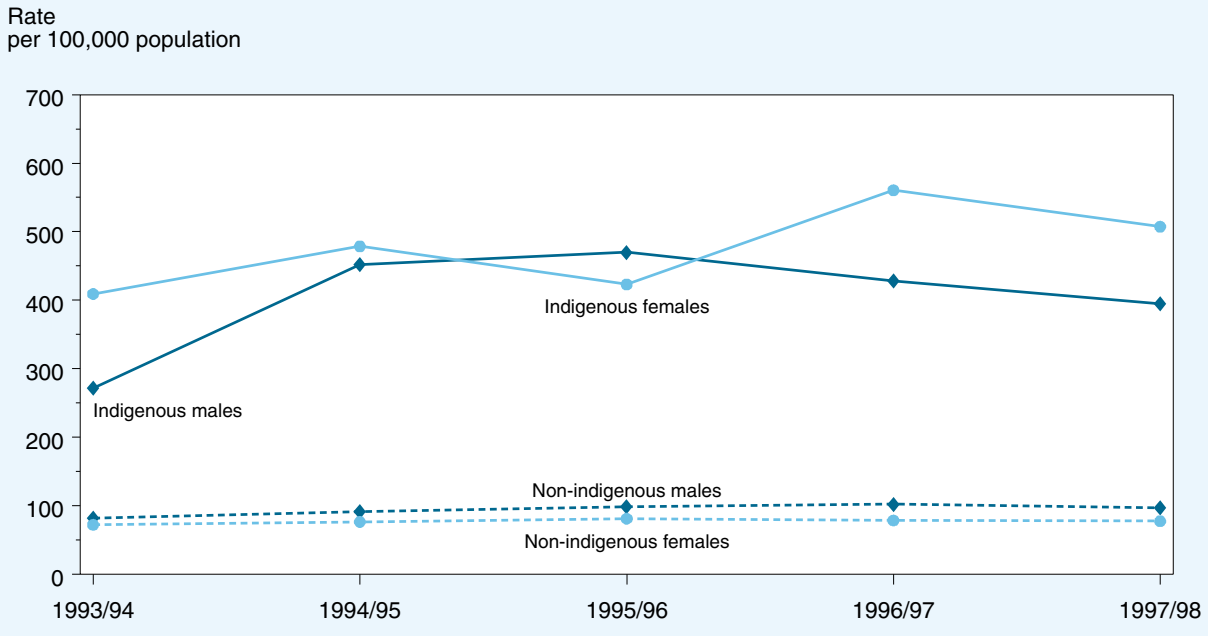
Source: NSW Inpatient Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Indigenous status is believed to be substantially under-reported in NSW hospital morbidity data. Despite this, age-adjusted hospital separation rates for cardiovascular diseases (coronary heart disease and stroke) among indigenous people were consistently higher than the rates for non-indigenous people over the period 1993/94 to 1997/98.
- While reporting of indigenous deaths improved in NSW in 1998 compared to previous years, there is insufficient information at present to comment on the patterns of causes of death. However, in Western Australia, South Australia and the Northern Territory combined, in the period 1995 to 1997, death rates from circulatory diseases among indigenous people were three times the rates among non-indigenous people. Circulatory diseases were responsible for 28.7 per cent of deaths among indigenous males and 23.2 per cent of deaths among indigenous females in excess of what would be expected if the death rates from circulatory diseases were the same as in the general Australian population (ABS, 1999).

For more information, see: Australian Bureau of Statistics and Australian Institute of Health and Welfare. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples.* Catalogue no. 4704.0. Canberra: ABS, 1999.

National Aboriginal and Torres Strait Islander Health Clearinghouse. Summary of Indigenous mortality from cardiovascular disease at http://www.cowan.edu.au/clearinghouse/health.

Hospital separations for diabetes mellitus by indigenous status and sex, NSW 1993/94 to 1997/98



		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Indigenous	Number	Males	76	119	119	115	109
		Females	113	140	124	157	167
		Persons	189	259	243	272	276
Non-indigenous		Males	2573	2928	3228	3389	3300
		Females	2507	2752	2968	2929	2858
		Persons	5080	5680	6196	6318	6158
Indigenous	Rate per 100,000	Males	271.5	451.6	469.9	428.4	395.0
		Females	409.2	478.6	423.1	560.6	507.4
		Persons	343.4	468.1	443.9	497.9	456.4
Non-indigenous		Males	81.5	91.4	98.5	102.0	97.0
		Females	72.2	76.4	81.1	78.5	77.4
		Persons	76.4	83.6	89.3	89.8	86.6

Note: Diabetes mellitus was classified according to the ICD-9 code 250. Records where indigenous status was not stated were classified as non-indigenous. Rates were age-adjusted using the Australian population as at 30 June 1991. NSW population estimates as at 31 December each year.

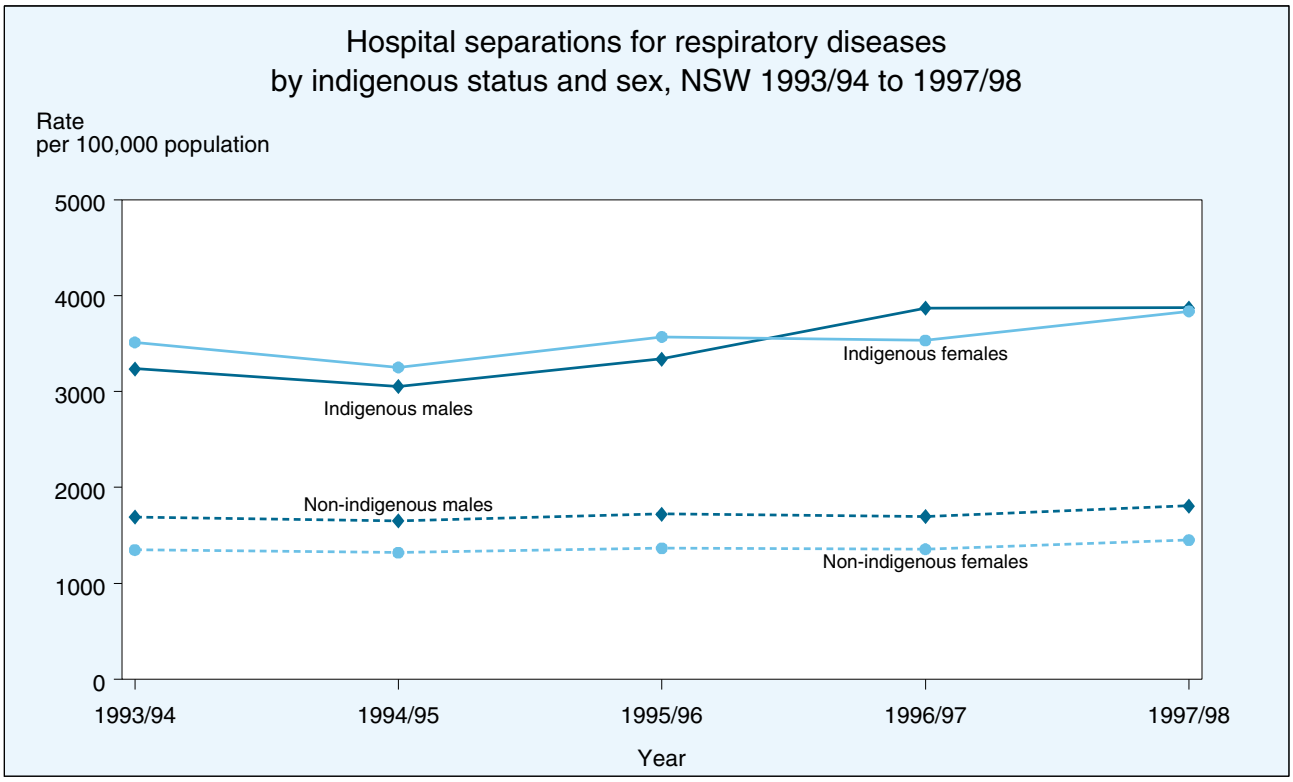
Source: NSW Inpatient Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Age-adjusted hospital separation rates for diabetes mellitus among indigenous people were about six times higher than the rates for non-indigenous people over the period 1993/94 to 1997/98.
- The rates of self-reported current diabetes and high blood sugar from the 1997 and 1998 NSW Health Surveys were 7.0 per cent for indigenous people compared with 4.3 per cent for non-indigenous people. Other estimates of diabetes prevalence among indigenous peoples vary from five to 19 per cent, compared with two to seven per cent among adult caucasian Australians.
- High rates of diabetes coupled with often limited access to appropriate services results in high rates of hospital admissions for complications such as infection and kidney disease.

For more information, see: Lee P, Rose V, Harris E, Bonney M. National Divisions Diabetes Program. *Optional Module 1 Part A: Aboriginal and Torres Strait Islander Populations*. Sydney: ISERU, Centre for General Practice Integration Studies UNSW, and Centre for Health Equity Training, Research and Evaluation, 1999.

Couzos S, Metcalf S, Murray R and O'Rourke S. *Systematic review of existing evidence and primary care guidelines on the management of non-insulin-dependent diabetes in Aboriginal and Torres Strait Islander populations*. Canberra: Office for Aboriginal and Torres Strait Islander Health Services. Commonwealth Department of Health and Family Services, 1998.

De Courten M, Hodge A, Dowse G, King I, Vickery J and Zimmet P. *Review of the epidemiology, aetiology, pathogenesis and preventability of diabetes in Aboriginal and Torres Strait Islander populations*. Canberra: Office for Aboriginal and Torres Strait Islander Health Services. Commonwealth Department of Health and Family Services, 1998.



		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Indigenous	Number	Males	1568	1480	1600	1802	1940
		Females	1544	1466	1497	1635	1791
		Persons	3112	2946	3097	3437	3731
Non-indigenous		Males	51982	51766	54459	54713	58924
		Females	43028	43141	44925	45760	49854
		Persons	95010	94907	99384	100473	108778
Indigenous	Rate per 100,000	Males	3236.6	3053.1	3339.0	3871.1	3872.0
		Females	3512.9	3251.9	3570.0	3532.2	3837.0
		Persons	3380.8	3136.1	3462.3	3676.7	3860.2
Non-indigenous		Males	1689.7	1652.4	1721.9	1696.5	1807.0
		Females	1347.5	1320.0	1365.9	1356.2	1451.2
		Persons	1509.0	1476.1	1534.2	1517.1	1620.1

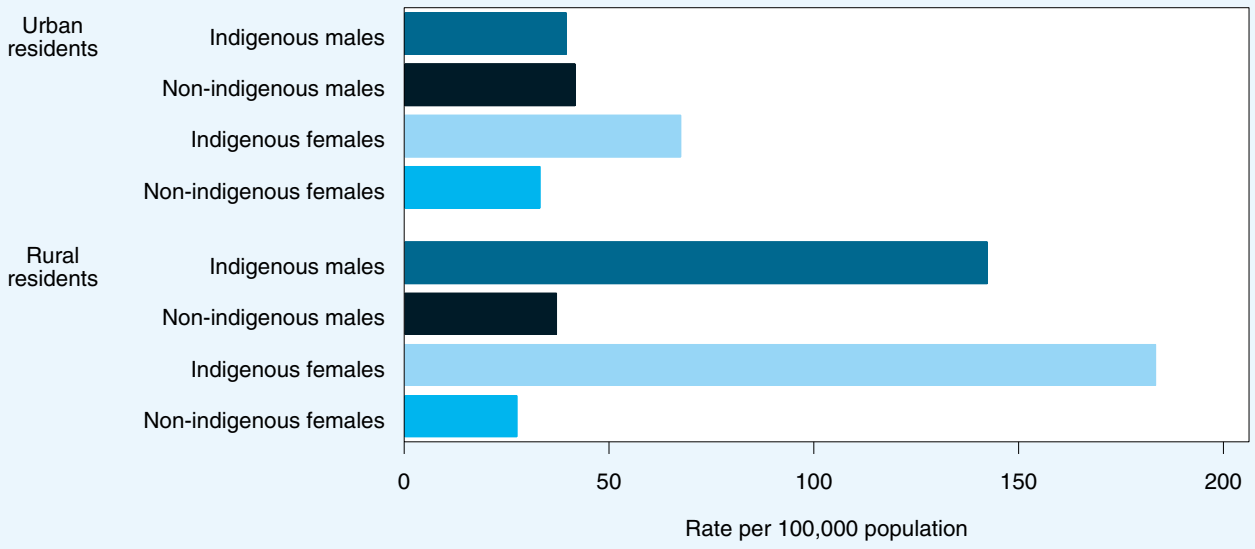
Note: Respiratory diseases were classified according to the ICD-9 codes 460–466, 470–478, 480–487, 490–496, 500–508, 510–519. Records where indigenous status was not stated were classified as non-indigenous. NSW population estimates as at 31 December each year. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Inpatient Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Indigenous status is believed to be substantially under-reported in NSW hospital morbidity data. Despite this, age-adjusted hospital separation rates for respiratory diseases among indigenous people were consistently more than three times those for non-indigenous people over the period 1993/94 to 1997/98.
- The most common causes of hospitalisation for respiratory diseases among indigenous people were asthma (21 per cent), bronchitis (12 per cent) and pneumonia (11 per cent). Hospital separation rates for respiratory diseases among indigenous people were highest among children under five years old, and people aged 65 years and over.
- While reporting of indigenous deaths improved in NSW in 1998 compared to previous years, there is insufficient information at present to comment on the patterns of causes of death. However, in Western Australia, South Australia and the Northern Territory combined, in the period 1995 to 1997, death rates from respiratory diseases among indigenous males were more than five times the rates in non-indigenous males, and six times the rate in females. Respiratory diseases were responsible for 13.4 per cent of deaths among indigenous males and 15.8 per cent of deaths among indigenous females in excess of what would be expected in the general Australian population (ABS, 1999).

For more information, see: Australian Bureau of Statistics and Australian Institute of Health and Welfare. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples.* Catalogue no. 4704.0. Canberra: ABS, 1999.

Persons receiving haemodialysis by indigenous status and urban/rural Health Area of residence, NSW 1997/98



		Sex	Urban	Rural
Indigenous	Number	Males	6	24
		Females	13	36
		Persons	19	60
Non-indigenous		Males	1059	275
		Females	874	213
		Persons	1933	488
Indigenous	Rate per 100,000	Males	39.5	142.4
		Females	67.5	183.5
		Persons	53.2	162.1
Non-indigenous		Males	41.8	37.2
		Females	33.1	27.4
		Persons	37.1	32.3

Note: Haemodialysis was classified according to the ICD-9 code V56.0. Records where indigenous status was not stated were classified as as non-indigenous. Health Areas in Greater Sydney, Hunter and Illawarra were classified as urban. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Inpatient Statistics Collection linked data and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

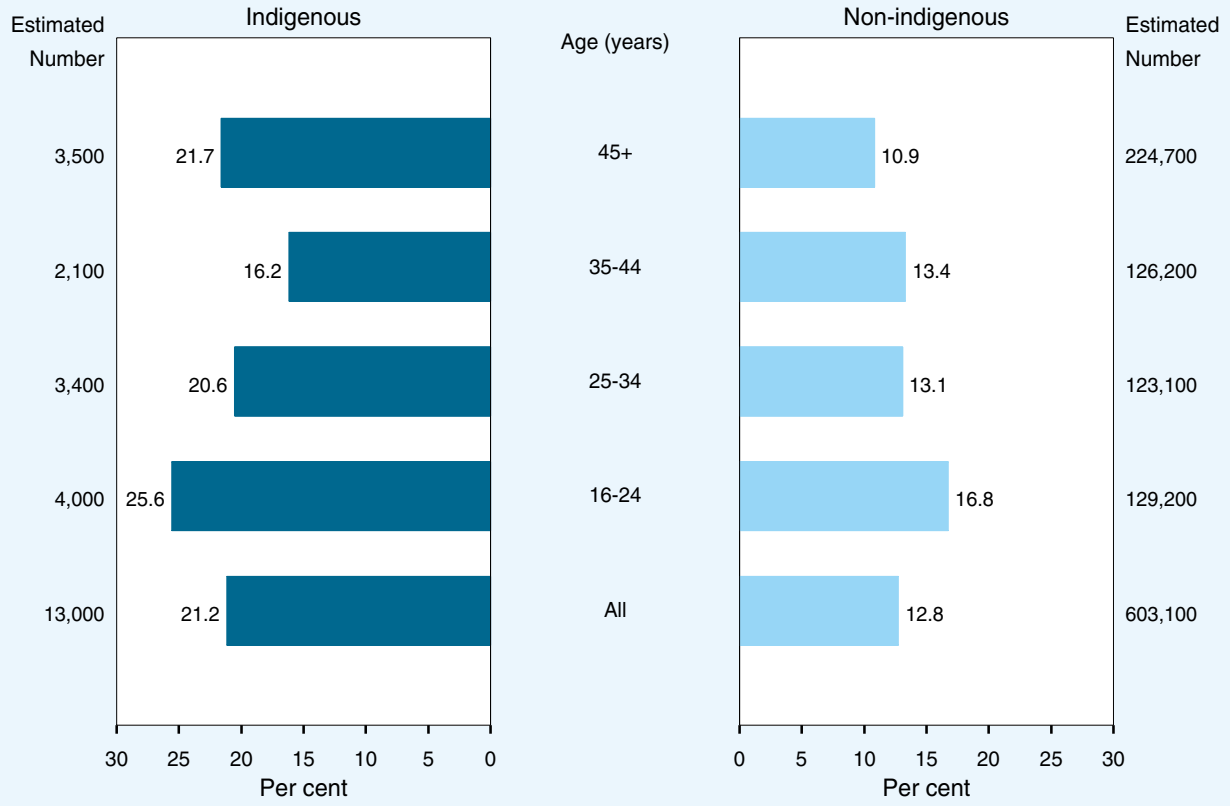
- Conditions such as diabetes, high blood pressure, infections, low birth-weight and obesity are risk factors for renal disease. Some of these risk factors are more common among indigenous people.
- Haemodialysis is the most common form of treatment for end-stage renal disease (ESRD). In 1997/98 there were higher rates of haemodialysis in indigenous males in rural NSW and indigenous females in both rural and urban NSW than non-indigenous people.
- In NSW, the incidence of ESRD among Aboriginal people in NSW was 118 per million for the period 1988 to 1989 and 111 per million for 1996 to 1997. By comparison, in the Northern Territory, the incidence of ESRD increased sharply from 255 per million to 800 per million in 1996 (Spencer et al. 1998).
- Indigenous people with ESRD tend to be younger than non-indigenous people with ESRD. Despite this, the survival of indigenous people on dialysis is low (median age 3.3 years compared with 6.5 years for non-indigenous people).

For more information, see: Cass A, Gillin AG and Horvarth JS. End-stage renal disease in Aboriginals in New South Wales: a very different picture to the Northern Territory. *Med J Aust* 1999; 171: 407–10.

Spencer JL, Silva DT, Snelling P and Hoy W. An epidemic of renal failure among Australian Aboriginals. *Med J Aust 1998*; 168: 537–541.

Thomas MAB. Kidney disease in Australian Aboriginals: time for decisive action. *Med J Aust 1998*; 168: 532–533.

Psychosocial distress by indigenous status, persons aged 16 years and over, NSW 1997 and 1998



Note: Psychosocial stress was measured using the Kessler 10 (K10) questionnaire. Raw K10 scores were transformed so that the NSW mean was 50 and standard deviation 10. Psychosocial distress was defined as a K10 score of 60 or more.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There is very little information about the mental health of indigenous people. The need for a holistic approach to mental health has been recognised (Swan and Raphael, 1995). At present, however, there is no agreed method of assessing the mental wellbeing of indigenous people (ABS, 1999).
- The Kessler 10 (K10) is a 10-item questionnaire which provides a measure of 'psychosocial distress' based on questions about the level of anxiety and depressive symptoms in the most recent four-week period. A more detailed description of the questionnaire and scoring is included in the Methods section (page 265).
- The 1997 and 1998 NSW Health Surveys showed a higher level of psychosocial distress among indigenous people compared with the non-indigenous population. This difference was most apparent among young people and older people.
- A K10 score of 60 or more should not be regarded as a cutoff score for 'illness', since it is an arbitrary choice. This cut-off has the advantage in that it classifies about the same proportion of people as having high levels of psychological distress as the proportion of people that other population studies have classified as having anxiety and depression.

For more information, see: Swan P and Raphael B. *Ways forward: National Aboriginal and Torres Strait Islander mental health policy*, *National Consultancy Report*. Canberra: AGPS, 1995.

Australian Bureau of Statistics. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander peoples.* Catalogue no. 4704.0. Canberra: ABS, 1999.

Kessler RC et al. Lifetime and 12-Month Prevalence of DSM–III–R Psychiatric Disorders in the United States. *Arch Gen Psychiatry 1994*; 51: 8–19.

Chapter 3.3

Mothers and babies

- In 1998, 85,499 births were registered in NSW, representing 34.5 per cent of all births registered in Australia. Birth registrations have declined from a high of 92,585 in 1992, and this is reflected in a decrease in the crude birth rate from 15.5 to 13.5 per 1,000 population between 1992 and 1998.
- In the period 1990 to 1998, the total fertility rate (the number of live-born babies a woman is expected to have over her lifetime) declined from 1.96 to 1.80 children.
- The trend toward delayed childbirth continues in NSW, with the proportion of mothers aged 35 years and over giving birth for the first time increasing from 7.1 per cent in 1994 to 9.7 per cent in 1998. The proportion of births to teenage mothers decreased slightly from 1.6 to 1.4 per cent between 1990 and 1998.
- The proportion of babies born prematurely or with low birth-weight has remained fairly stable over the past decade, at six to seven per cent. In 1998, 6.9 per cent of babies were premature and 6.1 per cent were low birth-weight.
- The perinatal mortality rate in NSW has slowly declined, from 11.5 to 8.1 per 1,000 between 1989 and 1998.
- The infant mortality rate in NSW has declined substantially over the last 10 years: from 9.0 per 1,000 in 1986 to 4.3 per 1,000 in 1998.
- Sudden infant death syndrome (SIDS) is the single most common cause of infant death. However, the number of deaths due to SIDS decreased from 205 in 1986 to 40 in 1997.
- Just over two per cent of infants are born with congenital malformations in NSW. The number of infants born with neural tube defects decreased from 80 in 1992 to 51 in 1997.

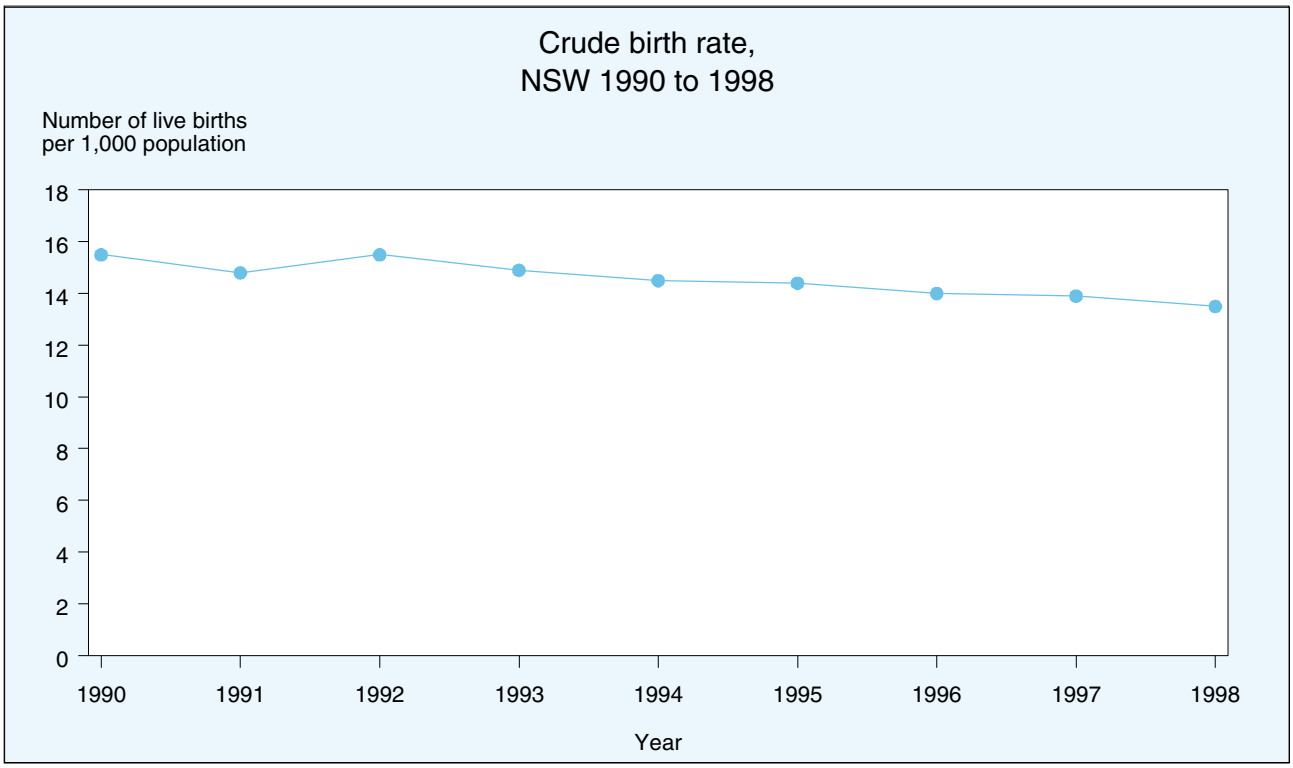
In this chapter

Introduction

The health of NSW mothers and babies is generally good by world standards. However, low birth-weight, principally due to preterm birth, and congenital abnormalities remain important causes of premature death and childhood disabilities. Also Aboriginal and Torres Strait Islander mothers and babies, and those from socioeconomically disadvantaged areas, continue to experience worse outcomes than other NSW mothers and babies. More information on these health differentials is given in Chapters 3.2 and 3.5.

This chapter presents information on trends in birth rates, maternal and infant charateristics, perinatal and infant mortality, Sudden Infant Death Sydrome (SIDS) and congenital malformations. Maternal deaths are rare in NSW and Australia. In 1996 there were 12 maternal deaths in NSW. Seven of these were directly or indirectly related to complications of pregnancy and five deaths were from incidental causes. The maternal death rate from direct and indirect causes in NSW in 1996 was 8.2 per 100,000 births. Information on maternal deaths is published nationally every three years. The most recent national triennial report *Maternal Deaths in Australia 1991-93*, published by the National Health and Medical Research Council (NHMRC), is available from the NHMRC website at: http://www.health.gov.au/nhmrc/publicat/synopses/wh25syn.htm

As well as data on births and deaths obtained from the Australian Bureau of Statistics (ABS), this chapter uses data from the NSW Midwives Data Collection and the NSW Birth Defects Register. More information on these data collections and the analytic methods used is given in the Methods section (page 265).



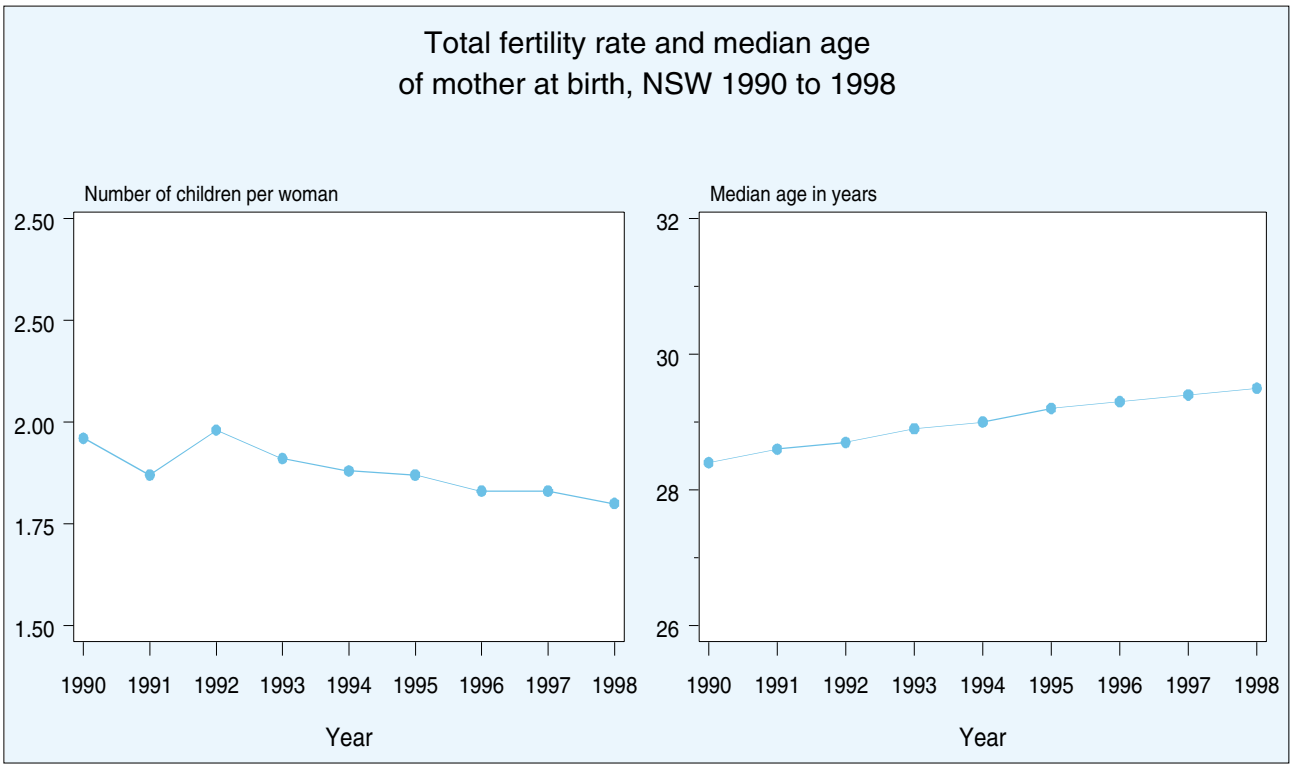
		1990	1991	1992	1993	1994	1995	1996	1997	1998
Number of births	NSW	90534	87367	92585	89354	87977	87849	86595	87156	85499
	Australia	262648	257247	264151	260229	258051	256190	253834	251842	249616
Crude birth rate (per 1000)	NSW	15.5	14.8	15.5	14.9	14.5	14.4	14.0	13.9	13.5
	Australia	15.4	14.9	15.1	14.7	14.5	14.2	13.9	13.6	13.3

Source: Australian Bureau of Statistics Births, Australia, Catalogue no. 3301.0. Canberra. ABS, 1999.

- In 1998, 85,499 births were registered in NSW. These represent 34.5 per cent of all births registered in Australia.
- Between 1986 and 1998, the crude birth rate in NSW fell from 15.3 to 13.5 per 1,000 population. This slow downward trend was also evident nationally.
- Crude birth rates varied markedly across NSW: from 10.0 and 11.5 per 1,000 population in the Southern and Far West Areas respectively, to 16.0 and 16.1 per 1,000 population in Western Sydney and South Western Sydney Areas respectively. Some births to mothers resident in NSW occur in interstate hospitals, and this may contribute to the relatively lower crude birth rates observed in NSW Health Areas that border other States.
- The crude birth rate for Aboriginal people in NSW was estimated to be 17.7 per 1,000, about 1.3 times the rate of 13.4 per 1,000 for non-Aboriginal people.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P. *Australia's mothers and babies 1997*, AIHW perinatal statistics series no. 9. Sydney: AIHW (National Perinatal Statistics Unit), 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.



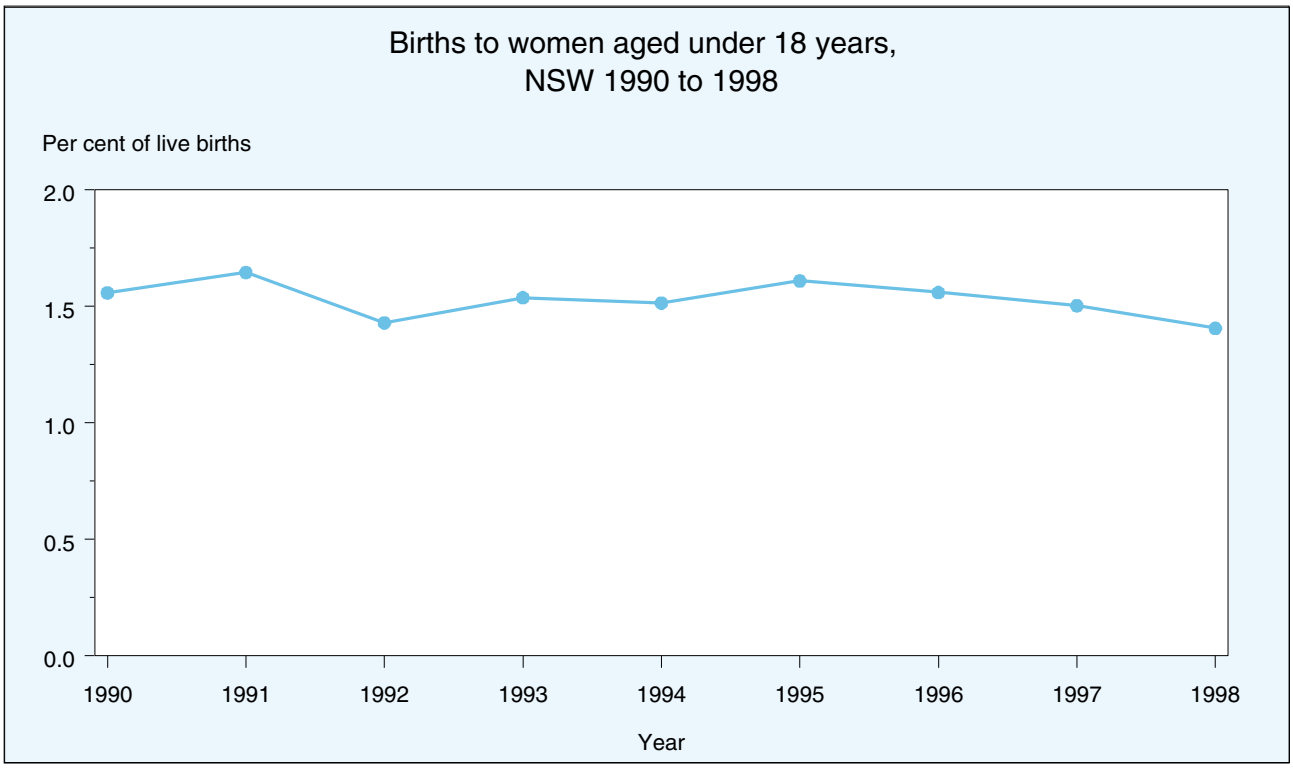
		1990	1991	1992	1993	1994	1995	1996	1997	1998
Total fertility rate	NSW	1.96	1.87	1.98	1.91	1.88	1.87	1.83	1.83	1.80
	Australia	1.91	1.86	1.89	1.87	1.85	1.82	1.80	1.78	1.76
Median age of mother (years)	NSW	28.4	28.6	28.7	28.9	29.0	29.2	29.3	29.4	29.5
	Australia	28.3	28.5	28.7	28.9	29.0	29.1	29.2	29.4	29.5

Source: Australian Bureau of Statistics Births, Australia. Catalogue no. 3301.0. Canberra: ABS,1999.

- The total fertility rate is the number of live births a woman would have over her life if she experienced the age-specific fertility rate prevailing in a given year.
- The total fertility rate for NSW has declined slightly, from 1.96 children per woman in 1990 to 1.80 children per woman in 1998.
- The trend toward delaying childbirth continues in NSW, with the median age of mothers giving birth increasing from 28.4 to 29.5 years over the period 1990 to 1998. This trend is evident in first time mothers and in subsequent births. The proportion of mothers aged 35 years and over who gave birth for the first time increased from 7.1 per cent in 1994 to 9.7 per cent in 1998. The proportion of mothers aged 35 years and over having their second or subsequent child rose from 17.0 per cent to 20.7 per cent over the same period.
- The trends in fertility rates and delayed childbearing are also reflected across Australia.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P, *Australia's mothers and babies 1997*, AIHW Perinatal statistics series no. 9. Sydney: AIHW (National Perinatal Statistics Unit), 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.



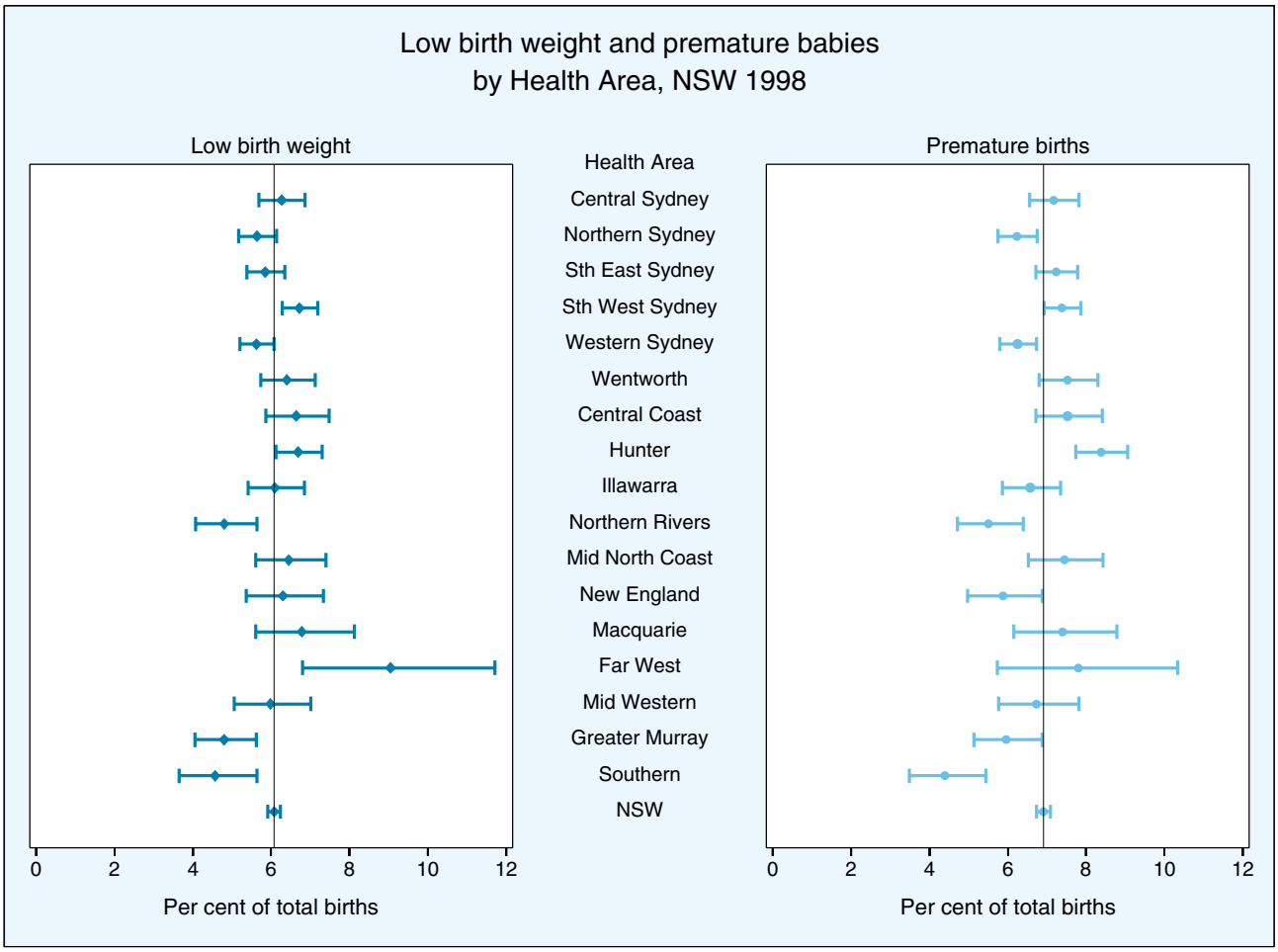
		1990	1991	1992	1993	1994	1995	1996	1997	1998
Number of live births	NSW	1344	1418	1261	1340	1322	1395	1337	1314	1204
	Australia	4330	4186	3977	3844	3865	3890	3964	3715	3709
Per cent of live births	NSW	1.6	1.6	1.4	1.5	1.5	1.6	1.6	1.5	1.4
	Australia	1.8	1.7	1.5	1.5	1.5	1.5	1.6	1.5	1.5

Sources: Australian Bureau of Statistics Births, Australia. catalogue no. 3301.0. Canberra: ABS, 1999. NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1998, there were 1,204 women less than 18 years of age who gave birth. Of all live-born babies in NSW, 1.4 per cent were born to these young mothers. The proportion of live-born babies to adolescent mothers has decreased slightly since 1990.
- The proportion of adolescent mothers varied across the NSW Health Areas: from 0.3 per cent in the Northern Sydney Health Area to 5.1 per cent in the Far West Health Area.
- The proportion of adolescent mothers was substantially higher than NSW in many rural Health Areas including Mid North Coast, New England, Macquarie, Mid Western, Far West, Greater Murray, and Southern Health Areas.
- The proportion of adolescent mothers was lower than NSW in the South Eastern Sydney, Northern Sydney, and Central Sydney Health Areas.
- In 1998, Aboriginal and Torres Strait Islanders were over-represented in adolescent births with 6.9 per cent of mothers being in this age group.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P. *Australia's mothers and babies 1997*, AIHW Perinatal statistics series no. 9. Sydney: AIHW (National Perinatal Statistics Unit), 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.



Note: Low birth-weight: less than 2,500 grams. Premature birth: less than 37 weeks gestation. Infants of at least 400 grams birth weight or 20 weeks gestation were included. Confidence interval=lower/upper limits of 95 per cent confidence interval.

Source: NSW Midwives Data Collection (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.

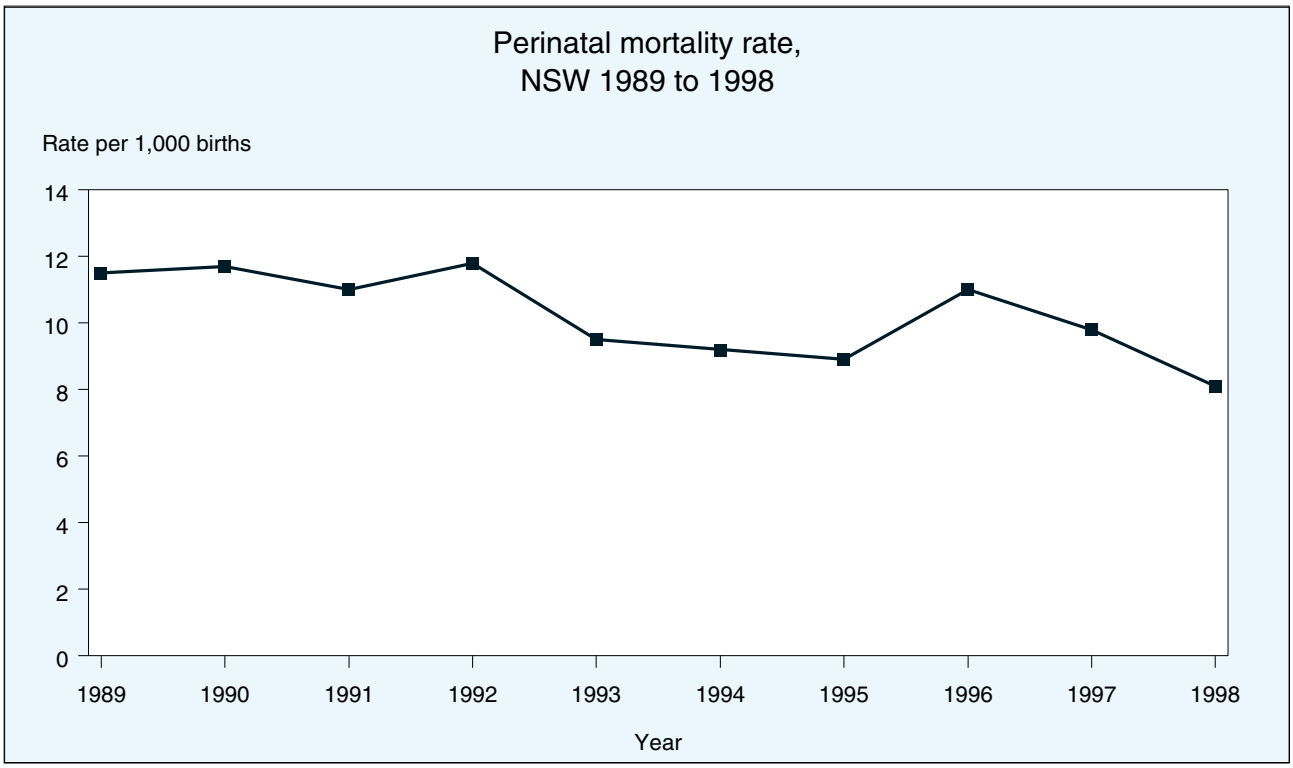
- The proportion of babies born with low birth-weight has remained stable over the past decade. In 1998, it was 6.1 per cent. Low birth-weight is an important outcome measure of the health of the mother and her care during pregnancy. The risk of illness or death is higher among infants with low birth-weight than infants with normal birth-weight.
- In 1998, the proportion of infants with low birth-weight varied from 4.6 per cent in the Southern Health Area to 9.0 per cent in the Far West Health Area. The rate of low birth-weight among infants born to Aboriginal or Torres Strait Islander mothers was 10.5 per cent in 1998, substantially higher than for non-Aboriginal mothers.
- A birth before 37 weeks gestation is a premature birth or preterm birth. Preterm birth is associated with higher rates of perinatal mortality compared with birth at term and may be associated with significant morbidity from respiratory conditions, infection and intra-cerebral haemorrhage. The prematurity rate in NSW for 1998 was 6.9 per cent and has remained stable at six to seven per cent since 1990.
- Of the 5,954 premature births reported in NSW in 1998, 10 per cent were born at less than 27 weeks gestation, 10 per cent were born at 28 to 31 weeks, and 80 per cent were born at 32 to 36 weeks.
- In 1998, the proportion of premature infants varied from 4.4 per cent in the Southern Health Area to 8.4 per cent in the Hunter Health Area. In 1998 the rate of prematurity among infants born to Aboriginal or Torres Strait Islander mothers was 10.6 per cent, once again higher than the rate for non-Aboriginal mothers.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P. *Australia's mothers and babies 1997*. AIHW perinatal statistics series no. 9. Sydney: AIHW NPSU, 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998. *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.

National Health and Medical Research Council. *Clinical practice guidelines: Care around preterm birth*. Canberra: NHMRC, 1997.

National Perinatal Statistics Unit. *Australian and New Zealand Neonatal Network 1996–97*. Sydney: AIHW NPSU, 1999.



		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
NSW	Number of perinatal deaths	990	1070	969	1097	852	815	785	959	861	695
	Perinatal mortality rate (per 1000)	11.5	11.7	11.0	11.8	9.5	9.2	8.9	11.0	9.8	8.1
Australia	Number of perinatal deaths	2771	2997	2755	2831	2411	2361	2420	2547	2321	2090
	Perinatal mortality rate (per 1000)	11.0	11.3	10.6	10.7	9.2	9.1	9.4	10.0	9.2	8.3

Note: Perinatal deaths include infants and fetuses weighing at least 400 gms or if birth-weight is not available, at least 20 weeks gestation.

Source: Australian Bureau of Statistics, Causes of Death, Australia. Catalogue no. 3303.0. Canberra: ABS, 1999.

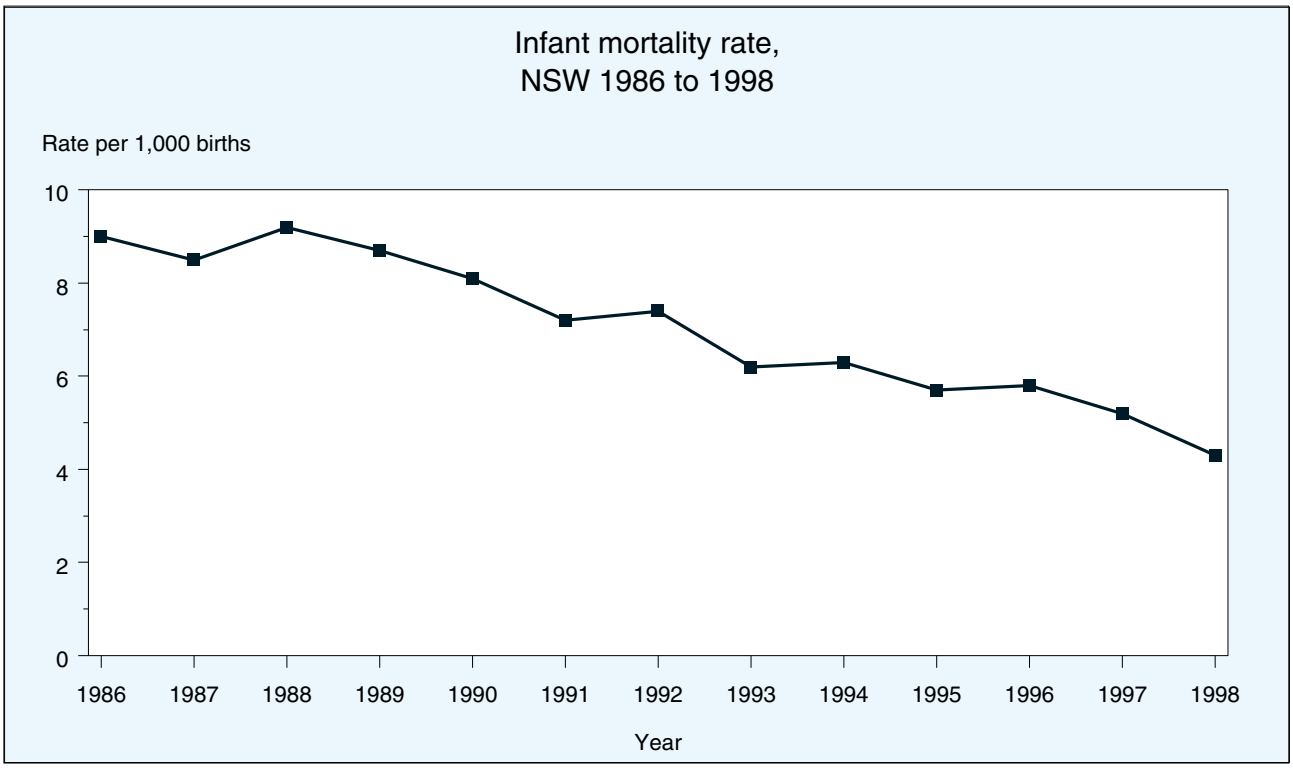
- There has been an overall downward trend in perinatal deaths (ie stillbirths and deaths in the first four weeks of life) in NSW, which is also evident across Australia. In NSW, the number of perinatal deaths declined from 990 in 1989 to 695 in 1998. The decline in deaths has been in both fetal and neonatal deaths.
- Approximately two-thirds of all perinatal deaths were stillbirths and one-third were neonatal deaths.
- The decline in perinatal mortality in recent years is related to improvements in obstetric and paediatric care, the availability of genetic counselling and genetic education services, and improved availability of prenatal diagnosis to detect problems such as spina bifida.
- In 1998, the perinatal mortality rate varied among NSW Health Areas; from 5.0 per 1,000 in the Greater Murray Health Area to 16.0 per 1,000 in the Far West Health Area.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P. *Australia's mothers and babies 1997*, AIHW perinatal statistics series no. 9. Sydney: AIHW (National Perinatal Statistics Unit), 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.

Donoghue DA. *Australian and New Zealand neonatal network 1996 and 1997.* Sydney: AIHW (National Perinatal Statistics Unit): Neonatal Network Series no. 3, 1999.

National Health and Medical Research Council (Health Care Committee Expert Panel on Perinatal Morbidity). *Perinatal morbidity.* Canberra: AGPS, 1995.



		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number of deaths	NSW	759	731	775	744	733	632	688	552	551	498	499	451	371
	Australia	2154	2116	2132	2004	2145	1836	1843	1591	1512	1449	1460	1341	1252
Mortality rate (per 1,000)	NSW	9.0	8.5	9.2	8.7	8.1	7.2	7.4	6.2	6.3	5.7	5.8	5.2	4.3
	Australia	8.8	8.7	8.7	8.0	8.2	7.1	7.0	6.1	5.9	5.7	5.8	5.3	5.0

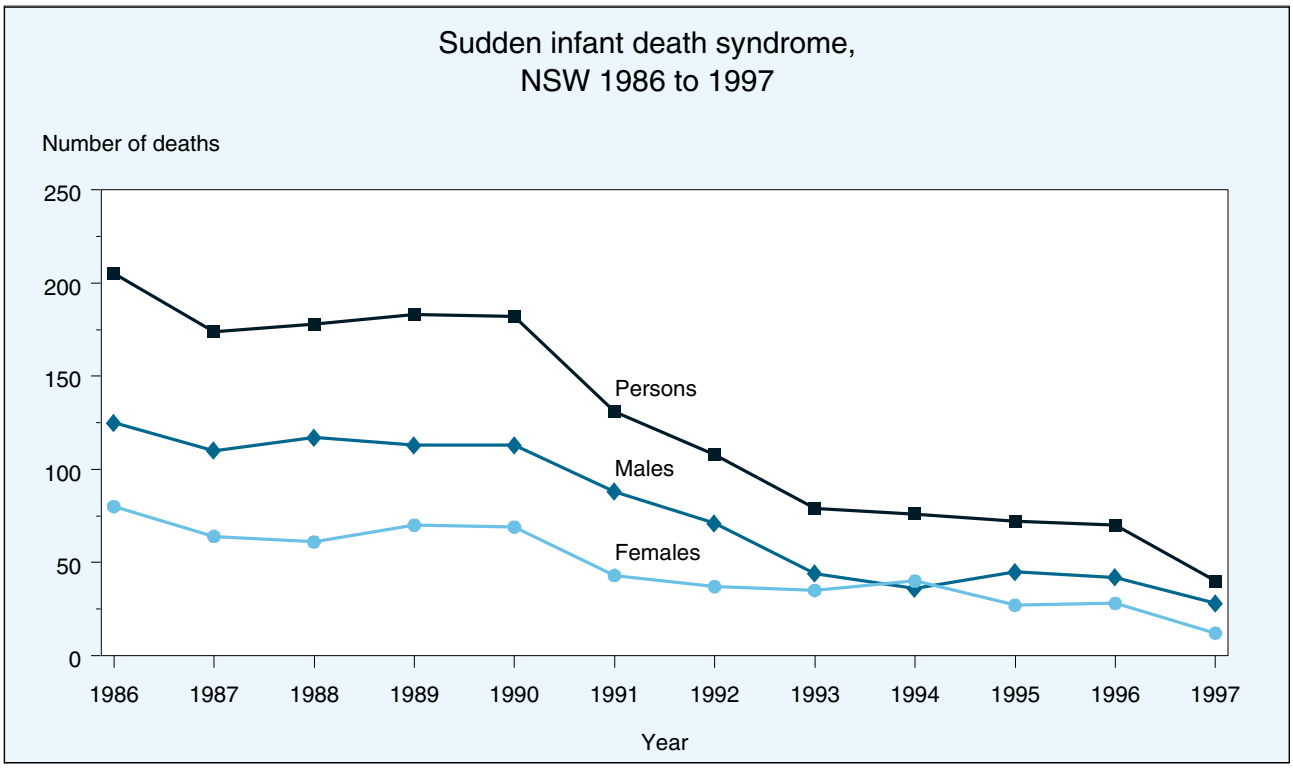
Source: Australian Bureau of Statistics Deaths, Australia. Catalogue no. 3302.0. Canberra: ABS, 1998.

- The infant mortality rate is the number of deaths among children aged under one year per 1,000 live births. The NSW infant mortality rate in 1998 was 4.3 per 1,000, the lowest ever recorded. This follows a downward trend in infant mortality over the past 10 years which is also occurring Australia-wide.
- Most infant deaths occur in the first four weeks of life (recorded as the perinatal deaths—see page 127). Of the 371 infant deaths registered in NSW in 1998, 255 (68.7 per cent) occurred in the neonatal period (up to 28 days of life) and 116 (31.3 per cent) occurred in the postneonatal period. There were 132 deaths in the first day of life, constituting over one-third of all infant deaths.
- In 1998, conditions originating in the perinatal period, such as respiratory conditions and infections, accounted for 174 (46.9 per cent) infant deaths in NSW. Congenital malformations accounted for a further 88 (23.7 per cent). The single most common cause of infant death outside the perinatal period was sudden infant death syndrome, which was responsible for 35 (10 per cent) infant deaths registered in 1998.
- In 1998, 55 per cent of infant deaths occurred among male infants and 45 per cent among female infants.

For more information, see: Day P, Sullivan EA, Ford J, Lancaster P. *Australia's mothers and babies 1997*, AIHW perinatal statistics series no. 9. Sydney: AIHW (National Perinatal Statistics Unit), 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.

Australian Bureau of Statistics. *Causes of death, Australia 1998*, Catalogue no. 3303.0. Canberra: ABS, 1999.



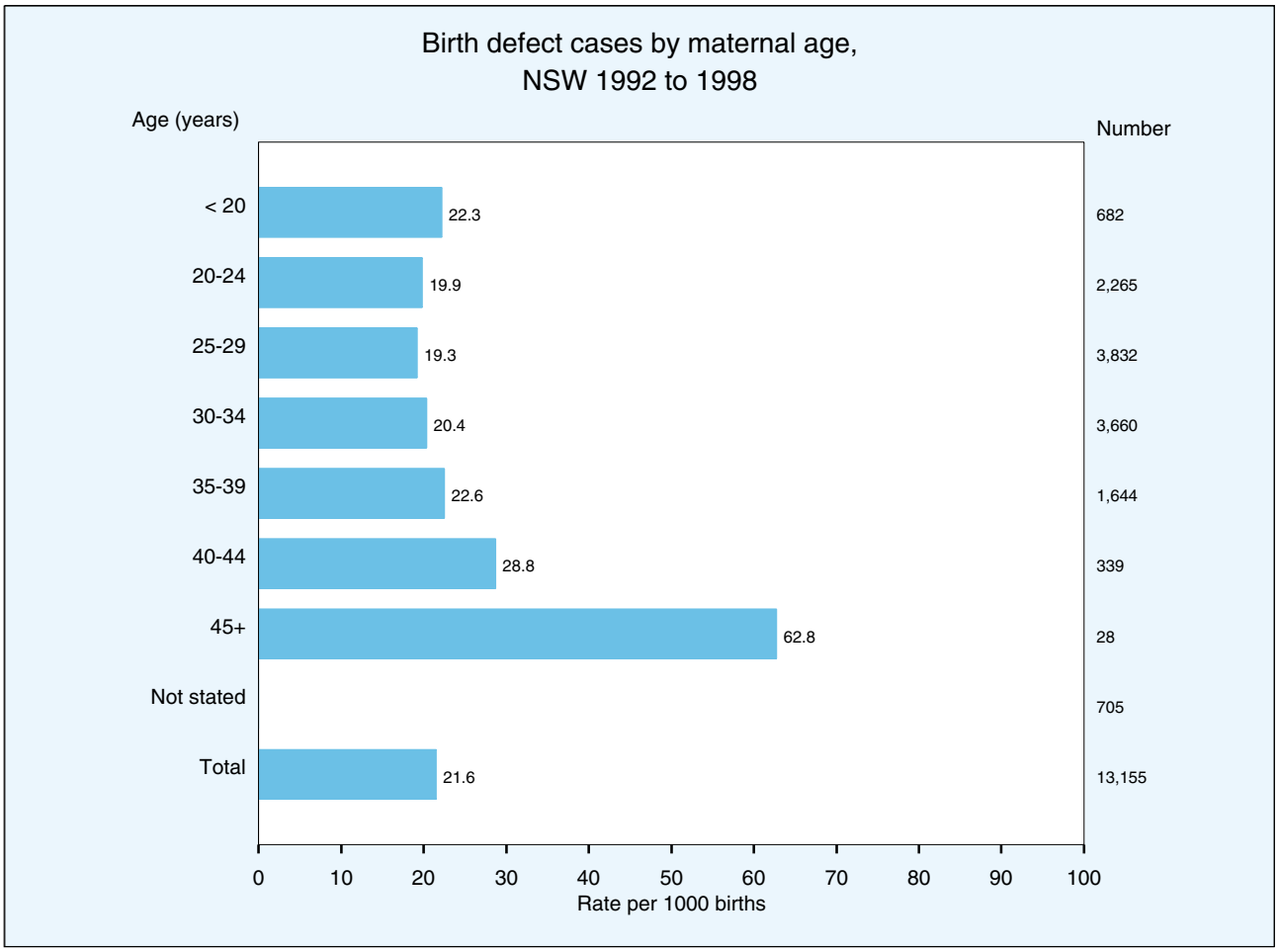
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Males	125	110	117	113	113	88	71	44	36	45	42	28
Females	80	64	61	70	69	43	37	35	40	27	28	12
Persons	205	174	178	183	182	131	108	79	76	72	70	40

Note: Sudden infant death syndrome was classified according to the ICD–9 code 798.0. Data are reported by year of death.

Source: ABS mortality data (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.

- Sudden infant death syndrome (SIDS) is the single most common cause of infant death in NSW outside the perinatal period. The number of SIDS deaths in NSW in 1997 was 40. In 1998, 33 deaths due to SIDS have been reported to date. This excludes deaths which may have occurred in 1998 but were registered in 1999, and for which information was not available at the time of production of this report.
- Following a national prevention campaign, the number of deaths due to SIDS has decreased by over 75 per cent, from 182 in 1990 to 40 in 1998. The risk of SIDS is reduced by: placing babies to sleep on their backs, mothers not smoking during pregnancy and babies having a smoke-free environment after birth, and ensuring that the baby's head remains uncovered during sleep.
- About two-thirds of SIDS deaths occur in the first four months of life.

For more information, see: National SIDS Council of Australia and the Australian College of Paediatrics. *Reducing the risk of Sudden Infant Death Syndrome (SIDS)—Scientific literature to support the recommendations of the Forum to review the risk factors for SIDS.* Melbourne: National SIDS Council of Australia, 1997.



Note: Cases include stillbirths and live births. For 1992–97, cases reported during pregnancy and up to one year of age are included. For 1998, cases reported during pregnancy or at birth are reported.

Source: NSW Birth Defects Register (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The NSW Birth Defects Register collects information on congenital malformations detected during pregnancy, at birth and up to one year of age. The Register covers congenital malformations as described in the International Classification of Diseases, thalassaemia major and three metabolic disorders (cystic fibrosis, phenylketonuria and hypothyroidism).
- In 1997, 1,995 (2.3 per cent) live-born and stillborn babies were reported to have a congenital malformation. This has decreased from over 2,100 babies reported in 1992 and 1993. Over this time the number of babies born with neural tube defects (for example, spina bifida) has decreased, from 80 in 1992 to 51 in 1997. This is likely to be due in part to increased awareness that folic acid taken around the time of conception decreases the risk of spina bifida in the baby. The number of babies born with chromosomal abnormalities and multiple malformations has also decreased.
- After 20 years of age, the incidence of birth defects increases with maternal age. However, the majority of births occur in younger women. In 1992–98, 79.3 per cent of babies with birth defects were born to women aged less than 35 years.
- The rate of congenital malformations was higher among male than female babies: 2.4 and 1.7 per cent respectively. Most of the additional malformations in males were malformations of the genital organs.
- The most common congenital malformations reported were of the cardiovascular system, such as atrial and ventricular septal defects, followed by malformations of the musculoskeletal system, including congenital dislocation of the hips.

For more information, see: Hurst T, Shafir E, Day P, Lancaster P, *Congenital Malformations Australia 1995 and 1996*. AIHW Catalogue no. Per 8. Sydney: AIHW National Perinatal Statistics Unit, 1999.

Taylor L, Pym M, Bajuk B, Sutton L, Travis S, Banks C. New South Wales Mothers and Babies 1998, *NSW Public Health Bulletin* Supplement no. 1. Sydney: NSW Health Department, 2000.

Chapter 3.4

Rural and remote populations

- Living in a remote area may influence health by restricting access to health services and to health promoting messages.
- The Accessibility/Remoteness Index of Australia (ARIA) is used here to illustrate one method of measuring the association between remoteness of residence and health.
- The ARIA index applied to death rates from road injury shows the death rates among residents of remote localities to be over twice that of NSW residents generally.
- Death rates due to ischaemic heart disease are also higher among residents of very remote areas compared to NSW overall.
- Breakdowns by Health Area of residence are included in other Chapters in this report. These give an indication of the influence of rurality on a range of health indicators.

In this chapter

Introduction

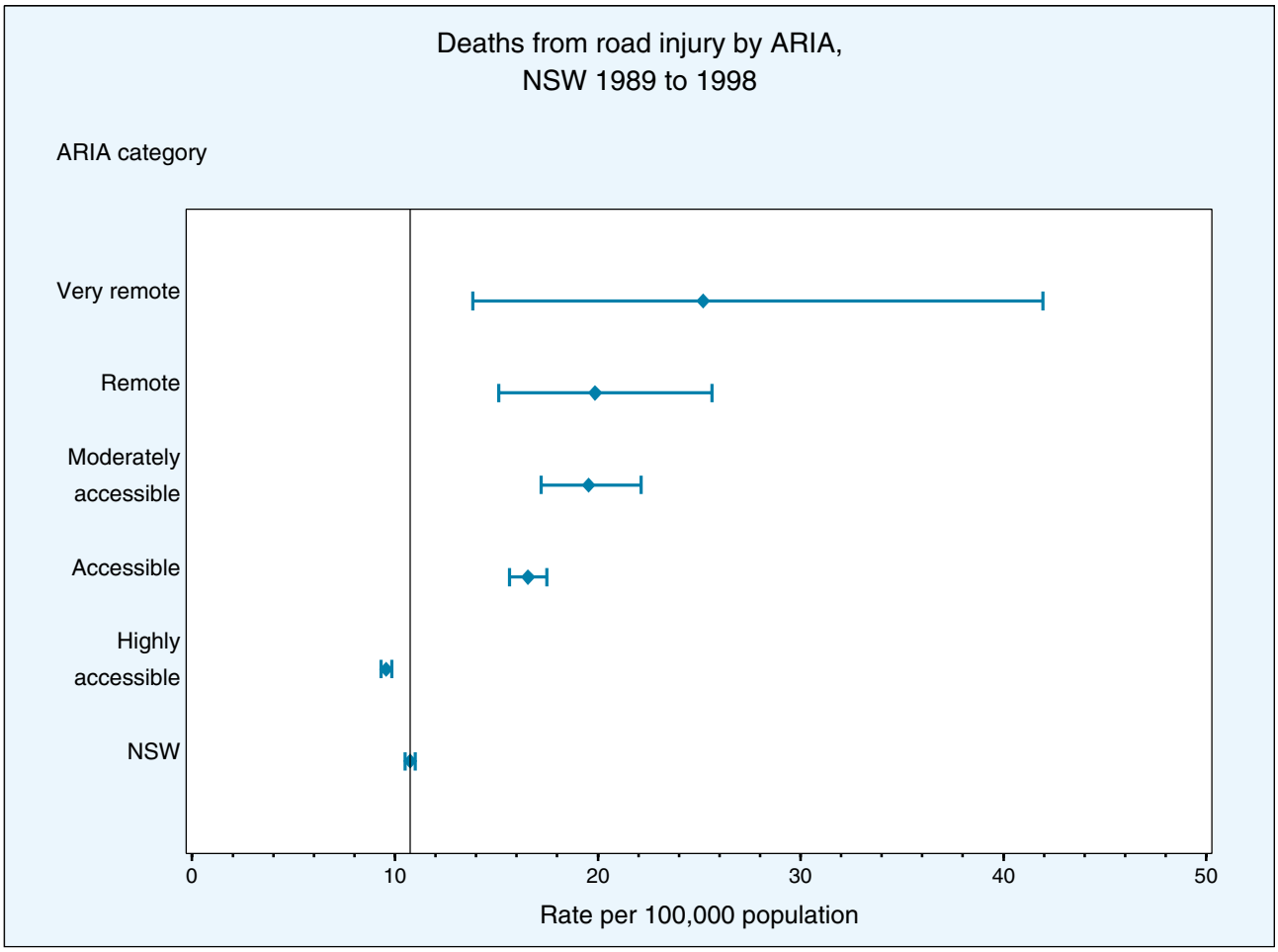
The effect of urban or rural residence on health is frequently demonstrated by differences in health status between residents of urban and rural Health Areas in NSW. Such breakdowns are given in other Chapters in this report. A measure which takes into account real distances from service centres may provide a better way to assess the effect of urban/rural residence on health.

The Accessibility/Remoteness Index for Australia (ARIA) is derived from the the road distance of 11,338 populated localities to 201 service centres across Australia. For each locality distances are converted to a continuous measure from 0 (high accessibility) to 12 (high remoteness) and grouped into five categories: highly accessible, accessible, moderately accessible, remote and very remote.

The next two pages provide examples of how the ARIA index may be used to measure the effect of geographic remoteness on health and health care.

For more information, see: Commonwealth Department of Health and Aged Care and The National Key Centre for Social Applications of Geographical Information Systems (University of Adelaide), *Accessibility/Remoteness index of Australia*, Occasional papers series no 5. Canberra: Department of Health and Aged Care, 1999.

The National Key Centre for Social Applications of Geographical Information Systems Web site at: www.gisca.adelaide.edu.au.



ARIA	Deaths	Rate/100,000	LL95 % CI	UL95 % CI
Highly accessible	4831	9.6	9.3	9.8
Accessible	1307	16.6	15.7	17.5
Moderately accessible	259	19.6	17.2	22.1
Remote	60	19.9	15.1	25.6
Very remote	15	25.2	13.8	41.9
NSW	6472	10.7	10.5	11.0

Note: Road injury was classified according to the ICD-9 external cause codes E810–819 E826–829. Statistical local areas were assigned to the Accessibility/Remoteness Index of Australia (ARIA). Rates were age-adjusted using the standard Australian population as at 30 June, 1991. LL/UL95% CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: ABS mortality and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The ARIA index applied to death rates from road injury demonstrates the higher death rates among residents of remote localities compared to more accessible localities.
- While the greatest number of deaths occur in less remote areas, reflecting the concentration of population in cities and large towns, there is a trend towards increasing death rates due to road injury with increasing remoteness of place of residence.
- The relatively high death rate on country roads is well reported. The ARIA index is used here to illustrate the association between road injury death, and place of residence, rather than place of death.

For more information, see: Roads and Traffic Authority NSW (RTA),*Road traffic accidents in NSW*–1995. Sydney: Roads and Traffic Authority NSW, 1996.

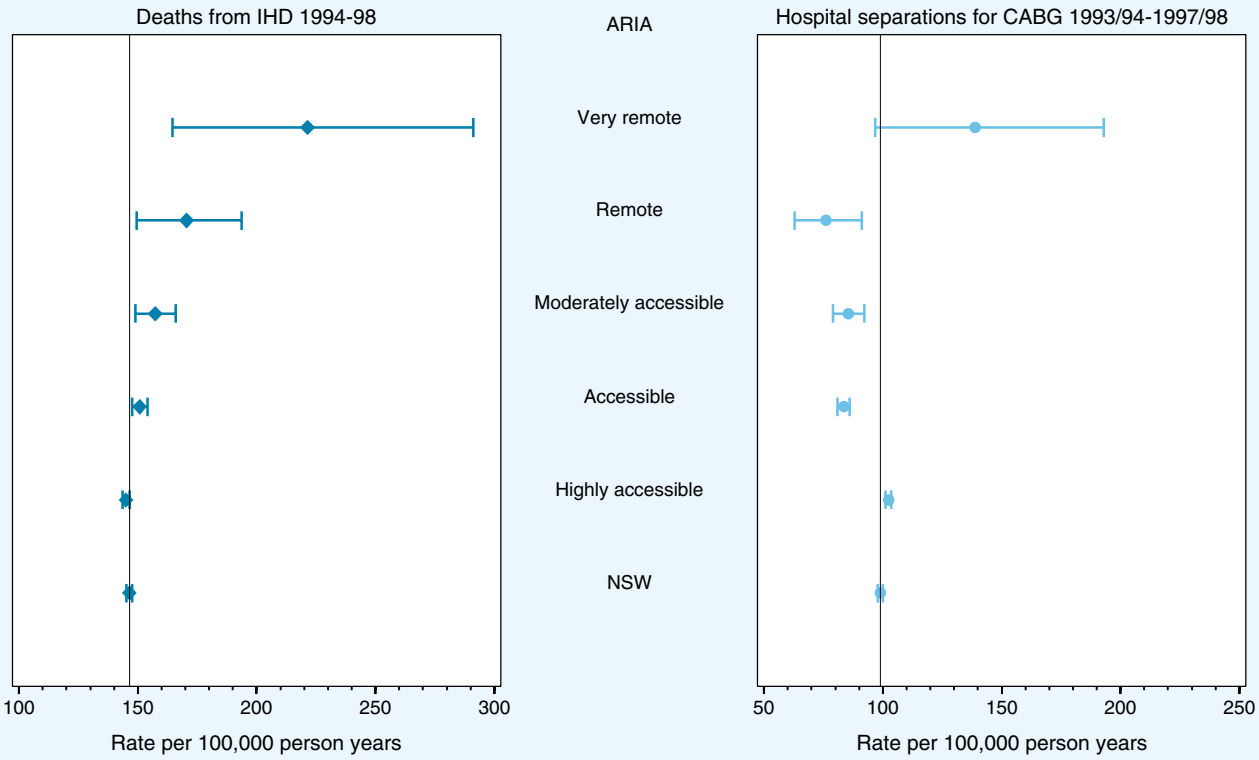
Henderson M. *Towards an action plan for rural road safety. A report of the Wodonga Seminar, Rural Road Safety: Focus for the Future*. Canberra: Federal Office of Road Safety, 1995.

Federal Office of Road Safety, *Road fatalities Australia, 1996 statistical summary*. Canberra: Federal Office of Road Safety, 1997.

The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.

Commonwealth Department of Health and Aged Care and The National Key Centre for Social Applications of Geographical Information Systems (University of Adelaide), *Accessibility/Remoteness index of Australia*. Occasional papers series no. 5. Canberra: Department of Health and Aged Care, 1999.

Deaths from ischaemic heart disease and hospital separations for coronary artery bypass graft by ARIA, NSW



	ARIA	Number	Rate/100,000	LL95 % CI	UL95 % CI
Deaths	Highly accessible	42397	145.1	143.7	146.5
	Accessible	8380	150.7	147.5	154.0
	Moderately accessible	1346	157.2	148.9	165.9
	Remote	242	170.5	149.4	193.6
	Very remote	52	221.4	164.6	291.2
	NSW	52416	146.4	145.2	147.7
Hospital separations	Highly accessible	27472	102.4	101.2	103.6
	Accessible	4372	83.5	81.0	86.0
	Moderately accessible	652	85.4	79.0	92.3
	Remote	121	76.1	63.0	91.2
	Very remote	36	138.8	96.8	192.8
	NSW	32653	98.9	97.8	100.0

Note: Ischaemic heart disease was classified according to the ICD-9 codes 410–414. Coronary artery graft was classified according to the ICD-9-CM code 36.1. Statistical local areas were assigned to the Accessibility/Remoteness Index of Australia (ARIA). Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95% CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The death rate from ischaemic heart disease is higher among those who live in very remote areas compared to more accessible areas. However, the number of deaths were quite small, with only 52 deaths reported in NSW due to ischaemic heart disease in very remote areas in the five year period 1994–98.
- Hospital separation rates for coronary artery bypass graft (CABG) showed more variation, with little difference in rates for those living in remote or highly accessible areas and slightly lower rates for those living in areas with intermediate levels of service access.

For more information, see: Commonwealth Department of Health and Aged Care and the National Key Centre for Social Applications of Geographical Information Systems (University of Adelaide), *Accessibility/Remoteness Index of Australia*, Occasional papers series no. 5. February 1999.

The National Key Centre for Social Applications of Geographical Information Systems Web site at: http://www.gisca.adelaide.edu.au.

Chapter 3.5

Socioeconomic groups

- In the period 1994 to 1998, the NSW local government areas (LGAs) with the highest socioeconomic status (SES) had the lowest rate of premature death (due to any cause) for both males and females.
- There was a strong association between SES and premature deaths in males from cardiovascular disease and injury and poisoning. The association was not as strong for females.
- Higher rates of infant mortality were found in LGAs that were the most disadvantaged. The association was stronger for male infants compared with female infants. The infant mortality rate in the least disadvantaged LGAs was 4.3 per 1,000 live births compared with 6.2 per 1,000 for the most disadvantaged LGAs.
- The proportion of teenage mothers was highest in the most disadvantaged LGAs (6.5 per cent) and lowest in the least disadvantaged LGAs (1.8 per cent). The likelihood of giving birth as a teenager is strongly associated with socioeconomic disadvantage.
- In children aged less than 15 years, there was a trend towards a higher death rate from injury and poisoning, with increasing social disadvantage, which was more apparent among boys than girls.
- In the 1997 and 1998 NSW Health Surveys, residents of the least socioeconomically disadvantaged LGAs were more likely to rate their health as excellent or very good compared to people living in the more disadvantaged LGAs.
- Information from the 1997 and 1998 NSW Health Surveys also showed an association between increasing socioeconomic disadvantage and higher rates for smoking, overweight or obesity, hazardous or harmful alcohol consumption and psychosocial distress.

In this chapter

Introduction

The evidence for the relationship between socioeconomic status and health is strong (Evans et al.1994; Marmot et al. 1999; Howden-Chapman et al.1998). Worldwide, people who live in wealthier countries (that is, countries with higher per capita incomes) have better health and live longer than people who live in poorer countries. Within developed countries, however, people who have lower personal or household incomes have worse health than people with higher incomes (Hupalo et al. 1999). A social gradient in health status has been observed, with those lower down the social hierarchy having worse health than those further up, and those with the most affluence having the best health (Wilkinson et al. 1998).

Equality in health implies an equal share of health resources for everyone regardless of need, whereas equity in health also incorporates the notion of fairness. Health equity implies that need guides the distribution of the opportunities for wellbeing, such as health services and health promotion interventions (Harris et al. 1999). Health inequalities are due to a complex interaction of multiple factors including poverty, behavioural factors, poor health literacy, poor social networks, and discrimination because of poor health (Harris et al. 1999). These inequalities can become inequities when there are unfair and avoidable factors which maintain or increase them.

This chapter looks at the association between socioeconomic status (SES) and indicators of health status and potentially modifiable health risk factors in the NSW population. The analyses show the relationship between disadvantaged groups (based on local government area or postcode) and these health indicators. The analyses help to describe inequalities in health based on SES, rather than inequities in health.

In considering the response of the health system to reduce inequities in health, the concept of cumulative social disadvantage is useful to identify areas where social deprivation is concentrated. There is evidence that the socioeconomic determinants that lead to poor health, as well as the indicators of poor health, are concentrated in, or characteristic of, the same groups in society (Vinson,1999). In a recent study conducted in Victoria and NSW, nine indicators of social disadvantage were used to identify postcode areas of social deprivation

(Vinson,1999). Of the 30 highest ranking postcode areas in NSW based on disadvantage score, only two were Sydney metropolitan postcodes, the remainder being in rural areas and greater metropolitan Sydney. Five postcode areas of Newcastle were ranked in the top 17 most disadvantaged areas. As these postcode areas range in size from just over 100 people to under 9,000 people, this type of analysis allows for much more targeted community-based interventions, not only to improve health in particular areas, but also to build the local communities' capacity to increase opportunities for these most disadvantaged groups (Vinson, 1999). In addition to local initiatives, a recent monograph on health inequities, produced in NSW, identified four isues for action at the health system level to move towards addressing inequities in health. These are: reshaping our thinking on social and economic progress through regular reporting on an index of human and social capital; mandatory reporting on the health and health equity impact of government policies and major private sector developments; developing coalitions for action to address health inequities; and defining health system roles and creating reporting mechanisms (Harris et al. 1999).

The analyses in this chapter use a composite measure of SES, the index of relative socioeconomic disadvantage (IRSD), which is one of the socioeconomic indices for areas (SEIFA indices) produced by the ABS based on data from the 1996 ABS population census (ABS, 1993). The IRSD is a single score derived from multiple weighted variables relating to education, occupation, non-English speaking background, indigenous origin and the economic resources of households. Lower scores indicate lower SES. The score for Australia is set at 1000 and the relative score for NSW overall is 1006. Both the IRSD and that used in the Vinson study include the key social determinants of health. The main difference between the variables used for the IRSD score, and those used in the Vinson study in NSW, is the inclusion in the Vinson study of the indicators of low birth-weight, child abuse, psychiatric hospital admissions, and court cases and convictions.

All of the analyses in this chapter are ecological, but the unit of analysis differs. Data on deaths and teenage mothers are based on a comparision of the IRSD scores grouped into quintiles, calculated from the score averaged over an LGA, and compared with the death or birth rate averaged for each quintile. Data derived from the NSW Health Surveys for 1997 and 1998 (for example, health-related behaviours, mental health, and screening), are analysed and presented in a similar way, but the unit of analysis is the postcode rather than the LGA. Only death rates were age-adjusted due to the strong correlation between age and death, which may mask the effect of SES on health. More information on the methods used in this chapter is given in the Methods section (page 265).

The results of these analyses overall support the notion of a social gradient of health existing in NSW, in particular, that those in the least disadvantaged quintile of SES (the first quintile) have lower mortality, better self-rated health, and a lower prevalence of health risk factors, than those more disadvantaged. For the indicators of premature death and teenage motherhood, the greatest health differences are between the least disadvantaged quintile (the first quintile) and the rest. This may reflect a 'threshold effect' in the relationship between SES and health for these indicators, with those least disadvantaged having much better health, services or opportunities which may lead to them not dying prematurely or giving birth as teenagers. It is interesting to note that this 'threshold effect' is not apparent for health risk factors and self-rated health status.

For more information, see: Evans RG, Barer ML and Marmor TR (eds). *Why are some people healthy and others are not?:The determinants of the health of populations.* New York: De Gruyter, 1994.

Marmot MG, Wilkinson RG (eds). *Social determinants of health.* Oxford: Oxford University Press, 1999.

Howden-Chapman P, Cram F. *Social, economic and cultural determinants of health.* Auckland: National Health Committee, 1998.

Hupalo P, Herden K. *Health policy and inequality.* Canberra: Department of Health and Aged Care, Occasional Papers, New series no. 5,1999.

Wilkinson RG, Marmot MG (eds). *Social determinants of health. The Solid Facts.* Copenhagen: World Health Organization Centre for Urban Health,1998 at http://www.who.dk/document/e59555.pdf.

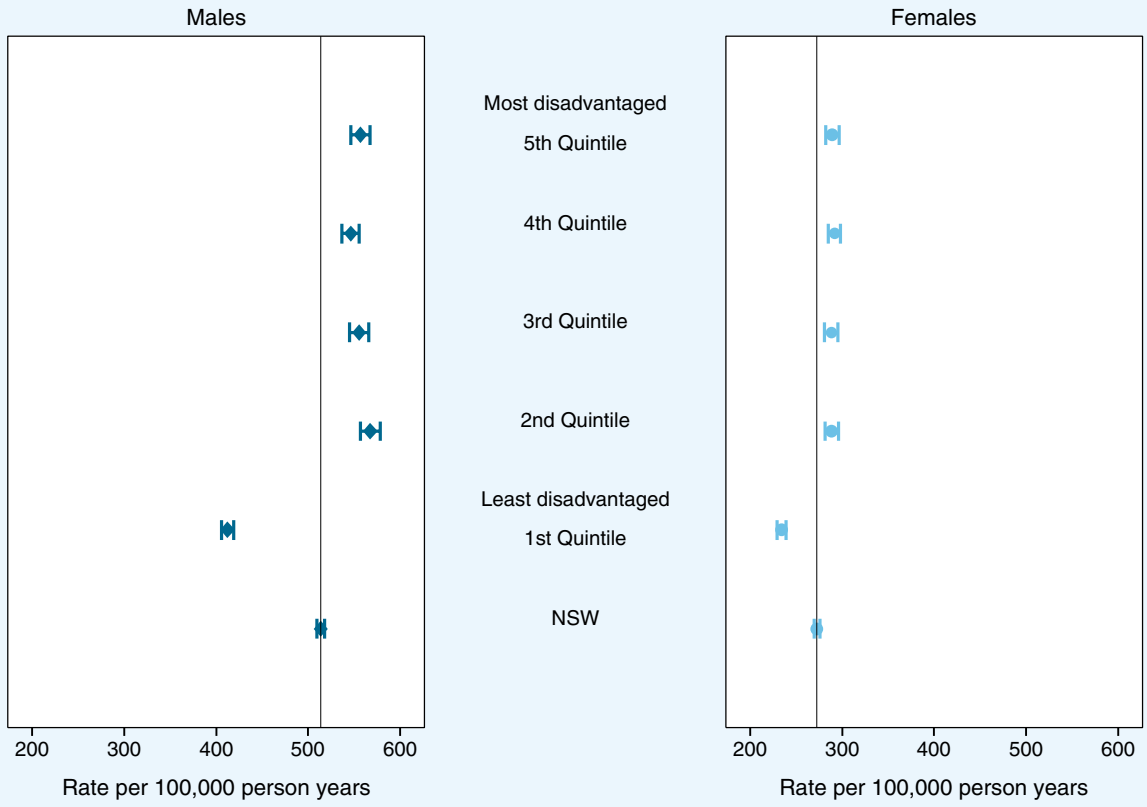
Harris E, Sainsbury P, Nutbeam D (eds). *Perspectives on health equity.* Sydney: Australian Centre for Health Promotion, 1999.

Vinson T. *Unequal in life. The distribution of social disadvantage in Victoria and New South Wales.* Melbourne: The Ignatius Centre, 1999.

Australian Bureau of Statistics. *Information paper: 1996 Census socioeconomic indices for areas.* Canberra: ABS Catalogue no. 29120, 1998.

Woodward A, Kawachi I. *Why should we reduce health inequalities?* Auckland: National Health Committee,1998.

Premature deaths from all causes by socioeconomic disadvantage score for LGAs and sex, persons aged 15 to 74 years, NSW 1994 to 1998



Quintile of IRSD scores for LGAs	Sex	Rate per 100,000	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	Males	513.7	509.6	517.8
	Females	272.7	269.8	275.6
	Persons	389.8	387.3	392.3
1st Quintile (>= 1028.9)	Males	412.4	405.6	419.2
	Females	234.3	229.4	239.2
	Persons	319.2	315.1	323.4
2nd Quintile (989.4–< 1028.9)	Males	567.5	556.9	578.3
	Females	288.5	281.2	296.0
	Persons	425.0	418.6	431.4
3rd Quintile (969.6–< 989.4)	Males	555.5	545.1	566.1
	Females	288.1	280.8	295.5
	Persons	419.2	412.9	425.6
4th Quintile (950.6–< 969.6)	Males	546.2	536.8	555.7
	Females	291.7	285.1	298.5
	Persons	415.5	409.8	421.2
5th Quintile (< 950.6)	Males	557.0	546.6	567.5
	Females	289.2	281.9	296.6
	Persons	421.1	414.8	427.5

Note: Premature death is a death between ages 15 and 74 in both sexes. Rates were age-adjusted using the Australian population as at 30 June 1991. Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Socioeconomic Indices For Areas (SEIFA) Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods Section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

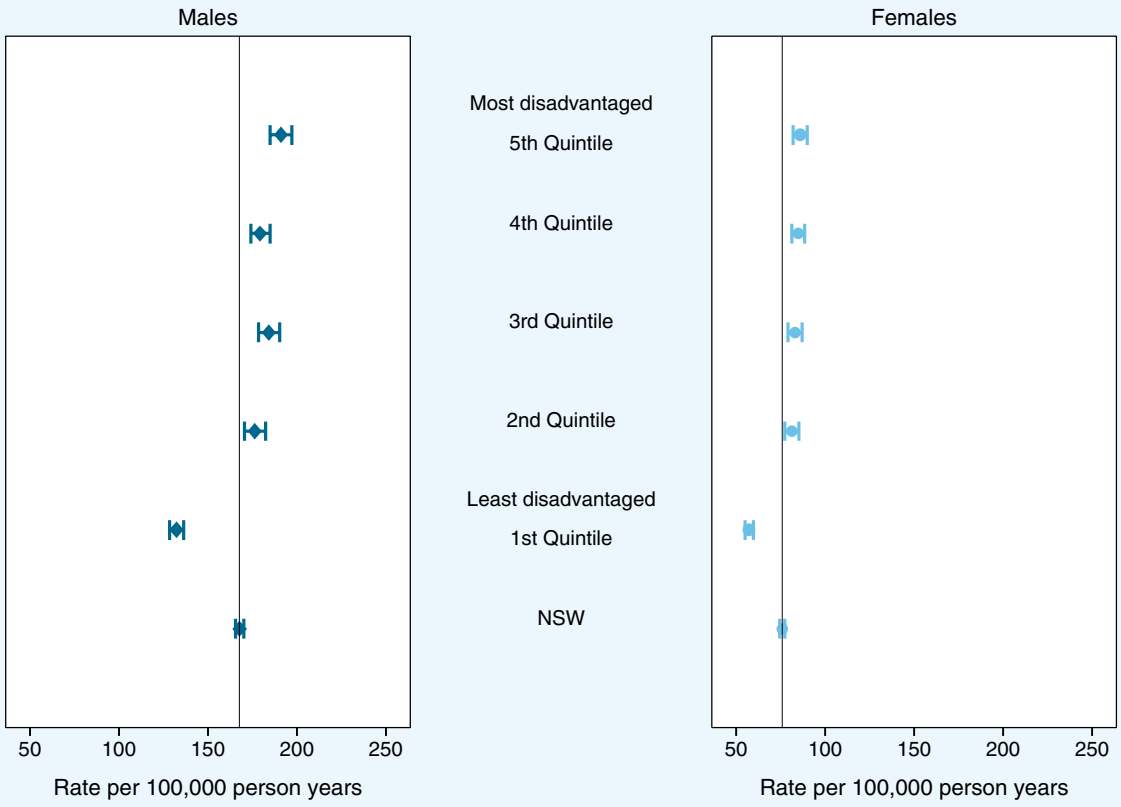
Source: ABS mortality and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There is an association between a lower likelihood of dying prematurely and being in the least socioeconomically disadvantaged quintile for both males and females in NSW.
- The premature death rates were substantially higher in males than in females in each quintile.

For more information, see: ABS. *Causes of death, Australia.* Canberra: ABS, 1999.

ABS. *Information paper, 1996 Census of population and housing, SEIFA.* Canberra: ABS, 1998.

Premature deaths from cardiovascular disease by socioeconomic disadvantage score for LGAs and sex, persons aged 15 to 74 years, NSW 1994 to 1998



Quintile of IRSD score for LGAs	Sex	Rate per 100,000	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	Males	167.8	165.4	170.1
	Females	75.8	74.3	77.3
	Persons	120.3	118.9	121.7
1st Quintile (>=1028.9)	Males	132.2	128.4	136.2
	Females	57.3	54.9	59.8
	Persons	92.9	90.6	95.1
2nd Quintile (989.4–<1028.9)	Males	176.2	170.3	182.3
	Females	81.2	77.4	85.2
	Persons	127.4	123.9	130.9
3rd Quintile (969.6–< 989.4)	Males	184.1	178.2	190.2
	Females	83.1	79.2	87.0
	Persons	132.4	128.9	135.9
4th Quintile (950.6–< 969.6)	Males	179.3	173.9	184.7
	Females	84.8	81.3	88.5
	Persons	130.6	127.5	133.9
5th Quintile (< 950.6)	Males	190.9	184.9	196.9
	Females	86.0	82.1	90.0
	Persons	137.6	134.1	141.2

Note: Cardiovascular diseases were classified according to the ICD-9 codes 390–459. Premature death is a death between ages 15 and 74 in both sexes. Rates were age-adjusted using the Australian population as at 30 June 1991. Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods section p 265). LL/UL95%CI=Lower and upper limits of the 95 per cent confidence interval for the point estimate.

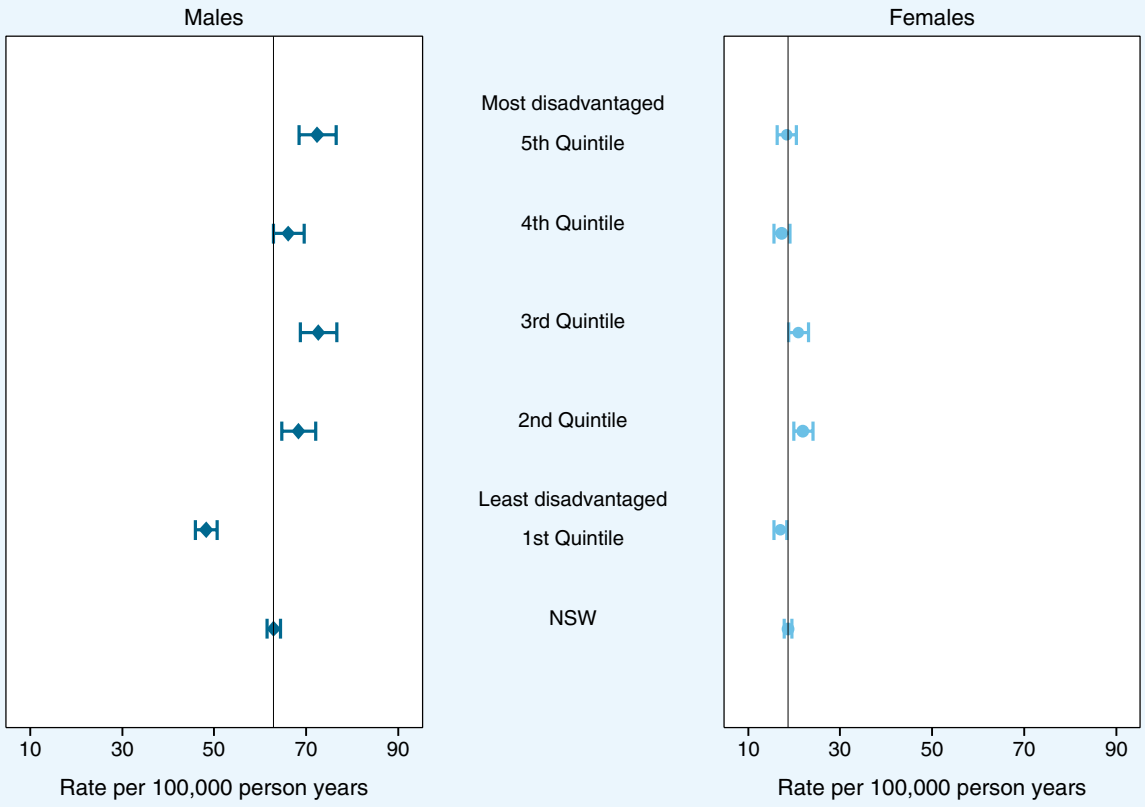
Source: ABS mortality and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There is an association between premature death from cardiovascular diseases and socioeconomic disadvantage in both sexes, however this association was much stronger in males.
- Premature death rates were substantially higher in males than in females in each quintile.

For more information, see: ABS. *Causes of death, Australia.* Canberra: ABS, 1999.

ABS. *Information paper, 1996 Census of population and housing, SEIFA.* Canberra: ABS, 1998.

Premature death from injury and poisoning by socioeconomic disadvantage score for LGAs and sex, persons aged 15 to 74 years, NSW 1994 to 1998



Quintile of IRSD score for LGAs	Sex	Rate per 100,000	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	Males	62.9	61.5	64.4
	Females	18.7	17.9	19.5
	Persons	40.9	40.0	41.7
1st Quintile (>=1028.9)	Males	48.2	45.9	50.6
	Females	16.9	15.6	18.3
	Persons	32.4	31.1	33.8
2nd Quintile (989.4–<1028.9)	Males	68.3	64.7	72.0
	Females	21.9	19.9	24.1
	Persons	45.4	43.3	47.6
3rd Quintile (969.6–< 989.4)	Males	72.6	68.8	76.7
	Females	20.9	18.8	23.1
	Persons	47.0	44.7	49.3
4th Quintile (950.6–< 969.6)	Males	66.1	62.8	69.5
	Females	17.3	15.6	19.1
	Persons	41.7	39.9	43.6
5th Quintile (< 950.6)	Males	72.4	68.4	76.6
	Females	18.3	16.4	20.4
	Persons	45.5	43.3	47.9

Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869 E880–929 E950–-999. Rates were age-adjusted using the Australian population as at 30 June 1991. Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods Section p 265). LL/UL95%CI=Lower and upper limits of the 95 per cent confidence interval for the point estimate.

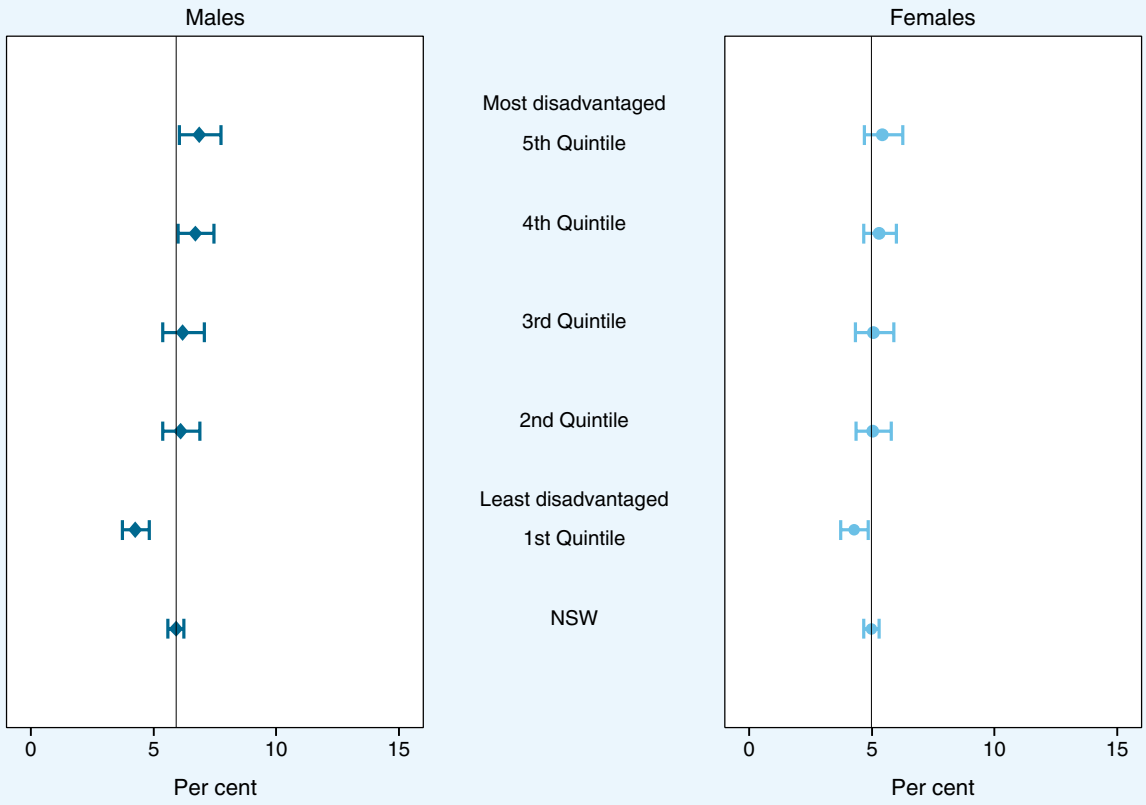
Source: ABS mortality and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The likelihood of dying prematurely from injury or poisoning is strongly associated with socioeconomic status in males. The premature death rate for injury in men in the most disadvantaged group was 50 per cent higher than for men in the least disadvantaged group.
- Death rates were greater in males than in females in each quintile.

For more information, see: Australian Bureau of Statistics. *Causes of death, Australia*. Canberra: ABS, 1999.

Australian Bureau of Statistics. *Information paper, 1996 Census of population and housing, SEIFA*. Canberra: ABS, 1998.

Infant death rate by socioeconomic disadvantage score for LGAs and sex, NSW 1994 to 1998



Quintile of IRSD score for LGAs	Sex	Rate per 1,000 live births	LL 95 % CI	UL 95 % CI
NSW (1006)	Males	5.9	5.6	6.2
	Females	5.0	4.7	5.3
	Persons	5.5	5.2	5.7
1st Quintile (>=1029.4)	Males	4.2	3.7	4.8
	Females	4.3	3.7	4.9
	Persons	4.3	3.9	4.7
2nd Quintile (988.6–1029.4)	Males	6.1	5.4	6.9
	Females	5.0	4.4	5.8
	Persons	5.6	5.1	6.1
3rd Quintile (969.5– 988.6)	Males	6.2	5.4	7.1
	Females	5.1	4.3	5.9
	Persons	5.6	5.1	6.2
4th Quintile (950.4– 969.5)	Males	6.7	6.0	7.4
	Females	5.3	4.7	6.0
	Persons	6.0	5.5	6.5
5th Quintile (< 950.4)	Males	6.9	6.0	7.7
	Females	5.4	4.7	6.3
	Persons	6.2	5.6	6.8

Note: Infant deaths are deaths in children less than one year old. Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD). The IRSD is based on 1996 Census data (see Methods section p 265). LL/UL95%CI=Lower and upper limits of the 95 per cent confidence interval for the point estimate.

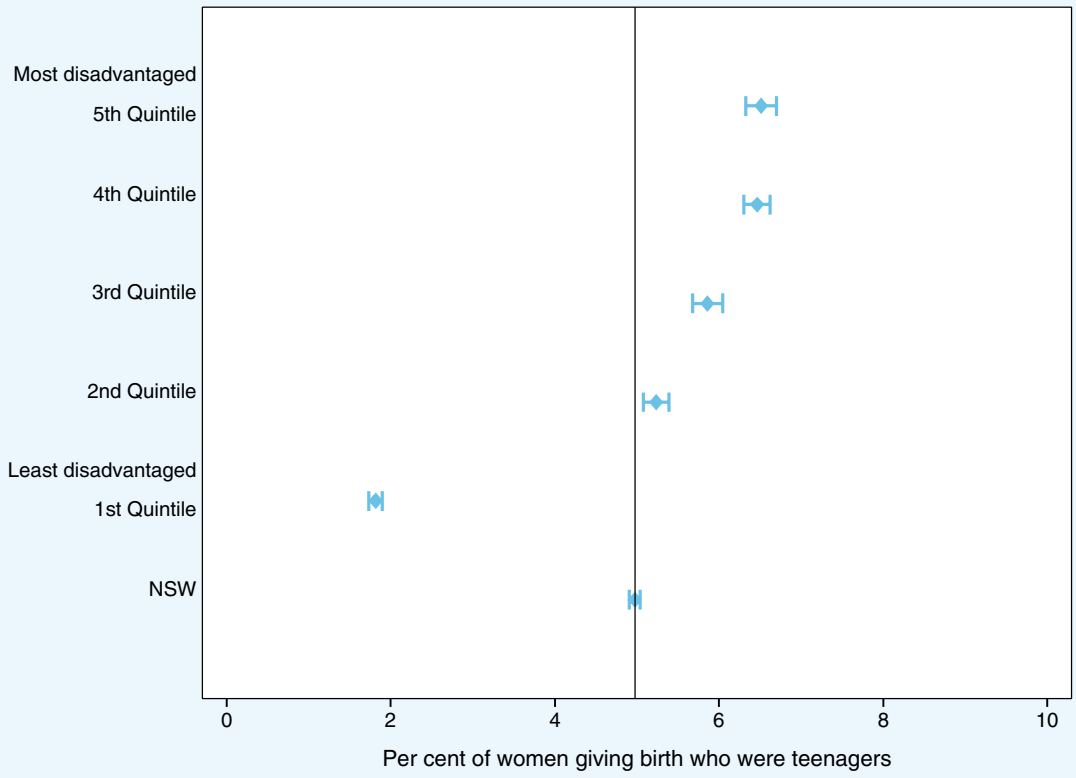
Source: ABS mortality and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The likelihood of dying as an infant of less than one year of age is higher in more disadvantaged groups in NSW.
- The association between SES and infant death was stronger for males than females, and male rates were slightly higher overall.

For more information, see: Bross DS, Shapiro S. Direct and indirect associations of five factors with infant mortality. *Am J Epidemiol* 1982;115:78 – 91.

Wraith C, Murphy E. Working together to support children and families in disadvantaged communities. *NSW Public Health Bulletin* 1998; 9(11): 131–133.

Teenage mothers by socioeconomic disadvantage score for LGAs, NSW 1994 to 1998



Quintiles of IRSD score for LGAs	% Teenage mothers	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	5.0	4.9	5.0
1st Quintile (>= 1029.4)	1.8	1.7	1.9
2nd Quintile (988.6–< 1029.4)	5.3	5.1	5.4
3rd Quintile (969.5–< 988.6)	5.9	5.7	6.1
4th Quintile (950.4–< 969.5)	6.5	6.3	6.7
5th Quintile (< 950.4)	6.5	6.3	6.6

Note: Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods Section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

Source: NSW Midwives Data Collection and and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The likelihood of giving birth as a teenager is strongly associated with socioeconomic disadvantage.
- Teenage mothers represented about two per cent of all women giving birth in the least disadvantaged quintile compared with 6.5 per cent of all women giving birth in the most disadvantaged quintile.
- Programs that have resulted in decreased teenage pregnancy rates among disadvantaged youth overseas include early intervention and combined early developmental programs and education with home visiting (Barnett, 1993).
- In addition to decreased teenage pregnancy rates among girls, those young people who received the programs as infants and young children were more likely to graduate from high school, have lower rates of delinquency and arrests, and were less likely to use illicit drugs.

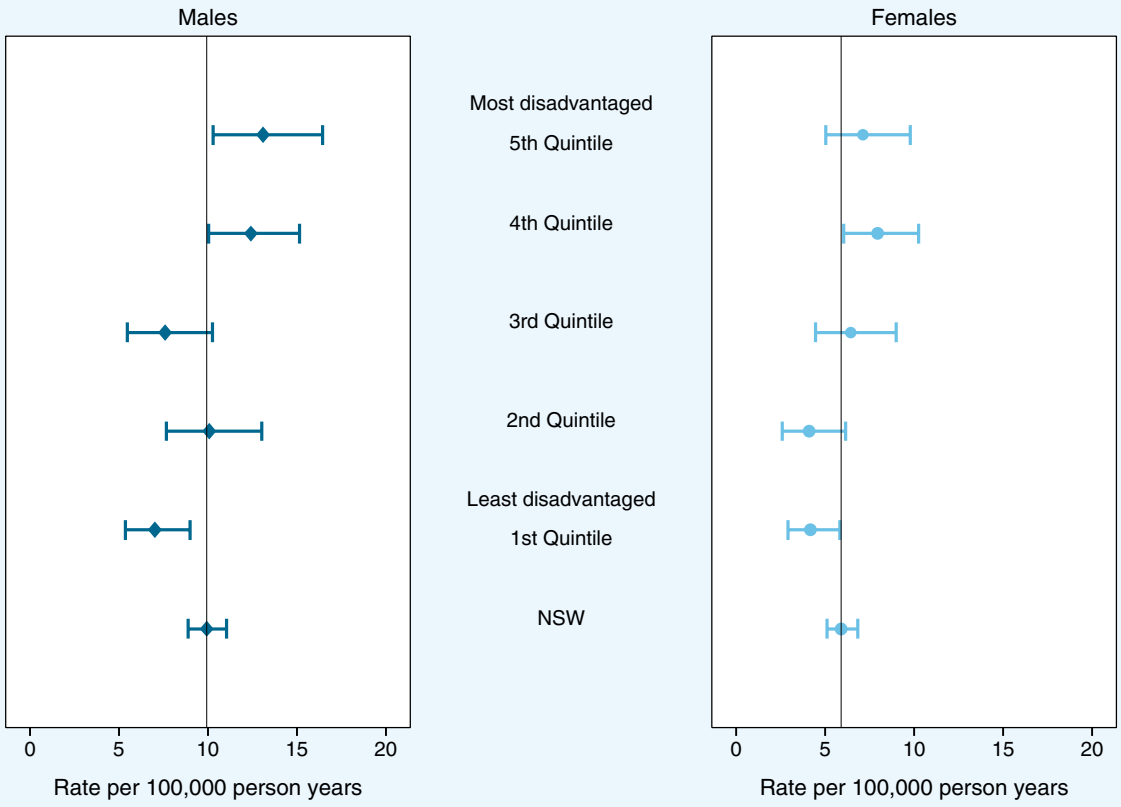
For more information, see: Adelson PL, Frommer MS, Pym MA, Rubin GL. Teenage pregnancy and fertility in New South Wales: An examination of fertility trends, abortions and birth outcomes. *Aust J Public Health* 1992; 16: 238–244.

Bromfenbremmer U. Is early intervention effective? *Exceptional infants. vol. 3, Assessment and Intervention.* Friedlander BZ, Sherrif GM, Kirk GE (eds). New York: Brunner and Mazel, 1975.

Barnett WS. Benefit–cost analysis of pre-school education. *Am J Orthopsychiatry* 1993; 63: 500–508.

ABS. *Information paper 1996 Census of population and housing, SEIFA.* Canberra: ABS 1998.

Deaths from all injury in children by socioeconomic disadvantage score for LGAs and sex, persons aged 14 and under, NSW 1994 to 1998



Quintile of IRSD score for LGAs	Sex	Rate per 100,000	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	Males	9.9	8.9	11.0
	Females	5.9	5.1	6.8
	Persons	8.0	7.3	8.7
1st Quintile (>= 1028.9)	Males	7.0	5.4	9.0
	Females	4.2	2.9	5.8
	Persons	5.6	4.6	6.9
2nd Quintile (989.4–<1028.9)	Males	10.1	7.7	13.0
	Females	4.1	2.6	6.2
	Persons	7.1	5.7	8.9
3rd Quintile (969.6–<989.4)	Males	7.6	5.5	10.2
	Females	6.4	4.5	9.0
	Persons	7.0	5.5	8.8
4th Quintile (950.6–<969.6)	Males	12.4	10.1	15.1
	Females	8.0	6.1	10.3
	Persons	10.2	8.7	12.0
5th Quintile (<950.6)	Males	13.1	10.3	16.4
	Females	7.1	5.0	9.8
	Persons	10.2	8.4	12.3

Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869 E880–929 E950–999. Local Government Areas (LGAs) were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

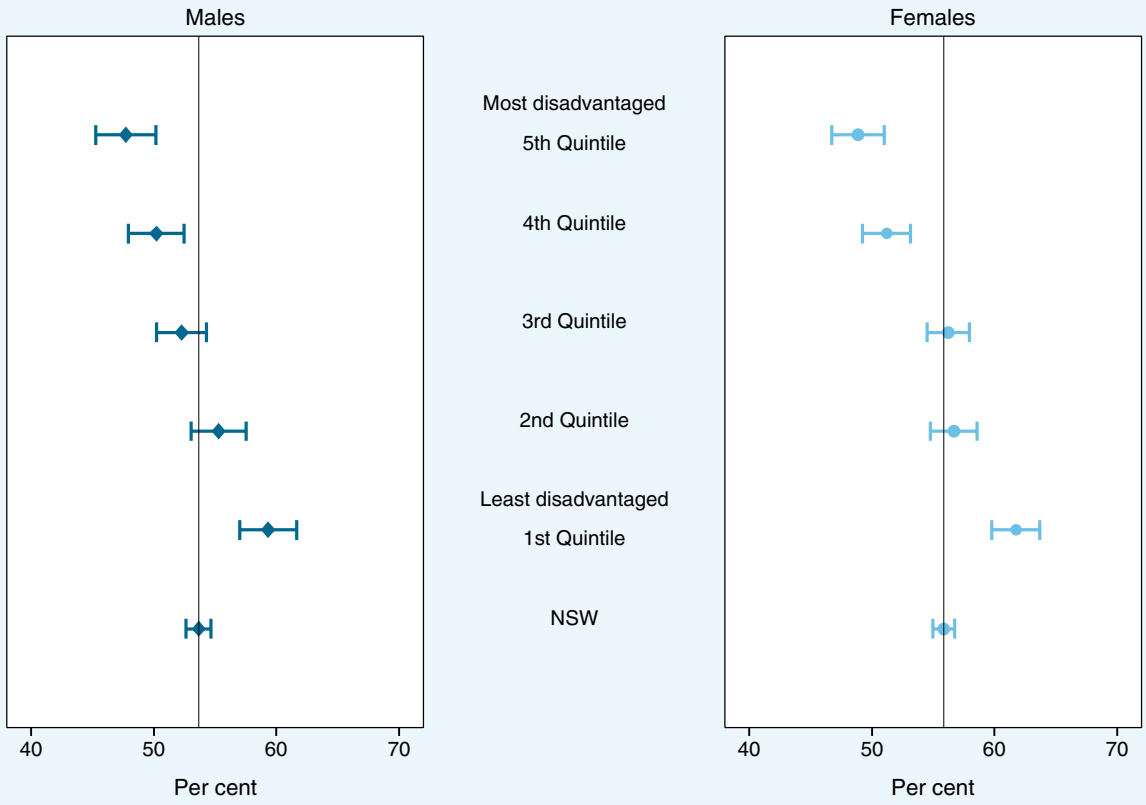
Source: ABS mortality and Census data, and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Deaths from injury and poisoning in children aged under 15 years are associated with socioeconomic disadvantage. This association is stronger in boys than in girls. Home visiting programs have been successful in reducing injury rates in children. These programs are part of the Family First Strategy funded by the NSW government.

For more information, see: Roberts I, Kramer MS, Suissa S. Does home visiting prevent childhood injury? A systematic review of randomised controlled trials. *BMJ* 1996; 312: 29–33.

Hudson D. Families First: A support network for families raising children. *NSW Public Health Bulletin* 1998; 10(7): 84–85.

Self-rated excellent or very good health by socioeconomic disadvantage score for postcode of residence and sex, NSW 1997 and 1998



Quintile of IRSD score for postcode	Sex	%	LL 95 % CI	UL 95 % CI
NSW (total score = 1006)	Males	53.6	52.6	54.7
	Females	55.9	55.0	56.8
	Persons	54.9	54.2	55.6
1st Quintile (>=1063.3)	Males	59.3	57.0	61.6
	Females	61.7	59.8	63.7
	Persons	60.7	59.2	62.2
2nd Quintile (1007.5–<1063.3)	Males	55.3	53.1	57.5
	Females	56.7	54.8	58.6
	Persons	56.1	54.6	57.5
3rd Quintile (971.8–<1007.5)	Males	52.3	50.2	54.3
	Females	56.2	54.5	57.9
	Persons	54.5	53.2	55.9
4th Quintile (971.8–<938.9)	Males	50.2	47.9	52.5
	Females	51.2	49.2	53.2
	Persons	50.8	49.3	52.2
5th Quintile (<938.9)	Males	47.7	45.3	50.1
	Females	48.9	46.7	51.0
	Persons	48.4	46.7	50.0

Note: Respondents were asked: 'In general, would you say your health is excellent, very good, good, fair or poor?' Postcode areas were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD)(see Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

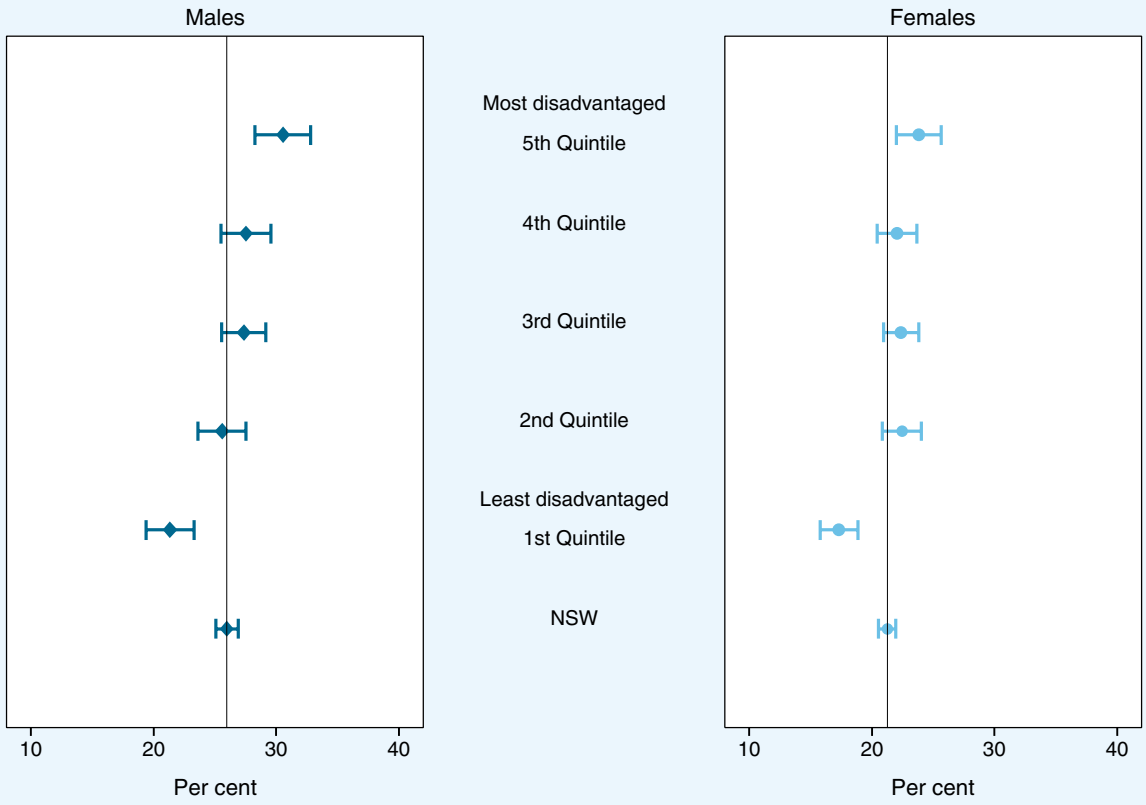
Source: NSW Health Surveys 1997 and 1998, ABS Census data and SEIFA index (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- The likelihood of a person rating their health as excellent or very good decreased with increasing socioeconomic disadvantage. This association was very similar in females and males, even though overall females rated their health as being marginally better than males in each quintile.

For more information, see: NSW 1997 Health Survey electronic report at: http://www.health.nsw.gov.au/public-health/hs97.

ABS. *Information paper, 1996 Census of population and housing, SEIFA*. Canberra: ABS, 1998.

Current smoking by socioeconomic disadvantage score for postcode of residence and sex, NSW 1997 and 1998



Quintile of IRSD score for postcode	Sex	%	LL 95 % CI	UL 95 % CI
NSW (total score = 1006)	Males	26.0	25.1	26.9
	Females	21.3	20.5	22.0
	Persons	23.3	22.7	23.9
1st Quintile (>= 1063.3)	Males	21.3	19.4	23.3
	Females	17.3	15.8	18.9
	Persons	19.1	17.9	20.3
2nd Quintile (1007.5–<1063.3)	Males	25.6	23.6	27.5
	Females	22.5	20.8	24.1
	Persons	23.8	22.6	25.1
3rd Quintile (971.8–<1007.5)	Males	27.3	25.5	29.2
	Females	22.4	20.9	23.8
	Persons	24.5	23.4	25.6
4th Quintile (971.8–<938.9)	Males	27.5	25.5	29.6
	Females	22.1	20.4	23.7
	Persons	24.5	23.2	25.8
5th Quintile (<938.9)	Males	30.5	28.3	32.8
	Females	23.8	22.0	25.7
	Persons	26.8	25.4	28.3

Note: Current smoking includes daily or occasional smoking. Postcode areas were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

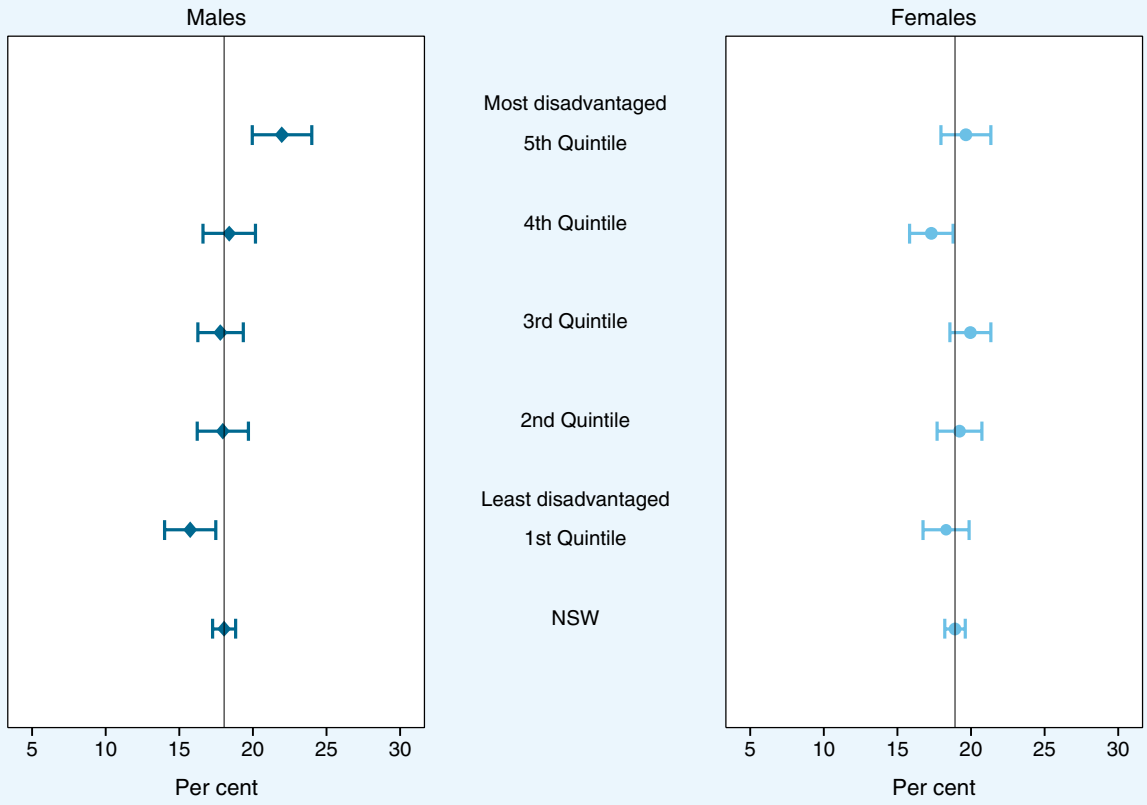
Source: NSW Health Surveys 1997 and 1998, ABS census data and SEIFA index (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- There was a strong association between the likelihood of a male or a female currently smoking in 1997 and 1998 in NSW and increasing socioeconomic disadvantage. The proportion of males currently smoking was greater than proportion of female smokers in each quintile.

For more information, see: Townsend J. Cigarette smoking by socioeconomic group, sex, and age: effects of price, income, and health publicity. *BMJ* 1994; 309: 923–927.

National Health Strategy. *Enough to make you sick: How income and environment affect health.* Canberra: Department of Health, Housing and Community Services, 1992.

Hazardous and harmful alcohol consumption by socioeconomic disadvantage score for postcode of residence and sex, NSW 1997 and 1998



Quintile of IRSD score for postcode	Sex	%	LL 95 % CI	UL 95 % CI
NSW (total score=1006)	Males	18.0	17.2	18.8
	Females	18.9	18.2	19.6
	Persons	18.5	18.0	19.1
1st Quintile (>=1063.3)	Males	15.7	14.0	17.5
	Females	18.3	16.7	19.9
	Persons	17.2	16.0	18.3
2nd Quintile (1007.5–<1063.3)	Males	17.9	16.2	19.7
	Females	19.2	17.7	20.7
	Persons	18.7	17.5	19.8
3rd Quintile (971.8–<1007.5)	Males	17.8	16.2	19.4
	Females	20.0	18.6	21.3
	Persons	19.0	18.0	20.1
4th Quintile (938.9–<971.8)	Males	18.4	16.6	20.2
	Females	17.3	15.8	18.8
	Persons	17.8	16.7	18.9
5th Quintile (<938.9)	Males	22.0	19.9	24.0
	Females	19.7	18.0	21.4
	Persons	20.7	19.4	22.0

Note: Hazardous/harmful alcohol use = Current drinker who usually consumes three or more (females) or five or more (males) drinks on one or more days per week. Postcode areas were classified into quintiles based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

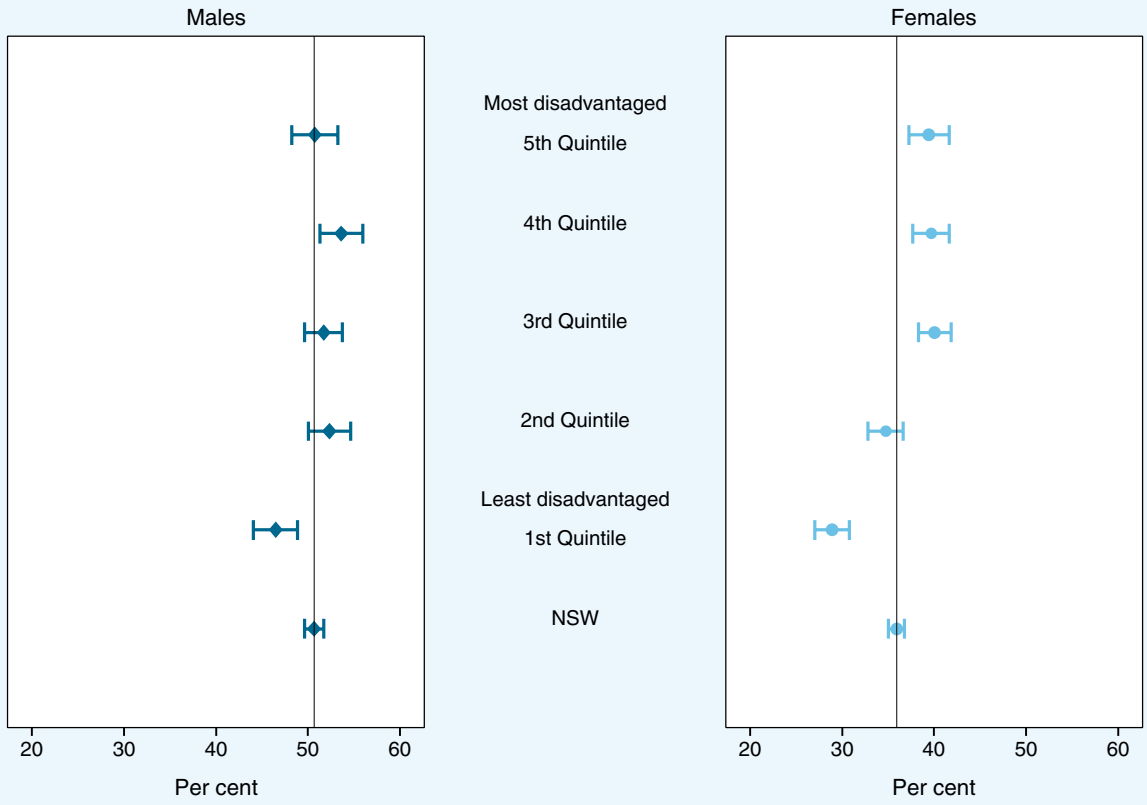
Source: NSW Health Surveys 1997 and 1998 and ABS SEIFA (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The most disadvantaged males and females were more likely to consume alcohol at hazardous or harmful levels than those in less disadvantaged groups. This was particularly shown for males compared to females.

For more information, see: NSW 1997 Health Survey electronic report at: www.health.nsw.gov.au/public-health/hs97

Wilkinson R, Marmot M. *The solid facts: social determinants of health*. Copenhagen: WHO Centre for Urban Health, 1998.

Overweight and obesity by socioeconomic disadvantage score for postcode of residence and sex, NSW 1997 and 1998



Quintile of IRSD score for postcode	Sex	%	LL95 % CI	UL95 % CI
NSW (total score =1006)	Males	50.6	49.6	51.7
	Females	35.9	35.1	36.8
	Persons	42.5	41.8	43.2
1st Quintile (>=1063.3)	Males	46.5	44.1	48.9
	Females	28.9	27.0	30.8
	Persons	36.7	35.2	38.2
2nd Quintile (1007.5–<1063.3)	Males	52.3	50.0	54.6
	Females	34.7	32.8	36.6
	Persons	42.5	41.0	44.0
3rd Quintile (971.8–<1007.5)	Males	51.7	49.6	53.8
	Females	40.1	38.3	41.8
	Persons	45.2	43.8	46.5
4th Quintile (971.8–<938.9)	Males	53.6	51.3	55.9
	Females	39.7	37.7	41.7
	Persons	46.0	44.5	47.5
5th Quintile (<938.9)	Males	50.8	48.3	53.3
	Females	39.4	37.3	41.6
	Persons	44.6	43.0	46.3

Note: Body Mass Index (BMI) was based on self reported height and weight. BMI=weight(kg)/height*height;(m). Overweight or obesity were classified as BMI>=25. Postcode areas were classified into quintiles by scores based on the ABS Index of Relative Socio-economic Disadvantage (IRSD) (see Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

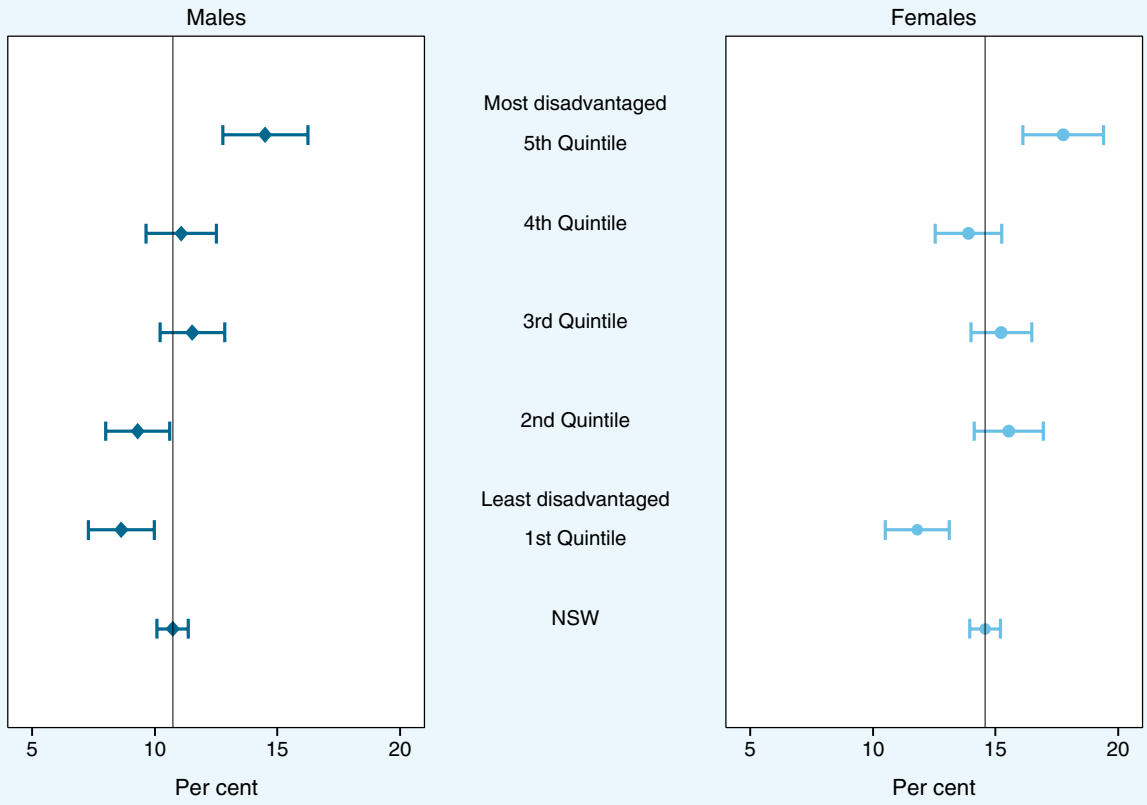
Source: NSW Health Surveys 1997 and 1998 and ABS Census data and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The likelihood of a male or a female reporting being overweight or obese was associated with socioeconomic disadvantage. This association was much stronger for females than for males.

For more information, see: *NSW Health Survey 1997. Sydney:* NSW Health Department, 1998.

ABS, *Information paper, 1996 Census of population and housing, SEIFA*. Canberra: ABS, 1998.

Psychosocial distress by socioeconomic disadvantage score for postcode of residence and sex, NSW 1997 and 1998



Quintile of IRSD score for postcode	Sex	%	LL 99 % CI	UL 99 % CI
NSW (total score=1006)	Males	10.7	10.1	11.4
	Females	14.6	13.9	15.2
	Persons	12.9	12.4	13.3
1st Quintile (>=1063.3)	Males	8.6	7.3	10.0
	Females	11.8	10.5	13.1
	Persons	10.4	9.5	11.4
2nd Quintile (1007.5–<1063.3)	Males	9.3	8.0	10.6
	Females	15.5	14.1	16.9
	Persons	12.8	11.8	13.8
3rd Quintile (971.8–<1007.5)	Males	11.5	10.2	12.8
	Females	15.2	14.0	16.5
	Persons	13.7	12.7	14.6
4th Quintile (971.8–< 938.9)	Males	11.1	9.6	12.5
	Females	13.9	12.5	15.3
	Persons	12.6	11.6	13.6
5th Quintile (< 938.9)	Males	14.5	12.8	16.2
	Females	17.8	16.1	19.4
	Persons	16.3	15.1	17.5

Note: Psychosocial distress was measured using the Kessler 10 (K10) questionnaire. Raw K10 scores were transformed so that the NSW mean was 50 and standard deviation was 10. Postcode areas were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see the Methods section p 265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

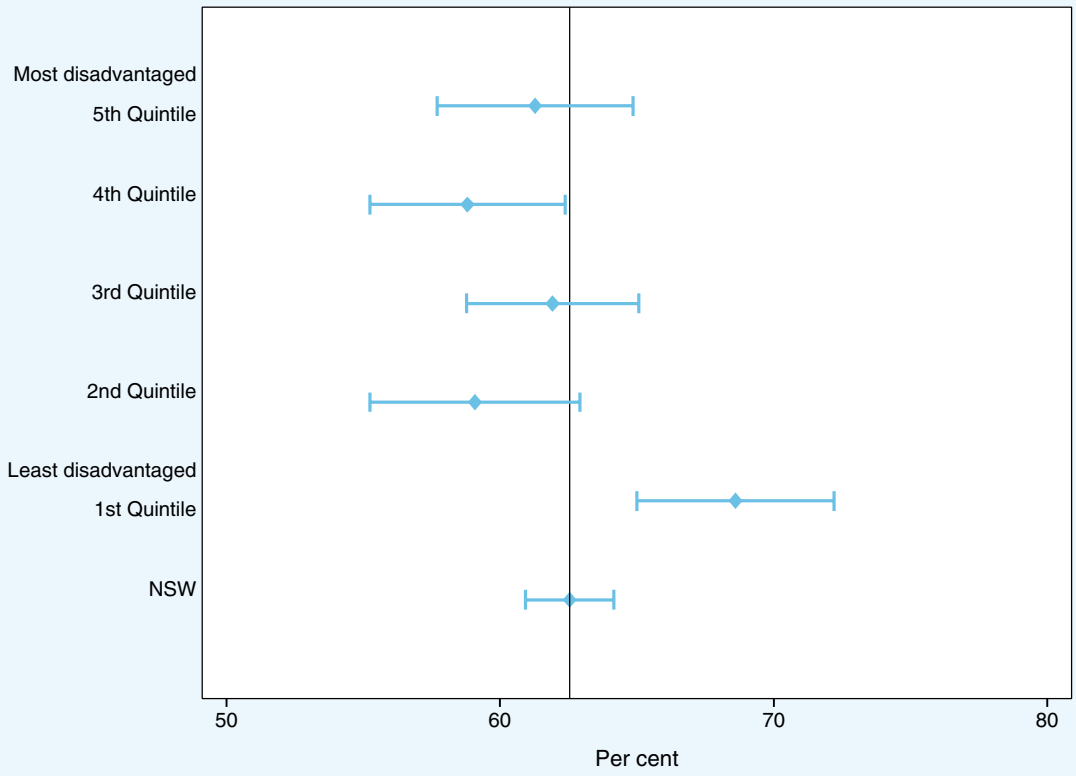
Source: NSW Health Survey 1997 and 1998, ABS census data and SEIFA index (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Psychosocial distress, as measured by the K10, was associated with socioeconomic disadvantage and was consistently higher among females than males.
- Further information on mental health can be found in Chapter 4.6 and on the K10 score in the methods section on page 265.

For more information, see: NSW 1997 Health Survey electronic report at: www.health.nsw.gov.au/public-health/hs97.

ABS. *Information paper, 1996 Census of population and housing, SEIFA*. Canberra: ABS, 1998.

Screening mammogram in last 2 years by socioeconomic disadvantage score for postcode of residence, women aged 50-69 years, NSW 1997 and 1998



Quintile of IRSD score for postcode	%	LL 95 % CI	UL 95 % CI
NSW (total score =1006)	62.5	60.9	64.2
1st Quintile (>=1063.3)	68.6	65.0	72.2
2nd Quintile (1007.5–<1063.3)	59.1	55.3	62.9
3rd Quintile (971.8–<1007.5)	61.9	58.8	65.1
4th Quintile (971.8–<938.9)	58.8	55.2	62.4
5th Quintile (<938.9)	61.3	57.7	64.9

Note: Women who indicated having a mammogram whilst not having breast symptoms were classed as having a screening mammogram. Postcode areas were classified into quintiles by scores based on the ABS Index of Relative Socioeconomic Disadvantage (IRSD) (see Methods Section p265). LL/UL95%CI=lower and upper limits of the 95 per cent confidence interval for the point estimate.

Source: NSW Health Surveys 1997 and 1998 and ABS SEIFA index (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- The graph examines the association between socioeconomic disadvantage and women aged 50–69 years reporting having a mammogram for breast cancer screening in the last two years. The higher the quintile number, the lower the Index of Relative Socioeconomic Disadvantage (IRSD) score and the more disadvantaged the group of the postcode areas.
- The graph shows that among more disadvantaged groups, a smaller proportion of women underwent mammographic screening for breast cancer. However, this association was not strong, as demonstrated by the overlapping confidence intervals for all quintiles. The table shows that 68.6 per cent of women aged 50–69 years in the least disadvantaged group, reported having a screening mammogram in the last two years, while the comparable figure for the most disadvantaged group was 61.3 per cent. Chapter 4.3 provides further information about mammographic screening and new cases and deaths from breast cancer in NSW.

For more information, see: NSW 1997 Health Survey electronic report at: www.health.nsw.gov.au/public-health/hs97.

ABS. *Information paper, 1996 Census of population and housing, SEIFA*. Canberra: ABS, 1998.

Health priority areas

Section 4

Chapter 4.1

Cardiovascular diseases

- Deaths due to coronary heart disease (CHD) have been declining in NSW since the 1960s. The age-adjusted CHD death rate dropped by about 40 per cent in males and females in the last decade.
- Nevertheless, CHD is still a major cause of death in NSW, causing 9,636 deaths (22 per cent of all deaths) in NSW in 1998.
- In the period 1994 to 1998, the Northern Sydney and South Eastern Sydney Health Areas had the lowest age-adjusted death rates from CHD, while the Far West, Greater Murray, Illawarra and Western Sydney Health Areas had death rates above the state average.
- The decline in deaths from CHD has been accompanied by a 44 per cent increase in hospitalisations for this condition over the past decade. Most of the increase has been for non-infarct diagnoses (mainly unstable angina), with hospitalisations for acute myocardial infarction ('heart attack') actually declining.
- Deaths from stroke declined by 36 per cent in males and 38 per cent in females in the decade to 1998. Stroke caused 4,364 deaths in NSW in 1998 (10 per cent of all deaths that year).
- Although deaths from stroke are declining, the incidence of non-fatal stroke may be increasing, mainly because of improved survival after stroke. Hospitalisations for stroke have increased by 16 per cent in the past nine years.
- A combination of improved survival from stroke, and rising numbers of elderly people in the population, will result in stroke making an increasing contribution to the community burden of disability in NSW. About one-third of those who have had a stroke will die within 12 months, and a further one-third will be permanently disabled.

In this chapter

Introduction

Cardiovascular (or circulatory) disease comprises all diseases of the heart and blood vessels, including coronary heart disease, stroke (or cerebrovascular disease), heart failure and peripheral vascular disease. It is the largest cause of premature death and death overall in Australia, accounting for 42 per cent of deaths from all causes in 1996 (Mathur and Gajanayake, 1998). Cardiovascular disease was made a National Health Priority Area (NHPA) in 1996, as part of an initiative to reduce its impact in Australia.

Coronary heart disease (or ischaemic heart disease), causing angina and acute myocardial infarction (or 'heart attack') and stroke are the major forms of cardiovascular disease causing death and illness in NSW. They share a number of risk factors including behavioural factors such as tobacco smoking, physical inactivity, poor diet, heavy alcohol consumption, and physiological factors such as high blood pressure, elevated blood lipids, diabetes mellitus and overweight/obesity. As cardiovascular disease risk factors are shared with other chronic diseases such as diabetes, coordination of prevention strategies is essential to ensure consistent health messages, pooling of resources and therefore better outcomes. To that effect, a National Chronic Disease Prevention and Control Strategy is currently being developed by the National Public Health Partnership. Also, NSW Health has been promoting best practice through the development, dissemination and implementation of evidence-based guidelines.

This chapter presents recent data on deaths and hospitalisations in NSW for coronary heart disease and stroke. The methods used for analysing and presenting death and hospitalisation data are described in more detail in the Methods section (see page 265).

For more information, see: Mathur S and Gajanayake I. Surveillance of cardiovascular mortality in Australia 1985–1996. Canberra: AIHW Catalogue no. CVD 3. Australian Institute of Health and Welfare (Cardiovascular disease series no. 6), 1998.

Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare. *National Health Priority Areas Report: Cardiovascular Health 1998*. AIHW Catalogue no. PHE 9. Canberra: AIHW, 1999.

Australian Institute of Health and Welfare. *Heart, stroke and vascular diseases, Australian Facts*. AIHW Catalogue no. CVD 7. Canberra: AIHW and the Heart Foundation of Australia, 1999.

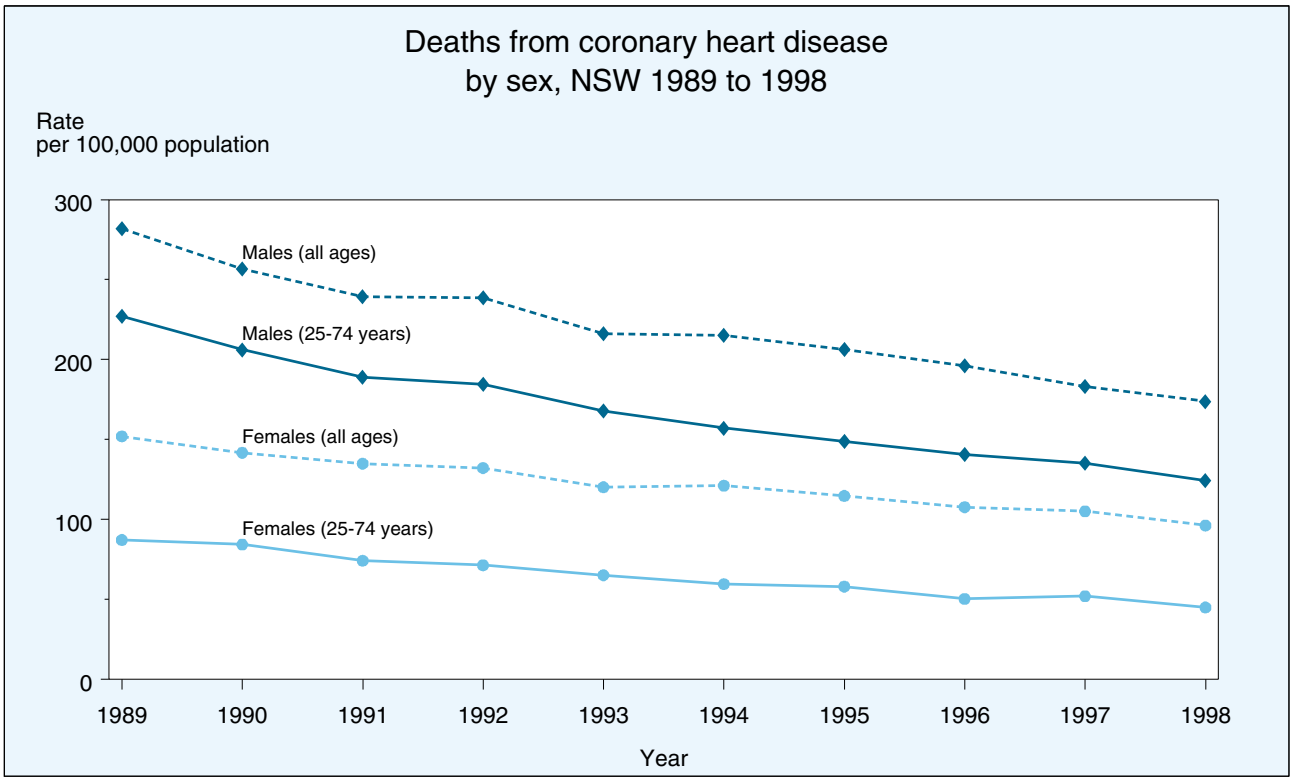
Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia*. Canberra: Australian Institute of Health and Welfare, 1999.

National Heart Foundation Web site at http://www.heartfoundation.com.au.

US Centers for Disease Control (CDC) Web sites at http://www.cdc.gov/nccdphp/cardio.htm and http://www.cdc.gov/nchs

National Stroke Foundation Web site at http://www.natstroke.asn.au.

For information on CVD risk factors, see: 1997 and1998 NSW Health Survey Electronic Report Web site at www.health.nsw.gov.au/public-health/hs97/ and the CDC Web site at http://www.cdc.gov/nccdphp/brfss.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Deaths	All ages	Males	6668	6219	6001	6116	5706	5811	5711	5625	5424	5303
		Females	5442	5167	5109	5178	4868	5102	4984	4878	4929	4648
		Persons	12110	11386	11110	11294	10574	10913	10695	10503	10353	9952
	25–74 years	Males	3713	3418	3204	3188	2953	2824	2715	2603	2531	2358
		Females	1603	1571	1411	1373	1272	1187	1167	1020	1061	922
		Persons	5316	4989	4615	4561	4225	4011	3882	3623	3592	3279
Rate/100,000	All ages	Males	282.0	256.6	239.3	238.6	216.2	215.2	206.3	196.1	183.0	173.7
		Females	151.9	141.7	134.9	132.1	120.2	121.1	114.7	107.7	105.0	96.1
		Persons	208.3	191.6	181.1	178.8	162.5	162.5	154.4	146.7	139.9	130.8
	25–74 years	Males	227.2	206.1	188.9	184.5	167.8	157.1	148.8	140.7	135.0	124.1
		Females	87.1	84.3	74.2	71.3	65.1	59.5	58.0	50.3	51.9	44.9
		Persons	154.0	142.7	129.4	125.8	114.5	106.6	101.8	94.0	92.3	83.5

Note: Coronary heart disease was classified according to the ICD-9 codes 410–414. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the Australian population as at 30 June, 1991.

Source: ABS mortality and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Deaths due to coronary heart disease (CHD) in NSW continue the gradual decline that has been observed since the late 1960s. The age-adjusted death rate for CHD in NSW for all ages decreased by 40 per cent in males and 39 per cent in females over the decade to 1998. This rate of decline is comparable to that observed Australia-wide in that time. The decline in death rates for CHD in NSW is even more marked for the 25–74 year age group: 47 per cent for males and 50 per cent for females in the 10 years between 1989 and 1998. Death rates are consistently 1.5 to nearly three times higher in males than females, although the gap has narrowed over the years.
- Reduction of cardiovascular risk factors, including cigarette smoking and high blood pressure, as well as improved acute and long-term medical care, have contributed to the decrease in deaths from coronary heart disease.
- Nevertheless, CHD remains a major cause of death and in Australia in 1996, was the leading cause of years of life lost in both males and females (Mathers et al. 1999).

For more information, see: Australian Bureau of Statistics. *Deaths, Australia, 1998*. Catalogue no. 3302.0. Canberra: ABS, 1999.

Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia.* Canberra: Australian Institute of Health and Welfare,1999.

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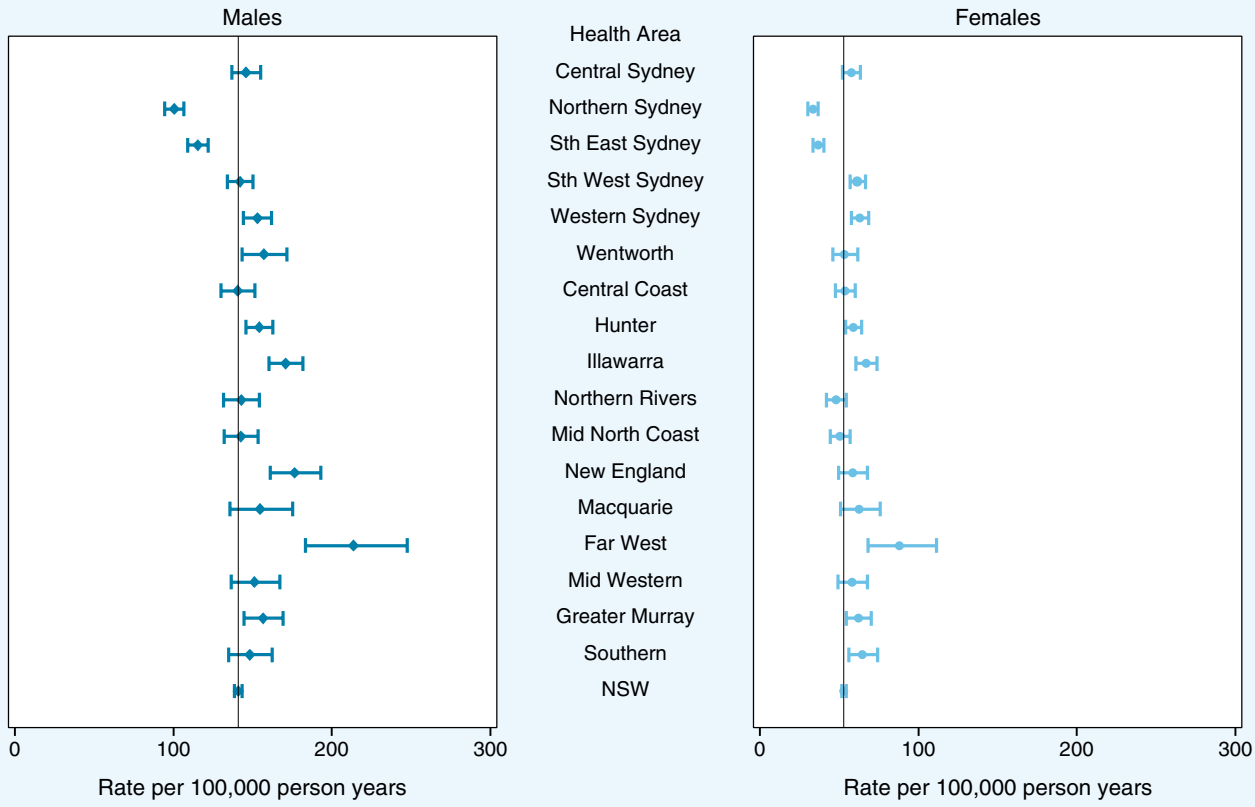
Deaths from coronary heart disease
by Health Area and sex, persons aged 25-74 years, NSW 1994 to 1998



Note: Coronary heart disease was classified according to the ICD-9 codes 410–414. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were adjusted using the Australian population as at 30 June 1991. Upper and lower limits for the 95 per cent confidence interval for the death rate are shown.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the period 1994 to 1998, there was substantial geographic variation in coronary heart disease (CHD) death rates in NSW.
- The Northern Sydney and South Eastern Sydney Health Areas had the lowest age-adjusted death rates for CHD for people aged 25–74 years. Higher rates compared to NSW overall occurred in males from this age group from the Western Sydney, Hunter, Illawarra, New England, Far West and Greater Murray Health Areas. In females, higher rates occurred in the South Western Sydney, Western Sydney, Illawarra, Far West, Greater Murray and Southern Health Areas.
- For planning health services, it is important to note that although age-adjusted death rates were low in Northern and South Eastern Sydney, the actual number of deaths in these areas was large: 1,553 deaths in Northern Sydney and 1,753 deaths in South Eastern Sydney over the five year period among people aged 25–74 years. During the period 1993 to 1997, these two areas, because of the size and age structure of their populations, experienced more coronary heart disease deaths than most other Health Areas.
- The higher CHD mortality rates observed in rural and remote areas, also observed nationally, are influenced by the relatively high proportion of Indigenous people in remote areas; they may also reflect differences in access to, and use of health services as well as differences in socioeconomic factors (Mathur and Gajanayake, 1998).

For more information, see: Mathur S and Gajanayake I. Surveillance of cardiovascular mortality in Australia 1985–1996. AIHW Catalogue no. CVD 3. Canberra: Australian Institute of Health and Welfare (Cardiovascular disease series no. 6), 1998.

Australian Institute of Health and Welfare. *National health priority areas report: Cardiovascular health 1998*. AIHW Catalogue no. PHE 9. Canberra: AIHW, 1999.

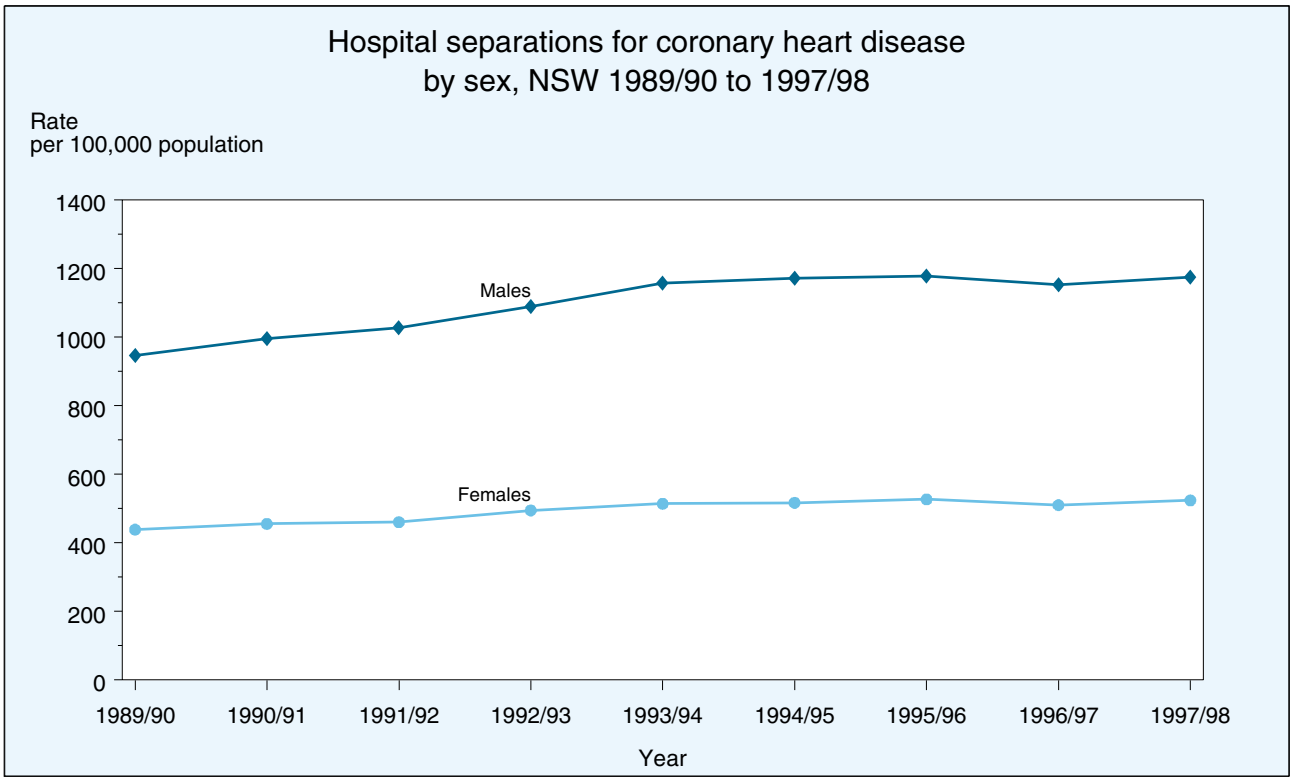
Close G, Lyle D, Churches T and Westley–Wise V. Cardiovascular disease surveillance report 1994. *NSW Public Health Bulletin* Supplement no. 5. Sydney: NSW Health Department, 1994.

Deaths from coronary heart disease by Health Area and sex, persons aged 25–74 years, NSW 1994 to 1998

Health Area	Sex	Number	Rate/100,000	LL95 % CI	UL95 % CI
Central Sydney	Males	1006	145.8	136.9	155.1
	Females	424	57.6	52.2	63.4
	Persons	1430	101.4	96.2	106.8
Northern Sydney	Males	1117	100.5	94.7	106.6
	Females	435	33.4	30.3	36.8
	Persons	1553	64.7	61.5	68.0
Sth East Sydney	Males	1283	115.3	109.0	121.8
	Females	470	36.8	33.5	40.3
	Persons	1753	74.5	71.0	78.1
Sth West Sydney	Males	1273	142.0	134.2	150.0
	Females	600	61.5	56.7	66.7
	Persons	1873	100.1	95.6	104.8
Western Sydney	Males	1215	152.9	144.3	161.9
	Females	537	62.9	57.7	68.5
	Persons	1751	106.1	101.2	111.3
Wentworth	Males	497	157.0	143.2	171.7
	Females	184	53.3	45.9	61.7
	Persons	681	103.1	95.4	111.2
Central Coast	Males	684	140.5	130.0	151.6
	Females	307	53.6	47.6	60.0
	Persons	991	94.7	88.7	100.9
Hunter	Males	1262	154.1	145.7	162.9
	Females	539	59.0	54.1	64.2
	Persons	1802	105.0	100.2	110.0
Illawarra	Males	973	170.8	160.2	181.9
	Females	405	67.0	60.6	73.9
	Persons	1378	117.8	111.6	124.2
Northern Rivers	Males	640	142.8	131.8	154.4
	Females	234	47.9	41.9	54.5
	Persons	874	94.4	88.2	100.9
Mid North Coast	Males	713	142.6	132.2	153.6
	Females	267	50.3	44.4	56.8
	Persons	980	95.8	89.8	102.1
New England	Males	482	176.4	160.9	192.9
	Females	166	58.3	49.7	67.9
	Persons	648	116.2	107.4	125.6
Macquarie	Males	244	154.6	135.8	175.3
	Females	100	62.4	50.7	75.9
	Persons	344	108.5	97.3	120.6
Far West	Males	177	213.6	183.2	247.6
	Females	69	87.9	68.3	111.3
	Persons	246	154.0	135.4	174.5
Mid Western	Males	381	151.2	136.4	167.2
	Females	156	58.0	49.2	67.9
	Persons	537	104.0	95.4	113.3
Greater Murray	Males	623	156.5	144.4	169.3
	Females	259	62.0	54.6	70.0
	Persons	882	108.8	101.7	116.3
Southern	Males	464	148.2	135.0	162.3
	Females	203	64.6	56.0	74.1
	Persons	668	106.7	98.7	115.1
NSW	Males	13034	141.0	138.6	143.4
	Females	5356	52.9	51.5	54.3
	Persons	18391	95.6	94.2	97.0

Note: Coronary heart disease was classified according to the ICD-9 codes 410-414. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were adjusted using the standard Australian population as at 30 June 1991. LL/UL95 per cent CI=lower/upper limits of 95% confidence interval for the standardised rate.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	26184	28083	29458	31788	34510	35660	36548	36561	38145
	Females	14411	15309	15823	17316	18266	18723	19456	19277	20136
	Persons	40595	43392	45281	49104	52776	54383	56004	55838	58281
Rate per100,000	Males	945.7	995.3	1026.2	1088.0	1156.4	1171.4	1177.0	1151.7	1174.8
	Females	438.2	454.8	460.0	494.2	513.5	516.4	526.2	509.6	523.6
	Persons	681.5	715.1	731.3	778.9	821.4	830.9	838.0	816.9	836.6

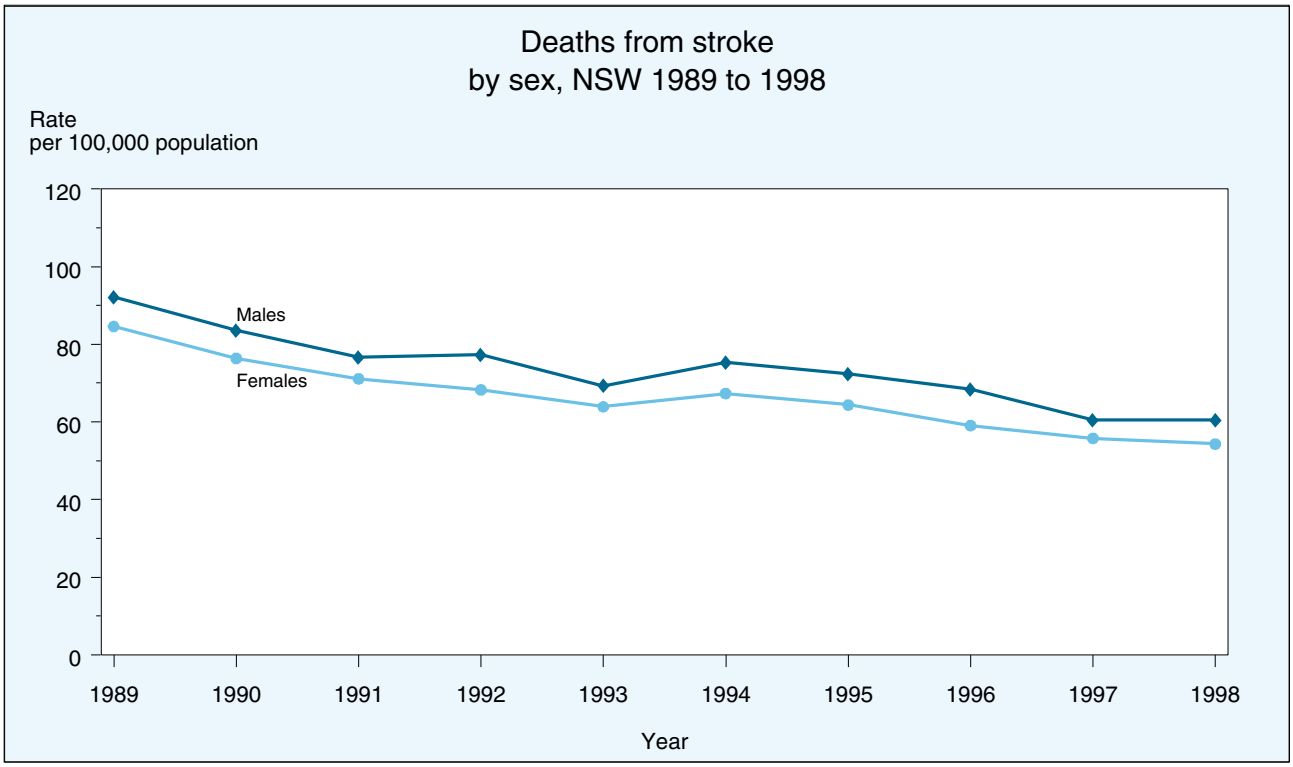
Note: Coronary heart disease was classified according to the ICD-9-CM codes 410–414. Hospital separations were age-adjusted using the Australian population as at 30 June, 1991.

Source: NSW Health Department Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The recent decline in deaths from coronary heart disease has been accompanied by a 44 per cent increase in the number of hospitalisations for NSW residents over the past nine years. There were 58,281 such hospital separations in 1997/98 (38,145 males and 20,136 females).
- Hospital separation data do not give an accurate picture of the incidence of coronary heart disease, because they exclude people who died prior to admission, count episodes rather than persons (one person can be hospitalised multiple times), include elective admissions for diagnostic or revascularisation procedures and because admission practices vary between hospitals.
- Most of the recent increase has been for non-infarct diagnoses (mainly unstable angina). The number of hospital separations for unstable angina for NSW residents increased by 190 per cent from 6,663 separations in 1989/90 to 19,316 in 1997/98. Hospitalisations for acute myocardial infarction have actually declined (Close et al. 1994).
- The rise in hospitalisations for non-infarct diagnoses reflects increasing rates of coronary revascularisation procedures (such as coronary artery bypass grafts and coronary angioplasty), as well as changes in diagnostic and admission practices. This trend is also observed nationally, where about half of all hositalisations for CHD in 1996/97 were for diagnostic and surgical procedures (AIHW, 1999).
- The increase in revascularisation procedures has been most marked among people aged 70 years and over (Close et al. 1994).

For more information, see: Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia—Summary and full report.* Canberra: Australian Institute of Health and Welfare, 1999.

Close G, Lyle D, Churches T and Westley–Wise V. Cardiovascular disease surveillance report 1994. *NSW Public Health Bulletin* supplement no 5. Sydney: NSW Health Department, 1994.



	Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Deaths	Males	2011	1887	1782	1859	1721	1930	1921	1883	1738	1795
	Females	3102	2859	2756	2742	2668	2927	2906	2753	2726	2708
	Persons	5113	4746	4538	4601	4389	4857	4827	4636	4464	4502
Rate per100,000	Males	92.2	83.6	76.7	77.3	69.3	75.4	72.4	68.5	60.5	60.5
	Females	84.6	76.4	71.1	68.3	63.9	67.4	64.4	59.1	55.8	54.3
	Persons	89.0	80.6	74.3	72.7	66.9	71.5	68.4	63.4	58.7	57.5

Note: Stroke was classified according to the ICD-9 codes 430–438. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the Australian population as at 30 June, 1991.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

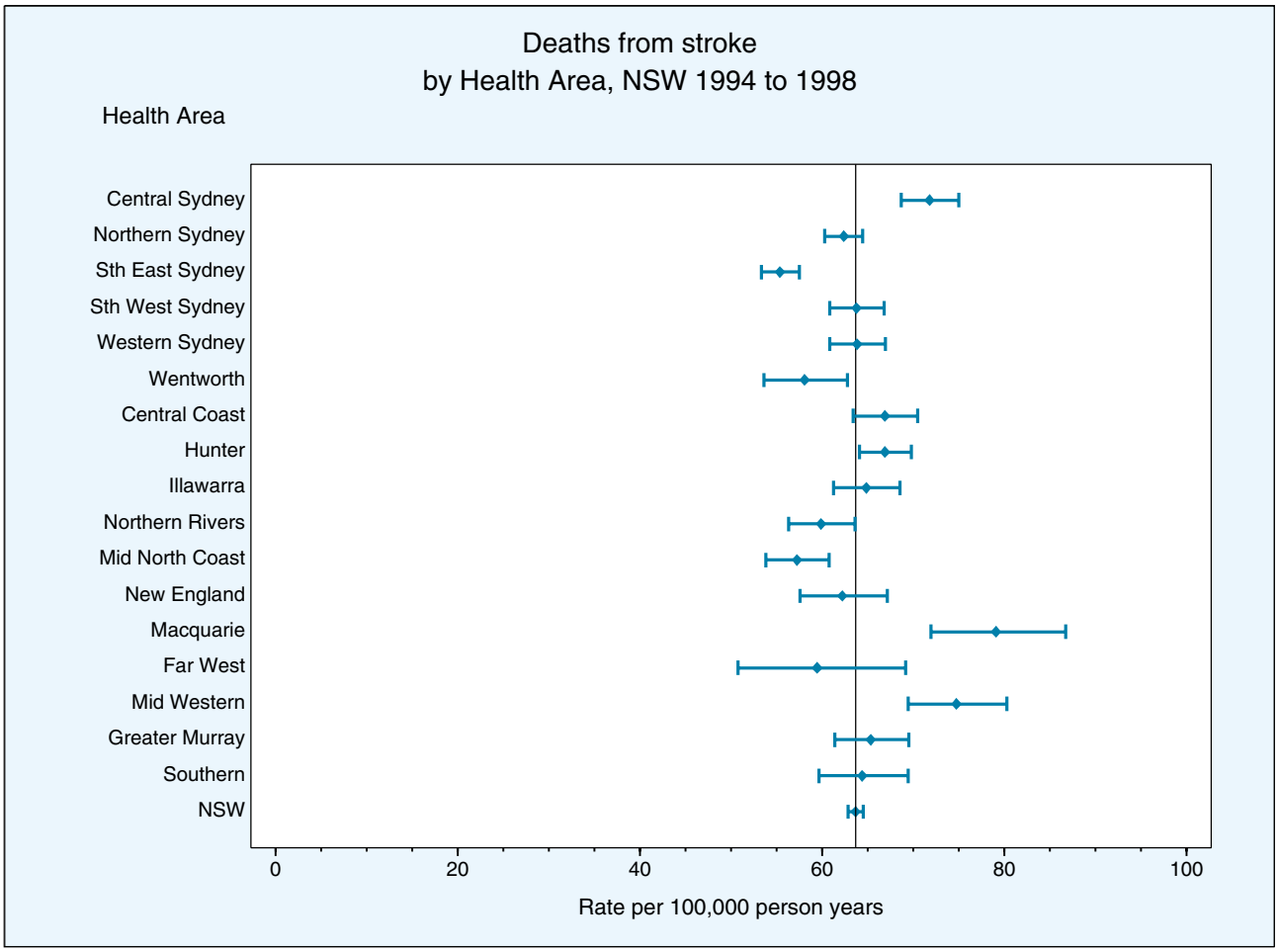
- Stroke (or cerebrovascular disease) deaths have declined in a similar way to coronary heart disease (CHD) deaths in recent years. In the decade to 1998, the age-adjusted death rate from stroke in NSW decreased by 36 per cent in males and 38 per cent in females. This compares to corresponding decreases in rates for Australia overall of 33 per cent in males and 35 per cent in females (ABS, 1999).
- This decline is the continuation of a longer-term trend. Stroke deaths in NSW decreased by 66 per cent in males and 67 per cent in females between 1970 and 1994, a decline comparable to that observed in other States and most developed countries.
- The decline in stroke deaths is due to reductions in the prevalence of cardiovascular risk factors, particularly cigarette smoking and high blood pressure, and advances in medical care, which have improved survival after stroke.
- Stroke deaths still represent a substantial burden of mortality. In 1998, there were 4,364 deaths recorded as due to stroke in NSW (1,742 males and 2,622 females), representing 10 per cent of all deaths in that year (seven per cent of male and 13 per cent of female deaths). In Australia in 1996, stroke was responsible for the second highest number of years of life lost in both males and females, after ischaemic heart disease (Mathers et al. 1999).

For more information, see: Australian Bureau of Statistics. *Deaths, Australia, 1998.* Catalogue no. 3302.0. Canberra: ABS, 1999.

Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia—Summary and full report.* Canberra: Australian Institute of Health and Welfare, 1999.

Australian Institute of Health and Welfare. *National health priority areas report: Cardiovascular health 1998.* AIHW Catalogue no. PHE 9. Canberra: AIHW, 1999.

Gajanayake I, Bennett S. Surveillance of cardiovascular mortality in Australia 1983–1994. AIHW Catalogue no. CVD 2. (Cardiovascular disease series no. 5). Canberra: Australian Institute of Health and Welfare, 1997.



Note: Stroke was classified according to the ICD-9 codes 430–438. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the standard Australian population as at 30 June 1991. Lower and upper confidence limits of the 95 per cent confidence interval for the death rates are shown.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW, in the period 1994 to 1998, there was substantial geographic variation in stroke death rates.
- The stroke death rates for both males and females in Central Sydney, Macquarie and Mid Western Health Areas were substantially higher than for NSW overall, while the rates in the South Eastern Sydney, Wentworth and Mid North Coast Health Areas were lower.
- The geographic variations in stroke death rates may be explained in part by the existence of large nursing home populations in some Areas and variation in attribution of death to stroke.
- The development, dissemination and implementation of guidelines to encourage best practice will help to reduce variations in the type and quality of care received by stroke patients. Efforts in this area are continuing with the Commonwealth, State and Territory Health Departments working in collaboration with non-government organisations and specialist colleges. Specific areas targeted for improvement include primary and secondary prevention, and access to stroke units and rehabilitation services (NSW Health Department, 1999).

For more information, see: NSW Health Department. *A guide to stroke prevention strategies in clinical settings.* Sydney: NSW Health Department, 1999.

NSW Health Department. *Guide to effective stroke care.* Sydney: NSW Health Department, 1999.

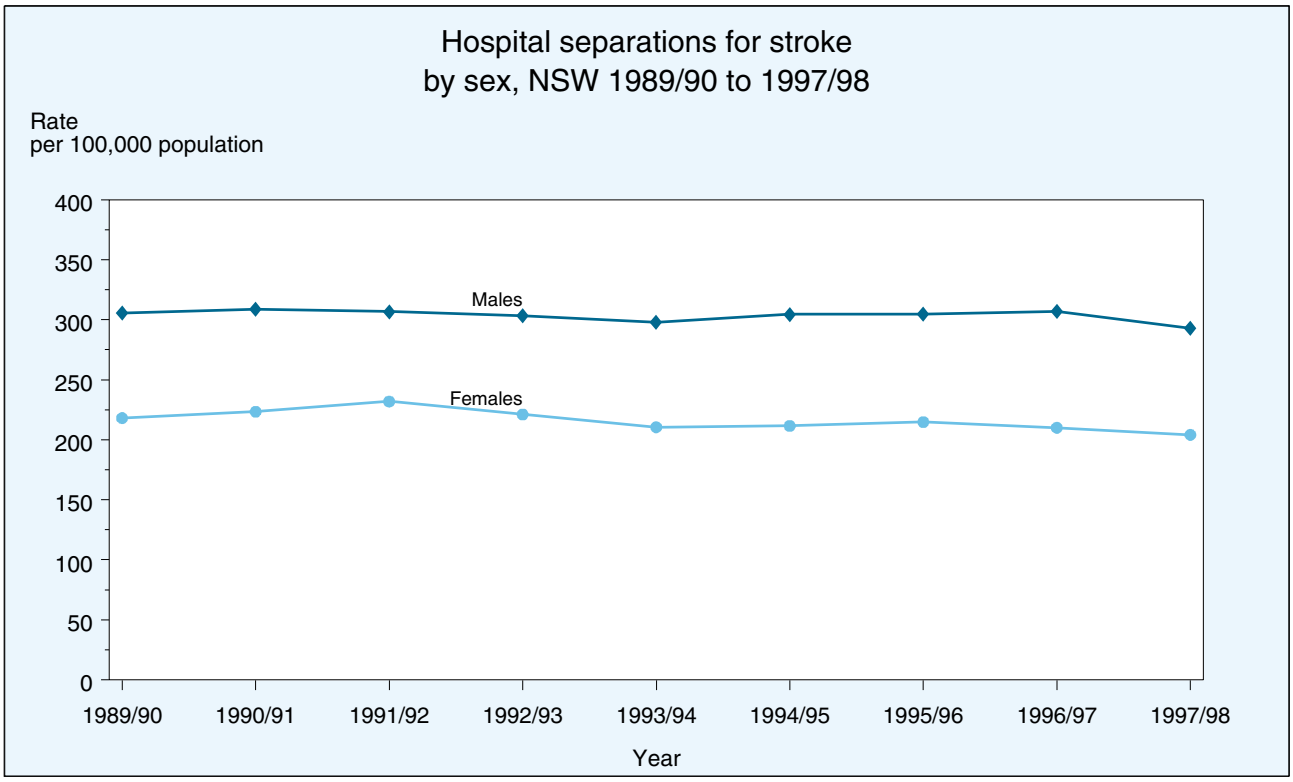
Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia—Summary and full report.* Canberra: Australian Institute of Health and Welfare, 1999.

Deaths from stroke by Health Area, NSW 1994 to 1998

Health Area	Sex	Number	Rate/100,000	LL95 % CI	UL95 % CI
Central Sydney	Males	805	75.7	70.5	81.1
	Females	1284	67.4	63.6	71.3
	Persons	2089	71.8	68.7	74.9
Northern Sydney	Males	1168	61.9	58.4	65.6
	Females	2456	61.2	58.7	63.8
	Persons	3624	62.3	60.3	64.5
Sth East Sydney	Males	1050	57.7	54.3	61.3
	Females	1720	52.3	49.8	54.9
	Persons	2771	55.4	53.3	57.5
Sth West Sydney	Males	754	69.0	64.0	74.3
	Females	1023	59.8	56.2	63.6
	Persons	1777	63.7	60.8	66.8
Western Sydney	Males	690	69.5	64.3	75.1
	Females	997	59.2	55.6	63.0
	Persons	1687	63.8	60.8	66.9
Wentworth	Males	282	65.8	58.2	74.1
	Females	354	52.0	46.7	57.7
	Persons	636	58.1	53.6	62.8
Central Coast	Males	581	69.4	63.8	75.4
	Females	838	63.8	59.5	68.4
	Persons	1418	66.9	63.4	70.5
Hunter	Males	877	69.8	65.2	74.6
	Females	1309	63.0	59.6	66.6
	Persons	2185	66.9	64.1	69.7
Illawarra	Males	543	70.7	64.7	77.1
	Females	689	59.2	54.9	63.8
	Persons	1233	64.8	61.2	68.5
Northern Rivers	Males	446	61.8	56.2	67.9
	Females	608	56.8	52.3	61.6
	Persons	1054	59.9	56.3	63.6
Mid North Coast	Males	476	59.9	54.5	65.6
	Females	603	54.2	49.9	58.8
	Persons	1079	57.2	53.8	60.7
New England	Males	290	70.4	62.5	79.0
	Females	382	56.1	50.4	62.2
	Persons	672	62.2	57.5	67.1
Macquarie	Males	193	85.8	74.0	98.9
	Females	260	73.4	64.6	83.1
	Persons	453	79.1	71.9	86.7
Far West	Males	78	66.8	52.5	83.8
	Females	90	52.9	42.3	65.4
	Persons	168	59.4	50.8	69.1
Mid Western	Males	307	81.8	72.8	91.5
	Females	445	69.6	63.1	76.6
	Persons	752	74.7	69.4	80.3
Greater Murray	Males	443	74.8	68.0	82.2
	Females	566	58.5	53.6	63.6
	Persons	1010	65.3	61.3	69.5
Southern	Males	283	64.6	57.2	72.8
	Females	396	62.2	56.2	68.7
	Persons	679	64.4	59.6	69.4
NSW	Males	9267	67.1	65.7	68.5
	Females	14021	60.0	59.0	61.0
	Persons	23288	63.6	62.8	64.5

Note: Stroke was classified according to the ICD-9 codes 430–438. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the standard Australian population as at 30 June 1991. LL/UL95 % CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	7669	7943	8113	8261	8281	8715	8931	9258	9071
	Females	7487	7836	8400	8201	8010	8176	8547	8551	8517
	Persons	15156	15779	16513	16463	16291	16891	17478	17809	17588
Rate/100,000	Males	305.4	308.7	306.7	303.4	298.0	304.4	304.8	307.1	292.7
	Females	218.1	223.4	231.9	221.1	210.5	211.6	214.8	210.1	204.2
	Persons	256.5	260.9	265.6	258.6	249.6	253.0	255.1	253.0	244.1

Note: Stroke was classified according to the ICD-9-CM codes 430 – 438. Hospital separations were age-adjusted using the Australian population as at 30 June, 1991.

Source: NSW Health Department Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Although mortality rates for stroke in NSW have been falling over the past decade, corresponding hospital separation rates have remained stable at about 300 per 100,000 in males and 215 per 100,000 in females. There were 17,588 hospitalisations for stroke in 1997/98 (9,071 males and 8,517 females). In 1996/97 the length of stay in hospital for stroke nationally was twice that for other cardiovascular conditions (10.5 days compared with 5.3 days) (AIHW, 1999).
- Hospital separation data do not give an accurate picture of overall stroke incidence, because they exclude people who died prior to admission, count episodes rather than persons (one person can be hospitalised multiple times) and because admission practices vary between hospitals.
- With improvements in survival and rising numbers of elderly people in the population, stroke will make an increasing contribution to the community burden of disability in NSW. About one-third of those who have had a stroke will die within 12 months and a further one-third will be permanently disabled (AIHW, 1999).
- In Australia, in 1996, stroke was among the top ten leading causes of disability, accounting for 3.9 per cent of the total years of life lost due to disability (YLD) in males and 2.7 per cent of total YLD for females (Mathers et al. 1999).

For more information, see: Australian Institute of Health and Welfare. *National health priority areas report: Cardiovascular health 1998*. AIHW Catalogue no. PHE 9. Canberra: AIHW, 1999.

Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia—Summary and full report.* Canberra: Australian Institute of Health and Welfare, 1999.

NSW Health Department. *A guide to stroke prevention strategies in clinical settings*. Sydney: NSW Health Department, 1999.

NSW Health Department. *Guide to effective stroke care.* Sydney: NSW Health Department, 1999.

Chapter 4.2

Diabetes mellitus

- In the 1997 and 1998 NSW Health Surveys, 4.7 per cent of males and 4.0 per cent of females aged 16 years and over reported having current high blood sugar levels or diabetes. Prevalence of self-reported diabetes increased with age, to around 10 per cent for people aged 65 years or more.
- In men, the prevalence of high blood sugar or diabetes ranged from 2.9 per cent in the Northern Sydney Health Area to 6.3 per cent in the South Western Sydney Health Area. The female prevalence varied from 2.7 per cent in the South Eastern Sydney Health Area to 5.4 per cent in the Illawarra Health Area.
- In 1998, 7.5 per cent of male deaths and 7.2 per cent of female deaths had diabetes as an underlying or contributing cause. There were 3,299 such deaths in NSW (1,763 males and 1,536 females), with 97 per cent of these occurring after the age of 50 years.
- In the 1997/98 financial year 6,434 hospitalisations were reported as being associated with diabetes. These figures underestimate the real community burden of diabetes-related illness, which is substantially determined by the prevalence of complications including cardiovascular disease; diabetic retinopathy responsible for visual impairment and blindness; diabetic nephropathy producing renal impairment and failure; and diabetic neuropathy which contributes to impotence in men, leg and foot ulcers and lower limb amputations.
- Hospitalisation for lower limb amputation for people with diabetes in NSW is more than twice as common among men than women. In NSW in 1996/97 there were 547 hospitalisations for lower limb amputation (378 in men and 169 in women). Around 30–50 per cent of these diabetes-related amputations can be prevented by improved blood glucose control, foot-care education and appropriate treatment of foot problems.

In this chapter

Introduction

Diabetes mellitus is a chronic condition characterised by high blood sugar levels and caused by deficient production of insulin and/or resistance to its action.

There are three main forms of diabetes: Type 1 diabetes, or insulin-dependent diabetes mellitus (IDDM) is characterised by a complete deficiency of insulin and estimated to be present in 10 to 15 per cent of people with diabetes; Type 2 diabetes, or non-insulin-dependent diabetes mellitus (NIDDM), is the most common form of diabetes, affecting primarily people aged 40 years and over. Lifestyle factors such as overweight, poor diet and physical inactivity predispose to its development. Gestational diabetes occurs during pregnancy in about four to six per cent of women not previously known to have diabetes. Such women are at increased risk of developing diabetes later in life.

Routine death and hospital data do not distinguish between these three forms of diabetes. These data also tend to underestimate the true burden of diabetes. Diabetes and its associated complications, which include cardiovascular, kidney, foot and eye diseases, contribute significantly to mortality, morbidity, poor quality of life and loss of potential years of life in Australia. Diabetes is one of the six National Health Priority Areas (NHPA), as part of an initiative to reduce the incidence and impact of diabetes in Australia.

Prevention of Type 2 diabetes through the modification of risk factors, particularly lifestyle changes, is a goal of the National Diabetes Strategy, endorsed in 1999 by Australian Health Ministers. Because diabetes shares a number of risk factors with other chronic diseases, such as cardiovascular diseases, coordination of prevention strategies is essential to ensure consistent messages, pooling of resources, and ultimately better outcomes. To that effect, a National Chronic Disease Prevention and Control Strategy is being developed by the National Public Health Partnership.

For more information see: Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare. *National Health Priority Areas Report: Diabetes Mellitus 1998*. AIHW Catalogue no. PHE 10. Canberra: Department of Health and Aged Care and AIHW, 1999.

Commonwealth Department of Health and Aged Care. *National Diabetes Strategy, 2000-2004*. Canberra: Commonwealth Department of Health and Aged Care, 1999.

Colagiuri S, Colagiuri R, Ward J. *National Diabetes Strategy and Implementation Plan*. Canberra: Diabetes Australia, 1998.

Diabetes Australia Web site: http://www.diabetes-australia.com.au.

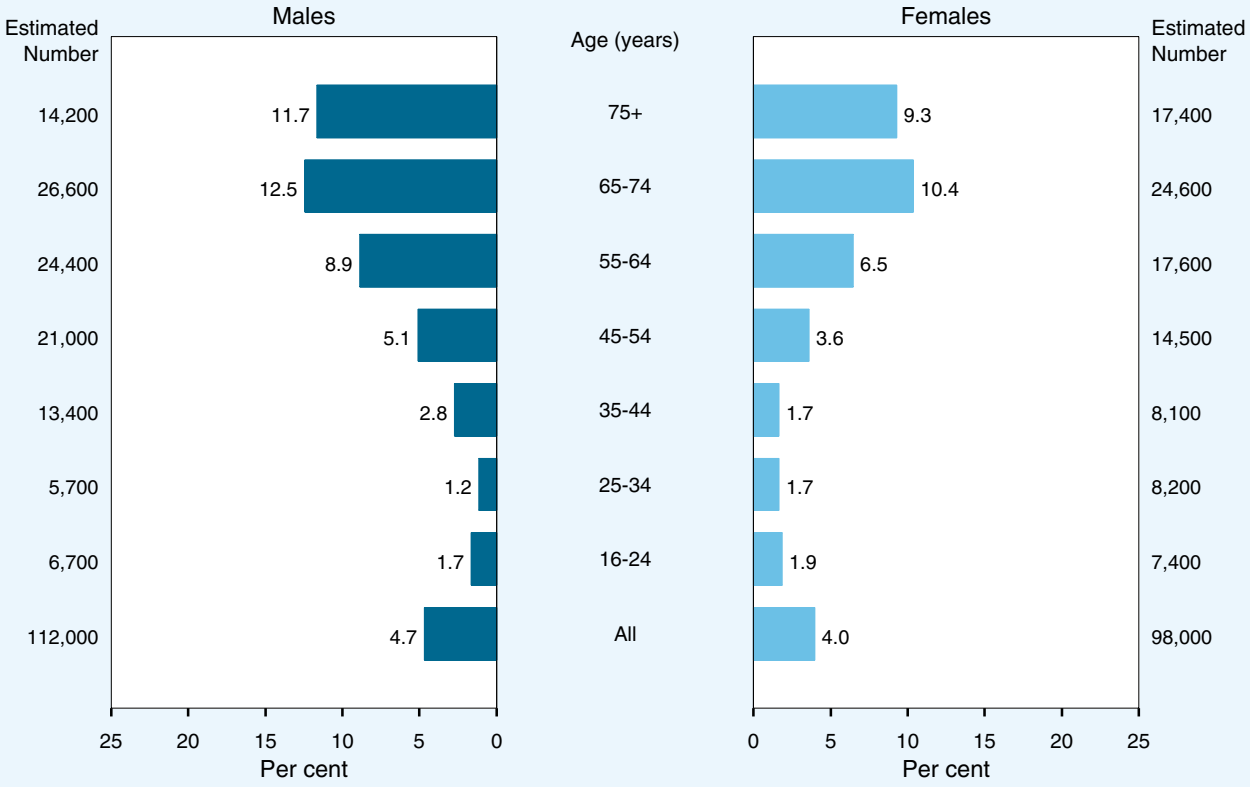
International Diabetes Web site: http://www.idi.org.au.

US Centers for Disease Control (CDC) Web sites: http://www.cdc.gov/diabetes, http://www.cdc.gov/nccdphp/diabetes.htm and http://www.cdc.gov/nchs.

National Institute of Diabetes and Digestive and Kidney Diseases:http://www.niddk.nih.gov.

For information on Diabetes risk factors, see: 1997 NSW Health Survey Electronic Report at http://www.healthnsw.gov.au/public-health/hs97 and CDC Web site: http://www.cdc.gov/nccdphp/brfss.

Current doctor-diagnosed diabetes or high blood sugar, persons aged 16 years and over, NSW 1997 and 1998



Note: Current diabetes or high blood sugar include those responding 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have diabetes?' or 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have high blood sugar (HBS)?'. The figures exclude those reporting previous diabetes/HBS or diabetes/HBS during pregnancy.

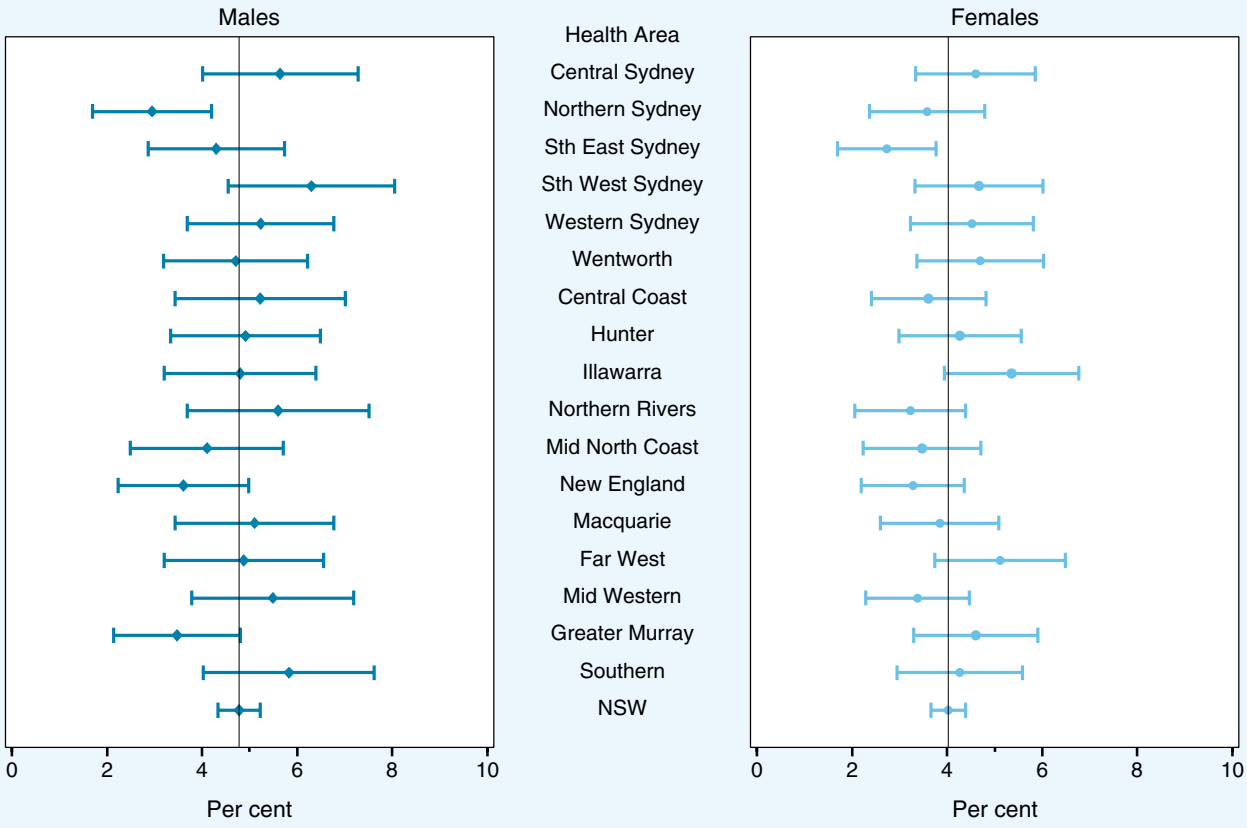
Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The 1997 and 1998 NSW Health Surveys found an overall prevalence of self-reported diabetes of 4.7 per cent in males and 4.0 per cent in females among NSW residents aged 16 years and over. This represents about 210,000 people in NSW and refers to people who report having current diabetes or high blood sugar, as diagnosed by a doctor. Prevalence increased with age, from less than two per cent in people aged less than 35 years old to about 10 per cent among people 65 years and over. Prevalence was somewhat lower in women, except between the ages of 16 and 34 years, which may reflect pregnancy-related diabetes or high blood sugar.
- This estimated prevalence compares with similar data nationally (ABS, 1997). However, these rates may underestimate the true prevalence for two reasons: firstly, a large proportion of diabetes in the community remains undiagnosed; and secondly, the estimates are based on self-report. It is estimated that, for each known case of Type 2 diabetes, there may be at least one other undiagnosed case in the population (McCarty et al. 1996). The national Community Awareness Diabetes Strategy (CADS) launched in 1999, is a Commonwealth funded project that aims to raise public awareness about Type 2 diabetes. The primary objective is to 'diagnose the undiagnosed' by encouraging people to have a blood glucose test from their GP if they are in a high-risk group for the disease.
- With our ageing population, diabetes prevalence is rising. The number of people with diabetes in Australia has doubled since the early 1980s. This rise will continue unless effective prevention strategies are put into place.

For more information, see: Australian Bureau of Statistics. *1995 National Health Survey: Summary of results, Australia.* Catalogue no. 4371.0. Canberra: ABS 1997.

McCarty DJ, Zimmet P and Dalton A, et al. *The rise and rise of diabetes in Australia, 1996: a review of statistics, trends and costs.* Diabetes Australia National Action Plan. Canberra: Diabetes Australia, 1996.

Current doctor-diagnosed diabetes or high blood sugar
by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998



Note: Current diabetes or high blood sugar include those responding 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have diabetes?' or 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have high blood sugar (HBS)?'. The figures exclude those reporting previous diabetes/HBS or diabetes/HBS during pregnancy. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the 1997 and 1998 NSW Health Surveys, the reported prevalence of current doctor-diagnosed diabetes or high blood sugar varied among NSW Health Areas.
- In men, reported prevalence ranged from 2.9 per cent in the Northern Sydney Health Area to 6.3 per cent in the South Western Sydney Health Area. Reported prevalence among females varied from 2.7 per cent in the South Eastern Sydney Health Area to 5.4 per cent in the Illawarra Health Area.
- These differences in prevalence among Health Areas may reflect differences in age structure but also differences in the ethnic composition and the proportion of indigenous people. The prevalence of Type 2 diabetes is higher among people from the South Pacific Islands, the Middle East, Southern Europe and some Asian countries, as well as Aboriginal and Torres Strait Islander people (five to 19 per cent) (McCarty et al. 1996).

For more information, see: NSW 1997 Health Survey electronic report at:www.health.nsw.gov.au/public-health/hs97.

McCarty DJ, Zimmet P and Dalton A, et al. *The rise and rise of diabetes in Australia, 1996: a review of statistics, trends and costs.* Diabetes Australia National Action Plan. Canberra: Diabetes Australia, 1996.

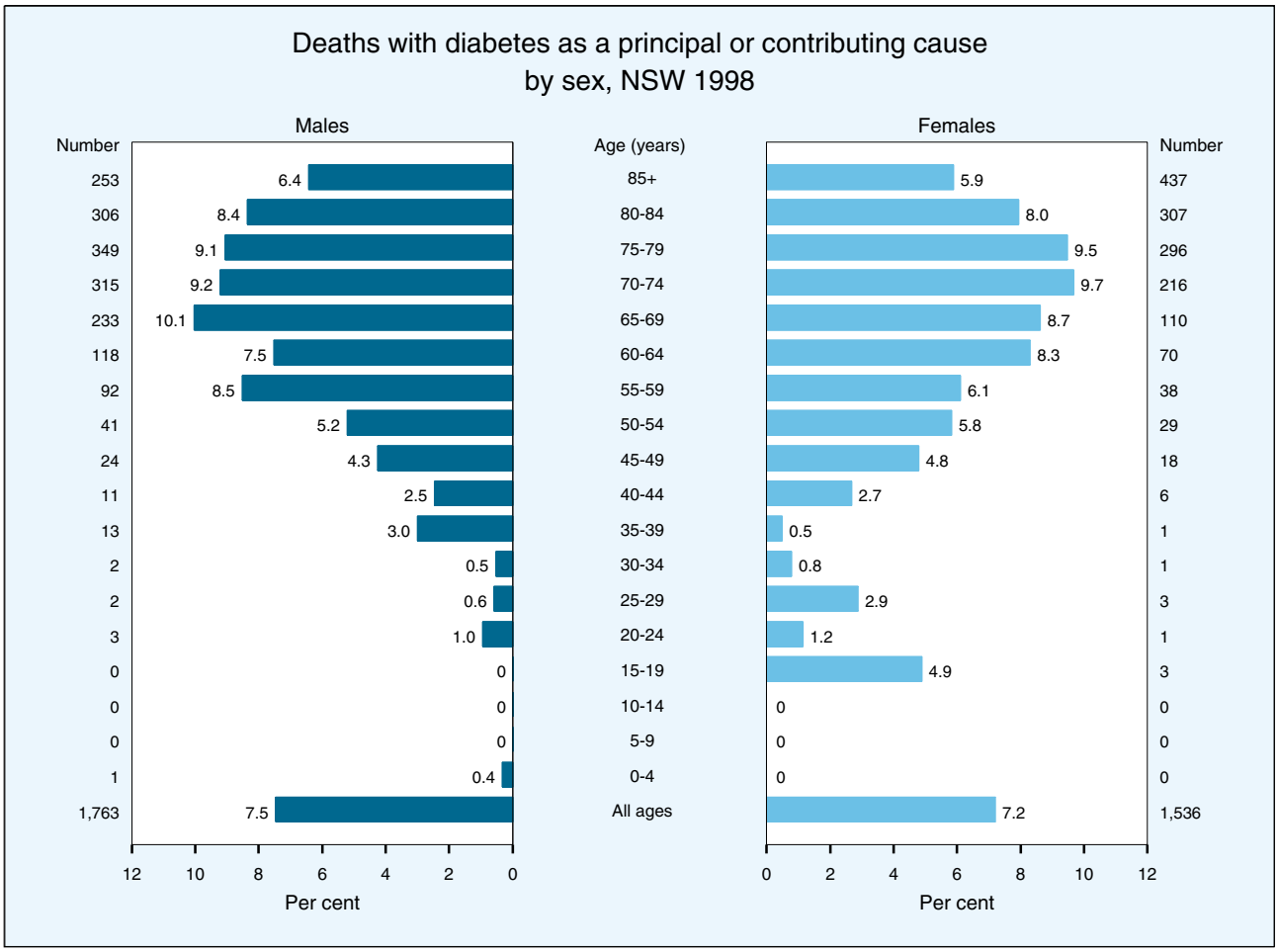
Diabetes Australia Web site at:http://www.diabetes-australia.com.au.

Current doctor-diagnosed diabetes or high blood sugar by Health Area and sex, persons aged 16 years and over, NSW 1997 and 1998

Health Area	Sex	%	LL95 % CI	UL95 % CI
Central Sydney	Males	5.6	4.0	7.3
	Females	4.6	3.3	5.9
	Persons	5.1	4.1	6.1
Northern Sydney	Males	2.9	1.7	4.2
	Females	3.6	2.4	4.8
	Persons	3.3	2.4	4.1
Sth East Sydney	Males	4.3	2.9	5.7
	Females	2.7	1.7	3.8
	Persons	3.5	2.6	4.4
Sth West Sydney	Males	6.3	4.5	8.1
	Females	4.7	3.3	6.0
	Persons	5.5	4.4	6.6
Western Sydney	Males	5.2	3.7	6.8
	Females	4.5	3.2	5.8
	Persons	4.9	3.9	5.9
Wentworth	Males	4.7	3.2	6.2
	Females	4.7	3.4	6.0
	Persons	4.7	3.7	5.7
Central Coast	Males	5.2	3.4	7.0
	Females	3.6	2.4	4.8
	Persons	4.4	3.3	5.5
Hunter	Males	4.9	3.3	6.5
	Females	4.3	3.0	5.6
	Persons	4.6	3.6	5.6
Illawarra	Males	4.8	3.2	6.4
	Females	5.4	3.9	6.8
	Persons	5.1	4.0	6.2
Northern Rivers	Males	5.6	3.7	7.5
	Females	3.2	2.1	4.4
	Persons	4.4	3.3	5.5
Mid North Coast	Males	4.1	2.5	5.7
	Females	3.5	2.2	4.7
	Persons	3.8	2.8	4.8
New England	Males	3.6	2.2	5.0
	Females	3.3	2.2	4.4
	Persons	3.4	2.6	4.3
Macquarie	Males	5.1	3.4	6.8
	Females	3.8	2.6	5.1
	Persons	4.5	3.4	5.5
Far West	Males	4.9	3.2	6.6
	Females	5.1	3.7	6.5
	Persons	5.0	3.9	6.1
Mid Western	Males	5.5	3.8	7.2
	Females	3.4	2.3	4.5
	Persons	4.4	3.4	5.4
Greater Murray	Males	3.5	2.1	4.8
	Females	4.6	3.3	5.9
	Persons	4.0	3.1	5.0
Southern	Males	5.8	4.0	7.6
	Females	4.3	2.9	5.6
	Persons	5.0	3.9	6.1
NSW	Males	4.8	4.3	5.2
	Females	4.0	3.7	4.4
	Persons	4.4	4.1	4.7

Note: Current diabetes or high blood sugar include those responding 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have diabetes?' or 'Yes' to the question 'Have you ever been told by a doctor or at a hospital that you have high blood sugar (HBS)?'. The figures exclude those reporting previous diabetes/HBS or diabetes/HBS during pregnancy. LL/UL95% CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: NSW Health Survey (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



Note: Diabetes was classified according to the ICD-9 code 250.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

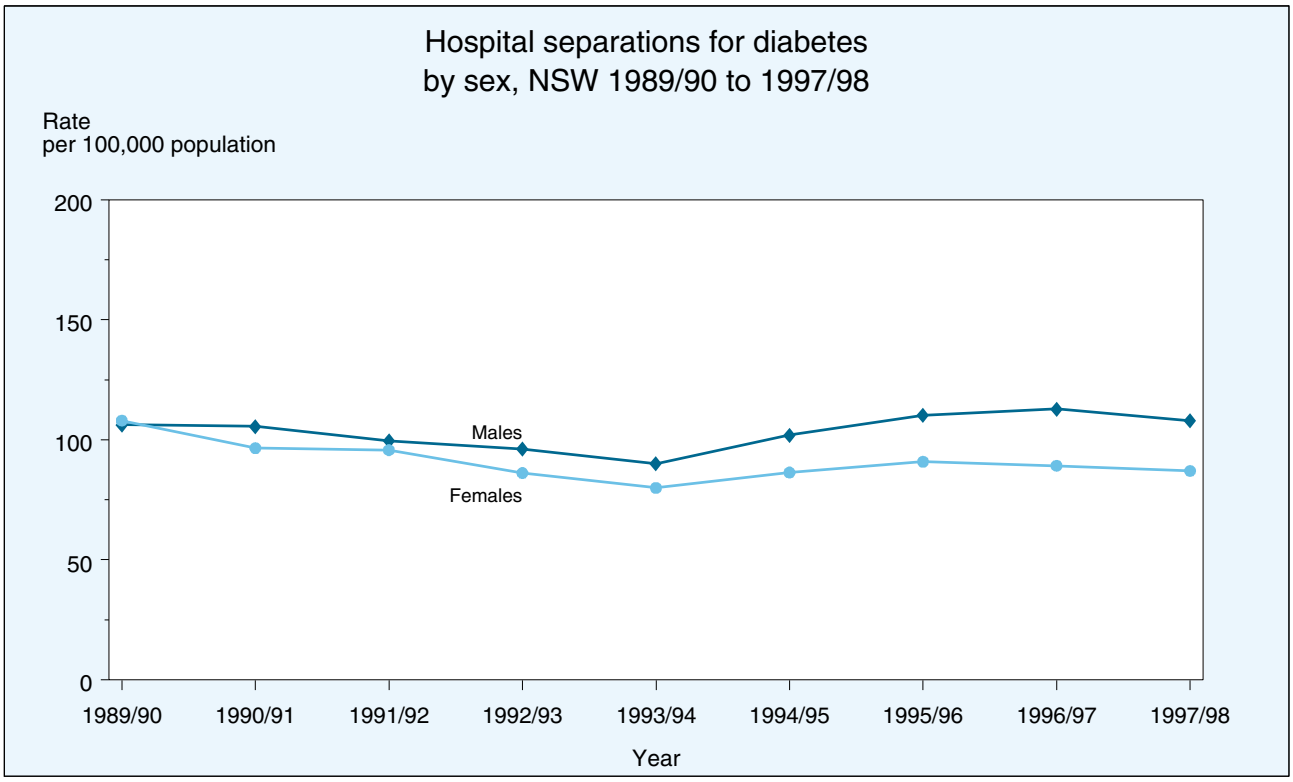
- Before 1997, in Australia, diabetes was substantially under-reported as a cause of death. The main reason for this under-reporting was that the Australian Bureau of Statistics recorded only the underlying cause of death from the death certificate, and not the contributing conditions.
- Since 1997, both the underlying cause of death, and the contributing factors, have been recorded in ABS deaths data. In NSW in 1998, 7.5 per cent of males deaths and 7.2 per cent of female deaths had diabetes as an underlying or contributing cause. There were of 3,299 such deaths in NSW (1,763 males and 1,536 females), with 97 per cent of these occurring after the age of 50.
- Cardiovascular disease, including ischaemic heart disease, heart failure and cerebrovascular disease, is the leading cause of death among people with diabetes, followed by renal disease (Phillips et al. 1990).
- Despite improvements in the coding of deaths, the above statistics exclude deaths where diabetes was not recorded on the death certificate because the certifying doctor was unaware of the deceased person's diabetes. It is estimated that between 27 and 44 per cent of death certificates for people with diabetes do not list diabetes as a cause of death (Whittal et al. 1990; Riley et al. 1995).

For more information, see: Australian Bureau of Statistics. *Causes of Death, Australia, 1998*. Catalogue no. 3303.0. Canberra: ABS, 1999.

Whittal DE, Glatthaar C, Knuiman MW and Welborn TA. Deaths from diabetes are under-reported in national mortality statistics. *Med J Aust,* 1990; 152: 598–600.

Riley MD, McCarty DJ, Couper DJ, et al. The 1984 Tasmanian insulin treated diabetes mellitus prevalence cohort: an 81/2 year follow-up investigation. *Diabetes Research and Clinical Practice* 1995; 29: 27–35.

Phillips P, Wilson D, Wakefield M et al. Death and diabetes [letter]. *Med J Aust* 1990;153:173.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	2891	2929	2840	2765	2649	3047	3347	3504	3409
	Females	3392	3083	3092	2819	2620	2892	3092	3086	3025
	Persons	6283	6012	5932	5584	5269	5939	6439	6590	6434
Rate/100,000	Males	106.2	105.5	99.6	96.1	90.1	101.9	110.2	112.8	107.9
	Females	108.0	96.6	95.7	86.2	80.0	86.4	90.9	89.2	87.0
	Persons	106.6	100.4	97.4	90.4	84.3	93.6	99.8	100.3	96.4

Note: Diabetes was classified according to the ICD-9-CM code 250. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

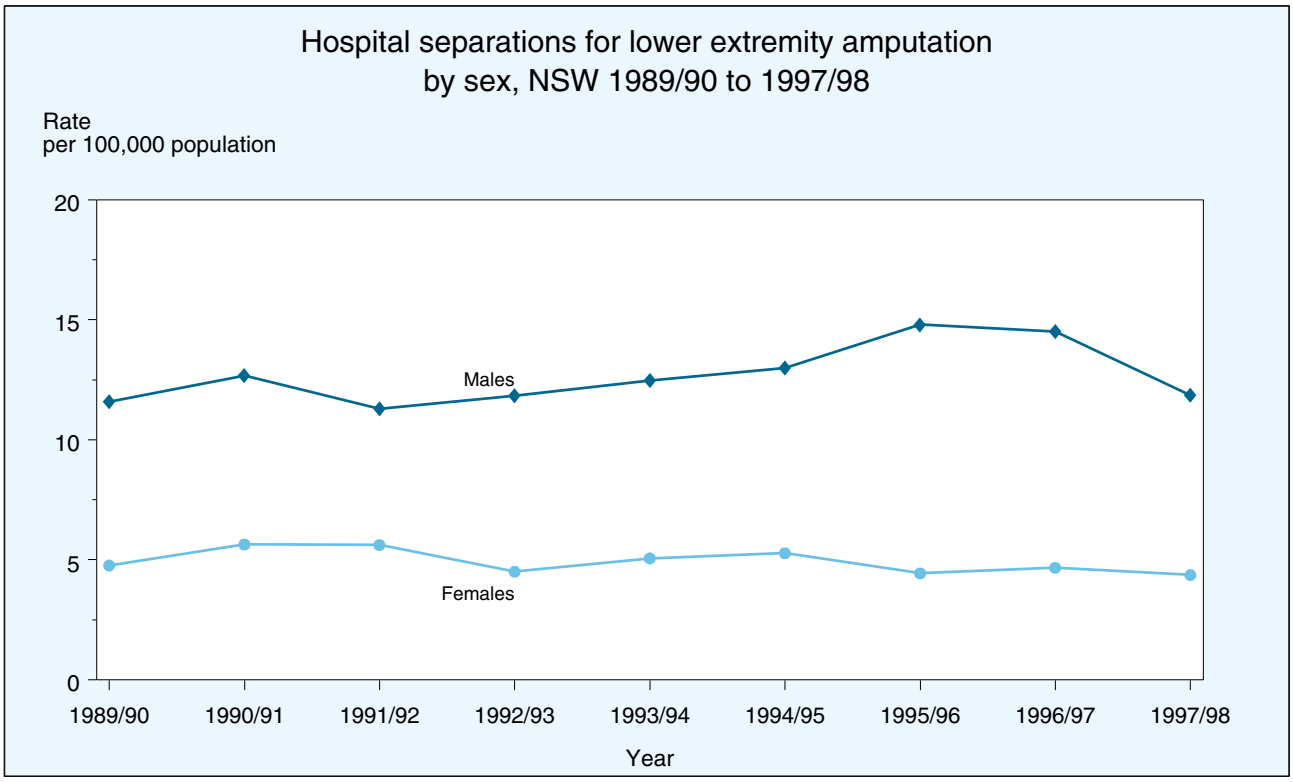
Source: NSW Health Department Inpatients Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Hospital separation rates for diabetes as principal diagnosis have increased slightly in NSW in recent years. This may reflect an increasing awareness of diabetes as a significant cause of ill-health, improved case finding and recording of diabetes in hospital data and/or a real increase in diabetes prevalence.
- The above rates underestimate the real community burden of diabetes-related illness, which is substantially determined by the prevalence of complications. Complications are often responsible for the hospitalisation, and hence are recorded as the principal diagnosis instead of diabetes. They include: cardiovascular disease; diabetic retinopathy (responsible for visual impairment and blindness); diabetic nephropathy (producing renal impairment and failure); diabetic neuropathy (which contributes to impotence in men, leg and foot ulcers, and lower limb amputations).
- In Australia, in 1996, diabetes was the sixth leading cause of years of life lost due to disability (YLD), accounting for 4.1 per cent of total YLD in men and 3.5 per cent in women (Mathers et al. 1999). The duration of poorly controlled diabetes is a major determinant of diabetes-related complications. Other contributing factors include high blood pressure, high cholesterol and smoking.
- One of the goals of the National Diabetes Strategy is to delay the onset and slow the progression of complications. Implementing evidence-based guidelines for management of diabetes and providing co-ordinated, multidisciplinary services will assist in achieving this goal.

For more information, see: Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia.* Canberra: Australian Institute of Health and Welfare, 1999.

NSW Health Department. *Principles of Care and Guidelines for the Clinical Management of Diabetes Mellitus.* Sydney: NSW Health Department, 1996.

NSW Health Department. *Evidence for the Guidelines for the Clinical Management of Diabetes Mellitus, Part 1.* Sydney: NSW Health Department, 1996.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	300	339	310	335	359	382	450	453	378
	Females	164	195	199	165	184	195	173	180	169
	Persons	463	534	509	500	543	577	623	633	547
Rate/100,000	Males	11.6	12.7	11.3	11.8	12.5	13.0	14.8	14.5	11.8
	Females	4.8	5.6	5.6	4.5	5.1	5.3	4.4	4.7	4.4
	Persons	7.8	8.8	8.2	7.9	8.4	8.7	9.2	9.3	7.8

Note: Diabetes was classified according to the ICD-9-CM code 250 in one of the first five diagnosis fields. Amputation was classified according to ICD-9-CM procedure code 84.1 in the first procedure field. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatients Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Hospital separations for lower extremity amputation where diabetes was recorded as a diagnosis increased in NSW between 1989/90 and 1996/97, before dropping in 1997/98.
- The increased risk of lower extremity amputation among people with diabetes is due to neuropathy, peripheral vascular disease and infection. A South Australian study found neuropathy was present among 20 per cent of people with Type 2 diabetes (Phillips et al. 1998). According to the 1995 National Health Survey, almost two per cent of people with diabetes had an amputation, at three times the rate of amputations for people without diabetes. Around 30–50 per cent of these diabetes-related amputations can be prevented by improved blood glucose control, foot-care education and appropriate treatment of foot problems (Bild et al. 1989).
- Guidelines have been developed by NSW Health Department for the effective management of lower limb ulcers in people with diabetes (NSW Health, 1998).

For more information, see: Phillips P, Wilson D, Beilby J et al. Diabetes complications and risk factors in an Australian population. How well managed are they? *Int J Epi*1998; 27: 863–59.

Bild DE, Selby JV, Browner WS et al. Lower extremity amputation in people with diabetes: epidemiology and prevention. *Diabetes Care* 1989; 12: 24–31.

Australian Bureau of Statistics. *1995 National Health Survey: Diabetes*. Catalogue no. 4371.0. Canberra: ABS,1997.

NSW Health Department. *Lower Limb Ulcers in Diabetes: A Practical Guide to Diagnosis and Management*. Sydney: NSW Health Department, 1998 (also at http://www.health.nsw.gov.au/public-health/).

Chapter 4.3

Cancer

- In NSW in 1996, there were 26,408 new cases of cancer (14,536 males, 11,872 females) and in 1998, there were 12,017 deaths from cancer (6,797 males, 5,220 females).
- The age-adjusted rate for new cancer cases increased by 37 per cent in males and 27 per cent in females between 1973–77 and 1996. Between 1989 and 1998 in NSW, the age-adjusted death rates for all cancers fell by 13 per cent in males and eight per cent in females.
- In 1996, lung cancer was the most common cause of cancer death for males and the second most common for females, after breast cancer. Death rates from lung cancer in males have declined in recent years, but female death rates from lung cancer continue to show a slight upward trend.
- Colorectal cancers were the second most common malignant cancer in both males and females. The age-adjusted rate for new cases of colorectal cancer has increased by 39 per cent in males and 18 per cent in females over the past 20 years.
- The number of new cases of melanoma of the skin continued to rise up to 1997, with 2,794 cases reported in that year. The number of new cases dropped to 2,695 in 1998. Death rates due to melanoma in males increased at two to three times the rate for females.
- Prostate cancer was the most common malignant cancer in men and the second most common cause of cancer death. The reported rate for new cases of prostate cancer rose rapidly up to 1994, at least in part owing to earlier detection of localised cancers, and then declined in 1995 and 1996. Death rates due to prostate cancer have changed little over the last 20 years.
- For women, breast cancer was the most common type of malignant cancer diagnosed, and the leading cause of cancer death. The number of new cases of breast cancer has increased in recent years, partly because of increased screening and early detection, while death rates declined by about 20 per cent over the 10 years to 1998.
- Both new cases and deaths due to cervical cancer have declined in recent years, with the death rate decreasing by more than one-third in the period between 1989 and 1998.

In this chapter

Introduction

Notification of cancer is a statutory requirement for all public and private hospitals, radiotherapy departments, nursing homes, pathology laboratories, and outpatient departments in NSW. The NSW Central Cancer Registry collects and reports annually on cancer cases and deaths in NSW. The latest published data are for cases diagnosed in 1996, with the exception of cancers of the breast, cervix and melanoma of the skin, where data for 1998 are available. Death data presented here are from the Australian Bureau of Statistics mortality collection.

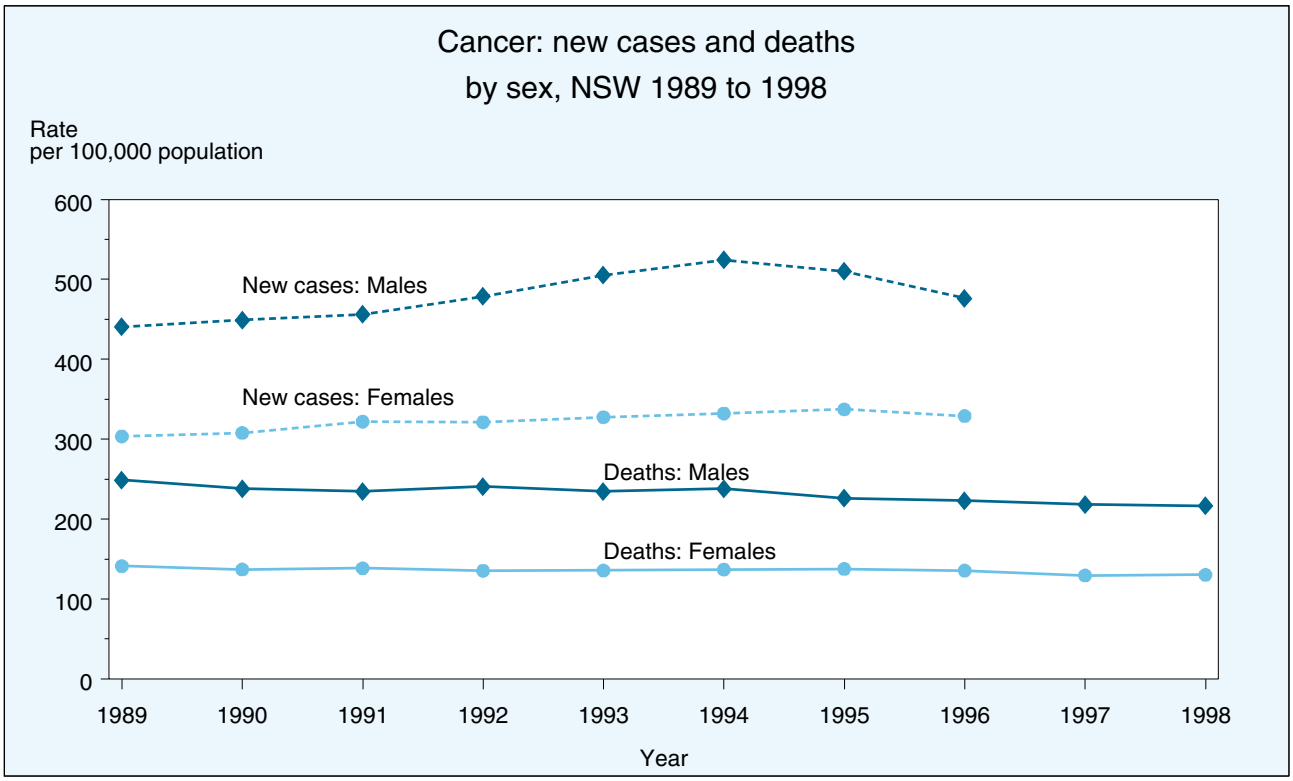
An analysis of the epidemiology of all cancers and cancers at six specific sites follows. Lung, colorectal, melanoma of the skin, prostate and breast cancers have been selected because of their overall impact on numbers of new cases and deaths, and cancer of the cervix because it can potentially be prevented.

The figures tabulated in this report and those quoted in the reference reports are slightly different. This is because of the way the statistical analyses were conducted. This report uses the Australian population as the standard population to adjust rates to reflect the Australian demographic composition. Following international convention, reports from the NSW Central Cancer Registry use the 'world' population as the standard for adjusting rates presented in the body of their reports. This results in lower rates owing to the younger age structure of the 'world' population compared with the Australian population.

The methods used for analysing and presenting data are described in more detail in the Methods section (see page 265).

Non-melanocytic skin cancers (squamous and basal cell carcinomas) are the most common cancers in NSW. However, data on these are not collected routinely because of difficulties in defining cases, the expected large volume of notifications (estimated at more than 50,000 annually), and difficulties involved in collecting data from general practitioners, who treat most cases.

The increase in incidence rates for all cancers in NSW between 1973–1977 and 1996 is due to factors including earlier diagnosis of some cancers (such as breast and prostate cancer) owing to increased screening; a real rise in new cases of some cancers (such as melanoma of the skin in both sexes, and lung cancer in females); and improved notification of cancer cases. Reduced death rates for all cancers over the last decade reflect successful treatment of some cancers (such as childhood leukaemias); and the cumulative effect of small decreases in deaths for other cancers (including cancers of the testes and colon in young males, and cancers of the breast and melanoma in females).



			1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	Males	11503	11894	12406	13249	14331	15201	15162	14536	-	-
		Females	9562	9865	10541	10721	11111	11461	11875	11872	-	-
		Persons	21065	21759	22947	23970	25442	26662	27037	26408	-	-
	Rate per 100,000	Males	440.7	449.0	456.2	478.7	505.4	524.5	510.1	476.4	-	-
		Females	303.6	307.9	322.1	321.3	327.6	332.2	337.4	329.0	-	-
		Persons	358.4	364.1	375.3	384.4	400.3	411.7	409.7	391.3	-	-
Deaths	Number	Males	6258	6106	6187	6490	6463	6727	6538	6622	6686	6797
		Females	4624	4576	4743	4745	4859	5003	5125	5212	5064	5220
		Persons	10882	10682	10930	11235	11322	11730	11663	11834	11750	12017
	Rate per 100,000	Males	249.0	238.1	234.5	240.8	234.7	238.2	226.2	223.1	218.3	216.6
		Females	141.2	137.1	138.6	135.4	135.8	136.9	137.7	135.6	129.6	130.3
		Persons	185.2	178.5	178.1	179.1	176.4	179.0	173.9	171.8	166.7	166.6

Note: Cancers were classified according to the ICD-9 codes 140 – 208. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australia population as at 30 June 1991.

Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW in 1996, there were 26,408 new cases of cancer (14,536 in males and 11,872 in females) and in 1998 there were 12,017 deaths from cancer (6,797 in males and 5,220 in females).
- Between 1973–77 and 1996, the incidence rates for all cancers rose by 37 per cent in males and 27 per cent in females (Coates et al. 1999). Similar trends have been observed at the national level (AIHW, 1999).
- Over the last decade in NSW, age-adjusted death rates for all cancers fell by 13 per cent in males and eight per cent in females.
- Five-year survival rates for the 10 most common cancers in NSW in the period 1980 to 1995 ranged from 10.1 per cent for lung cancer in males, to 95.1 per cent for melanoma of the skin in females. Survival from cancer in NSW in the period 1990 to 1995 was generally similar or higher than that reported elsewhere (Supramaniam et al. 1998).

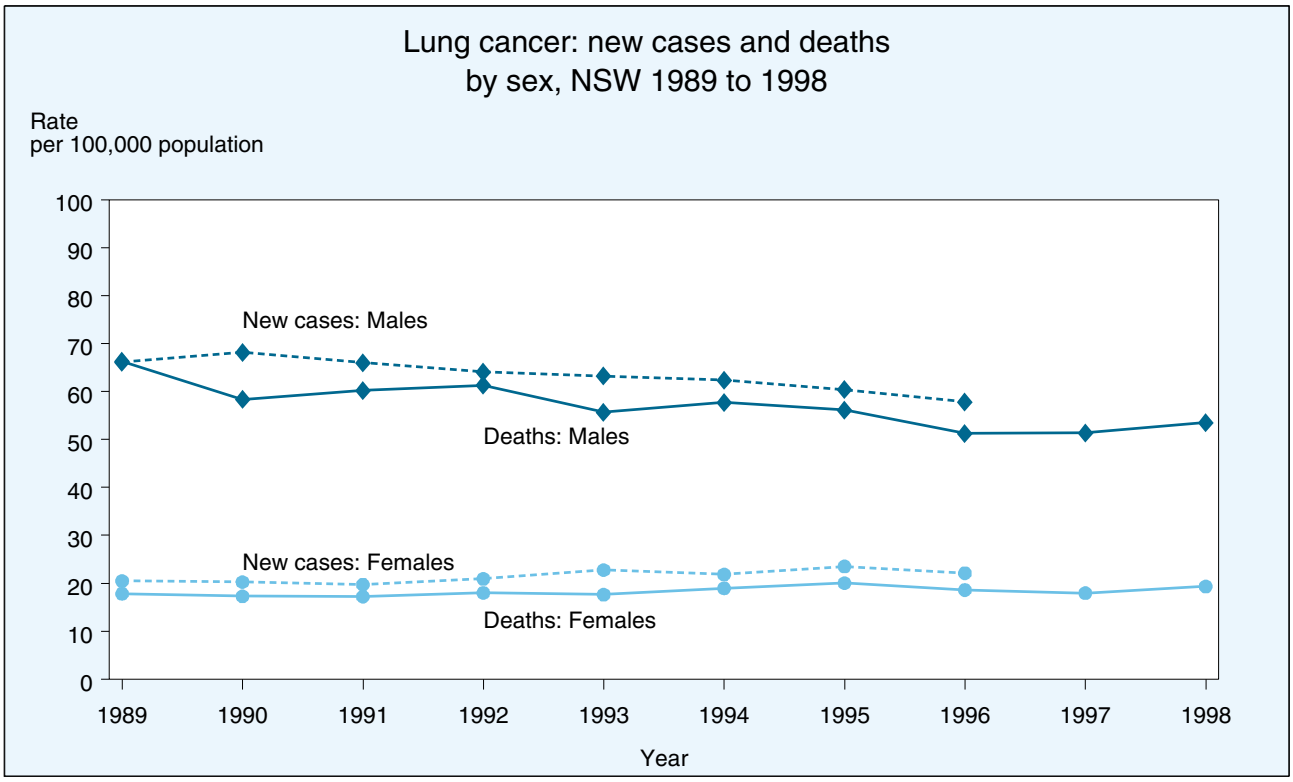
For more information, see: Coates M, and Armstrong BK. *Cancer in New South Wales. Incidence and mortality 1996.* Sydney: NSW Cancer Council, 1999.

Australian Institute of Health and Welfare and Australasian Association of Cancer Registries. *Cancer in Australia 1996.* AIHW Catalogue no. CAN 7. Canberra: AIHW, 1999.

Supramaniam R, Smith D, Coates MS and Armstrong BK. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

New South Wales Cancer Council Web site at:

http://www.nswcc.org.au.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	Males	1742	1832	1819	1795	1804	1805	1792	1766	-	-
		Females	659	664	655	716	789	779	843	812	-	-
		Persons	2401	2496	2474	2511	2593	2584	2635	2578	-	-
	Rate per 100,000	Males	66.2	68.2	66.0	64.1	63.2	62.4	60.4	57.9	-	-
		Females	20.5	20.3	19.7	20.9	22.8	21.8	23.5	22.1	-	-
		Persons	40.5	41.4	40.2	40.0	40.5	39.6	39.7	38.0	-	-
Deaths	Number	Males	1720	1542	1633	1695	1571	1664	1647	1550	1585	1691
		Females	580	574	581	623	619	682	728	694	681	756
		Persons	2300	2116	2214	2318	2190	2346	2375	2244	2266	2448
	Rate per 100,000	Males	66.3	58.3	60.2	61.3	55.7	57.7	56.2	51.3	51.3	53.5
		Females	17.8	17.3	17.2	18.0	17.6	19.0	20.0	18.6	18.0	19.3
		Persons	38.8	35.1	35.9	36.9	34.2	35.9	35.6	32.9	32.5	34.3

Note: Lung cancers were classified according to the ICD-9 code 162. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

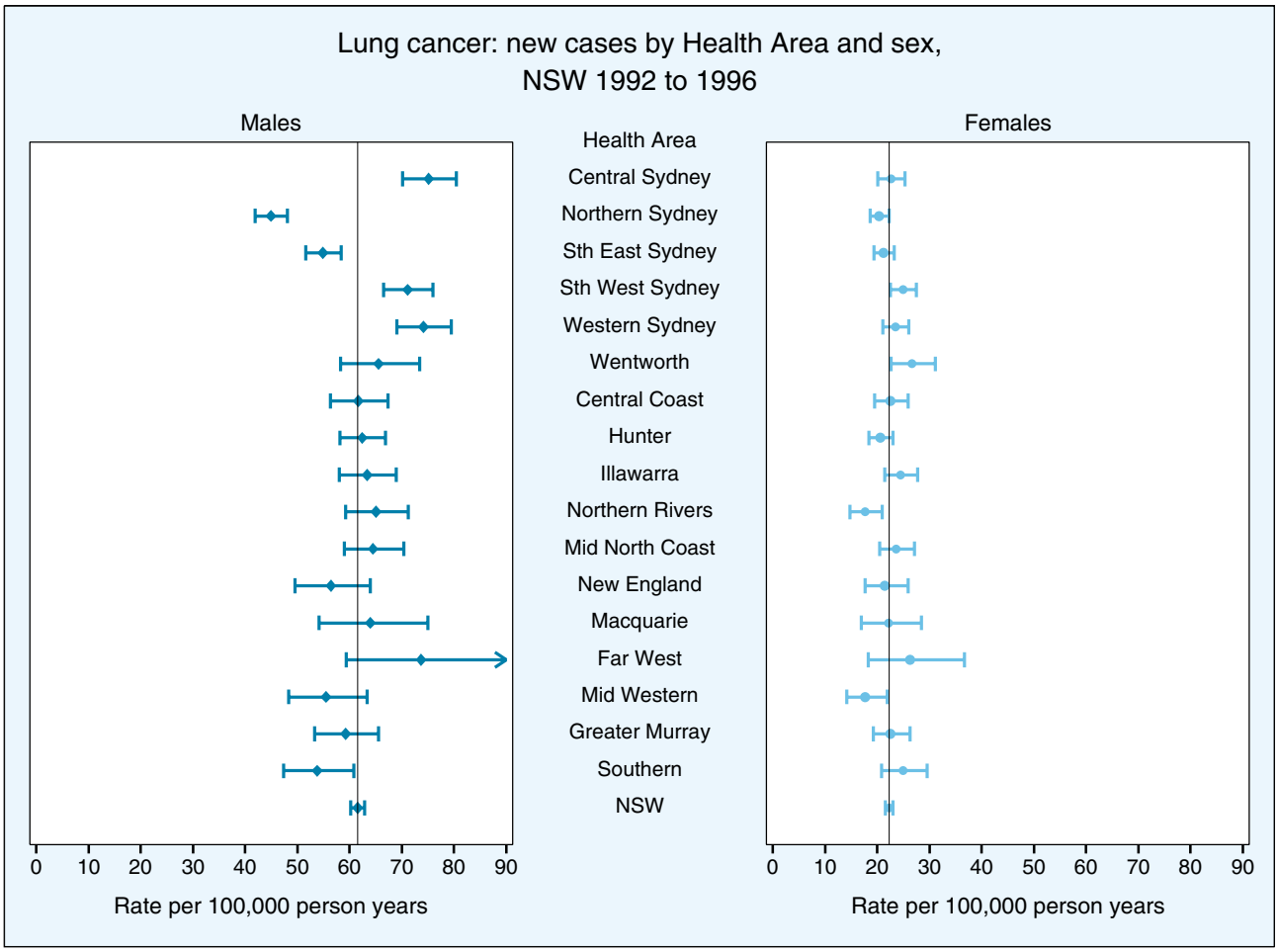
Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, lung cancer was the second most common malignant cancer in males and the fourth most common in females. It was the most common cause of cancer death in males and the second most common in females. Between 1973–1977 and 1996, the age-standardised incidence rates for lung cancer fell by 18 per cent in males, but almost doubled (96 per cent increase) in females.
- Trends in lung cancer largely reflect changes in smoking habits, with current lung cancer rates reflecting smoking rates in males and females 15–20 years ago. Declining incidence and mortality rates in males are attributed to decreased tobacco smoking among men. The reverse trend is true for women (AIHW, 1999). Lung cancer incidence is predicted to decrease in males, but increase in females to 2006, although female rates are expected to stabilise thereafter (Coory et al. 1998).
- Between 1980 and 1995, the five-year relative survival for lung cancer was the lowest of any cancer in males (10 per cent) and females (12 per cent) (Supramaniam et al. 1999).

For more information, see: Australian Institute of Health and Welfare and Australasian Association of Cancer Registries. *Cancer in Australia 1996.* AIHW Catalogue no. CAN 7. Canberra: AIHW, 1999.

Supramaniam R, Smith D P, Coates M S, Armstrong B K. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

Coory M, Armstrong B K. *Cancer incidence projections for area and rural health services in New South Wales.* Sydney: NSW Cancer Council, 1998.



Note: Lung cancers were classified according to the ICD-9 code 162. Rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for the standardised rate are shown.

Source: NSW Central Cancer Registry cancer incidence data and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Data combined for the period 1992–1996 show that lung cancer incidence rates were high in males in Central Sydney, South Western Sydney and Western Sydney compared to the whole of NSW. Males had lower rates in the Northern Sydney and South Eastern Sydney Health Areas, and females had a lower incidence in the Northern Rivers Health Area.
- Death rates for the same period were high in males in the Central Sydney, Western Sydney, South Western Sydney Health Areas, and in both sexes in the Far West Health Area. Lower death rates from lung cancer among both sexes occurred in the Northern Sydney and South Eastern Sydney Health Areas.
- Examination of the geographic variation of lung cancer in NSW by Local Government Area (LGA) shows higher rates for males in Penrith, Blacktown, Fairfield and Liverpool LGAs in greater western Sydney and the Leichhardt, Marrickville and Sydney/South Sydney LGAs near the city centre. Females in Penrith and South Sydney/Sydney LGAs had higher rates. Lower rates occurred in males living in the Northern Sydney LGAs (Lewis et al. 1999).
- This geographic variation is associated with socioeconomic status (SES). For the period 1991 to 1995, the incidence of lung cancer was higher in LGAs of low SES (Lewis et al. 1999). Smoking rates in the greater western Sydney region are not currently higher than the state average. The current high rates of lung cancer in this region may therefore fall, however this may take up to 15 years even if the prevalence of smoking continues to decline.

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.

NSW Cancer Council Web site at: http://www.nswcc.org.au.

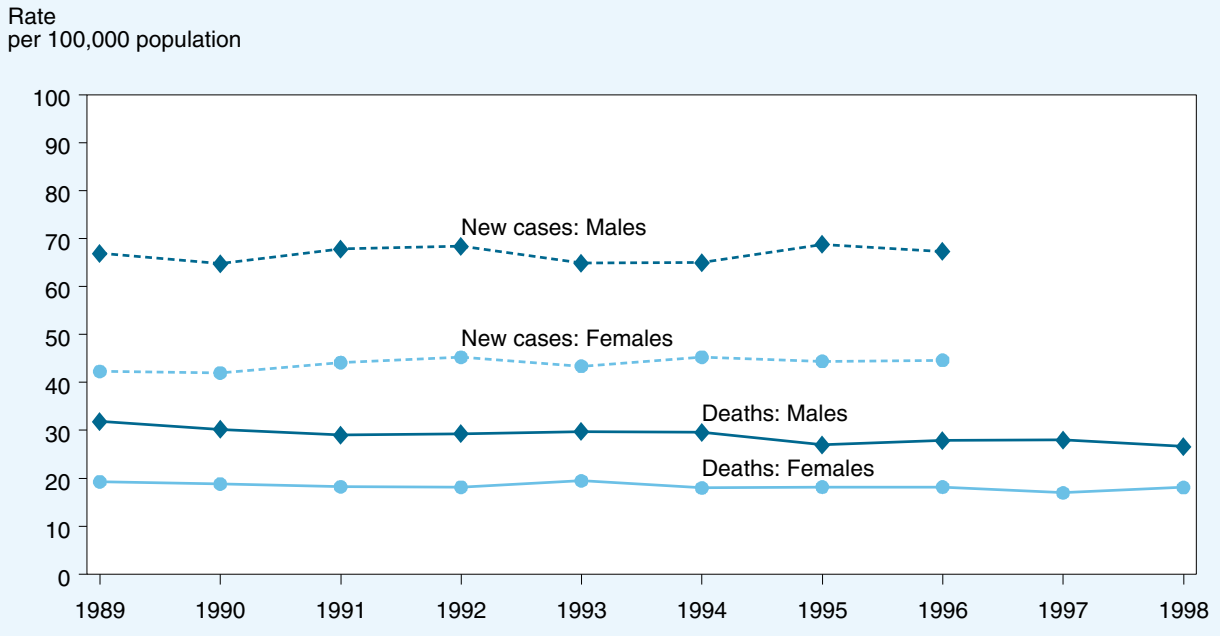
Lung cancer: new cases for 1992–1996 and deaths for 1994–1998 by Health Area and sex, NSW.

Health Area	Sex	New cases 1992–96 Number	Rate/ 100,000	LL95 % CI	UL95 % CI	Deaths 1994–98 Number	Rate/ 100,000	LL95 % CI	UL95 % CI
Central Sydney	Males	836	75.2	70.1	80.5	700	61.7	57.2	66.5
	Females	307	22.6	20.1	25.3	267	19.2	16.9	21.7
	Persons	1143	45.9	43.2	48.6	967	37.9	35.5	40.4
Northern Sydney	Males	831	44.9	41.9	48.1	751	39.5	36.7	42.4
	Females	517	20.4	18.6	22.3	426	16.1	14.6	17.8
	Persons	1348	30.4	28.8	32.1	1178	25.4	24.0	26.9
Sth East Sydney	Males	1008	54.9	51.6	58.4	884	46.9	43.8	50.1
	Females	499	21.2	19.3	23.2	411	16.4	14.8	18.2
	Persons	1507	35.7	34.0	37.6	1295	29.6	28.0	31.3
Sth West Sydney	Males	923	71.1	66.5	76.0	830	61.9	57.6	66.4
	Females	395	24.9	22.5	27.5	346	20.6	18.5	22.9
	Persons	1318	45.2	42.8	47.7	1176	38.6	36.4	40.9
Western Sydney	Males	849	74.2	69.1	79.5	724	61.1	56.6	65.8
	Females	344	23.4	21.0	26.1	304	19.9	17.7	22.2
	Persons	1193	45.0	42.5	47.6	1028	37.3	35.0	39.6
Wentworth	Males	310	65.5	58.3	73.4	268	54.5	48.1	61.6
	Females	159	26.6	22.6	31.1	141	22.0	18.5	26.0
	Persons	469	43.7	39.8	47.9	409	36.2	32.7	39.9
Central Coast	Males	501	61.6	56.3	67.4	511	58.7	53.6	64.1
	Females	216	22.6	19.5	25.9	220	21.1	18.3	24.2
	Persons	717	40.1	37.1	43.2	731	37.8	35.0	40.7
Hunter	Males	817	62.4	58.2	66.9	747	55.5	51.5	59.6
	Females	324	20.6	18.4	23.0	321	19.6	17.4	21.9
	Persons	1141	39.1	36.9	41.5	1068	35.0	32.9	37.2
Illawarra	Males	553	63.4	58.1	69.0	526	58.2	53.2	63.5
	Females	245	24.4	21.4	27.7	229	21.5	18.8	24.5
	Persons	798	42.2	39.3	45.2	756	37.9	35.2	40.7
Northern Rivers	Males	473	65.1	59.3	71.3	441	57.4	52.2	63.1
	Persons	612	39.5	36.4	42.8	581	35.0	32.2	38.0
Mid North Coast	Males	512	64.5	58.9	70.4	449	52.9	48.0	58.1
	Females	204	23.6	20.4	27.1	181	19.3	16.5	22.4
	Persons	716	42.4	39.3	45.6	630	34.8	32.1	37.6
New England	Males	247	56.4	49.6	64.0	218	49.2	42.8	56.2
	Females	112	21.5	17.6	25.9	103	19.1	15.5	23.2
	Persons	359	37.3	33.5	41.4	321	32.5	29.0	36.2
Macquarie	Males	155	64.0	54.2	75.0	146	57.7	48.6	68.0
	Females	63	22.2	17.0	28.4	61	21.0	16.0	27.0
	Persons	218	41.0	35.7	46.8	207	37.5	32.6	43.0
Far West	Males	95	73.7	59.3	90.4	101	77.0	62.4	93.8
	Females	35	26.3	18.3	36.6	43	30.9	22.3	41.7
	Persons	130	47.2	39.4	56.1	144	51.7	43.5	60.8
Mid Western	Males	221	55.5	48.4	63.4	220	53.9	47.0	61.6
	Females	85	17.7	14.1	21.9	80	15.8	12.4	19.7
	Persons	306	34.4	30.6	38.4	299	32.6	29.0	36.5
Greater Murray	Males	371	59.2	53.3	65.6	360	55.5	49.9	61.5
	Females	166	22.6	19.2	26.3	159	20.7	17.6	24.2
	Persons	537	39.2	36.0	42.7	519	36.4	33.3	39.6
Southern	Males	260	53.8	47.4	60.9	262	52.5	46.2	59.3
	Females	129	24.9	20.8	29.6	112	20.3	16.7	24.4
	Persons	389	38.3	34.6	42.3	374	34.9	31.5	38.7
NSW	Males	8962	61.5	60.3	62.8	8137	54.0	52.8	55.1
	Females	3939	22.3	21.6	23.0	3545	19.0	18.4	19.6
	Persons	12901	39.6	38.9	40.3	11682	34.2	33.6	34.9

Note: Lung cancers were classified according to the ICD-9 code 162. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95% CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: NSW Central Cancer Registry cancer incidence data and ABS mortality and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Colorectal cancer: new cases and deaths by sex, NSW 1989 to 1998



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	Males	1751	1719	1854	1905	1855	1888	2047	2062	-	-
		Females	1385	1387	1500	1563	1537	1632	1638	1677	-	-
		Persons	3136	3106	3354	3468	3392	3520	3685	3739	-	-
	Rate per 100,000	Males	66.9	64.8	67.8	68.4	64.9	65.0	68.8	67.3	-	-
		Females	42.3	42.0	44.1	45.2	43.4	45.3	44.4	44.6	-	-
		Persons	53.2	51.8	54.6	55.4	53.1	54.0	55.4	54.8	-	-
Deaths	Number	Males	791	773	777	791	821	843	779	829	864	840
		Females	646	640	639	651	714	678	697	717	677	734
		Persons	1437	1413	1416	1442	1535	1521	1476	1546	1541	1573
	Rate per 100,000	Males	31.9	30.2	29.1	29.3	29.8	29.6	27.0	27.9	28.0	26.6
		Females	19.3	18.8	18.2	18.2	19.5	18.0	18.2	18.2	17.0	18.1
		Persons	24.5	23.6	23.1	22.9	23.9	23.2	21.9	22.3	21.8	21.8

Note: Colorectal cancers were classified according to the ICD-9 codes 153–154. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

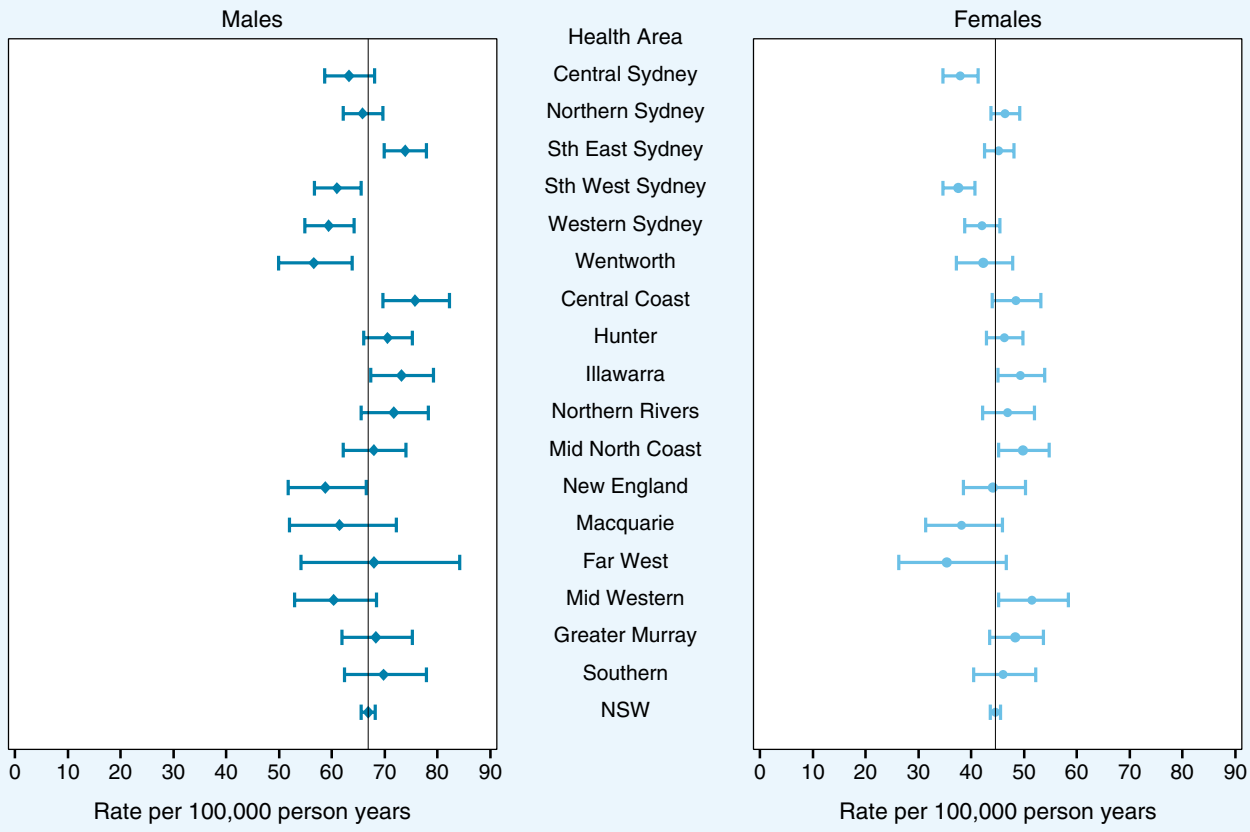
- Cancers of the colon and rectum (combined) were the second most common malignant cancer in both sexes in NSW in 1996, and ranked third as a cause of cancer death in males and second in females (Coates et al. 1999).
- There has been a slight increase in the age-adjusted incidence rate for colorectal cancers in males since 1985, but no increase in females. Age-adjusted mortality rates fell slightly in the same period. Factors associated with increased risk of colorectal cancer include a diet high in fat, meat or protein, and low in vegetables and fibre, and low levels of physical activity.
- The five-year relative survival rate for colon cancers and rectal cancers has been steadily improving, from 50.9 per cent for each cancer in 1980–1984, to 61.3 per cent for each cancer in 1990–1995 (Supramaniam et al. 1998).
- The NHMRC has recently endorsed guidelines for the prevention, early detection and management of colorectal cancer which should also assist in improving survival rates (NHMRC, 1999).

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Supramaniam R, Smith D P, Coates M S, Armstrong B K. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

National Health and Medical Research Council. *Guidelines for the prevention, early detection and management of colorectal cancer.* Canberra: NHMRC, 1999.

Colorectal cancer: new cases by Health Area and sex, NSW 1992 to 1996



Note: Colorectal cancers were classified according to the ICD-9 codes 153–154. Rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for the standardised rates are shown.

Source: NSW Central Cancer Registry incidence data, ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Data combined for the period 1992–1996 show that the age-adjusted rate for new cases of colorectal cancer was higher than for NSW in males in the Central Coast and South Eastern Sydney Health Areas but not higher for females in any Health Area. The rates were lower in males in the Western Sydney, South Western Sydney and Wentworth Health Areas, and for females in the Central Sydney and South Western Sydney Health Areas.
- The age-adjusted death rate for colorectal cancer for the 1994–1998 was higher than for NSW overall in males from the Central Coast Health Area and in females from the Mid Western Health Area. Rates were lower than for NSW overall in males in the Northern Sydney Health Area but were not lower for females in any Health Area.
- A recent report on the geographic distribution of colon cancer in NSW by Local Government Areas and socioeconomic status (SES) revealed that the incidence of colon cancer (but not rectal cancer) was lower in LGAs of low SES (Lewis et al. 1999).

For more information, see: Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.

Bell J, Coates M, Day P and Armstrong B. *Colorectal cancer in NSW in 1972 to 1993.* Sydney: NSW Cancer Council, 1996.

Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

NSW Cancer Council Web site at: http://www.nswcc.org.au.

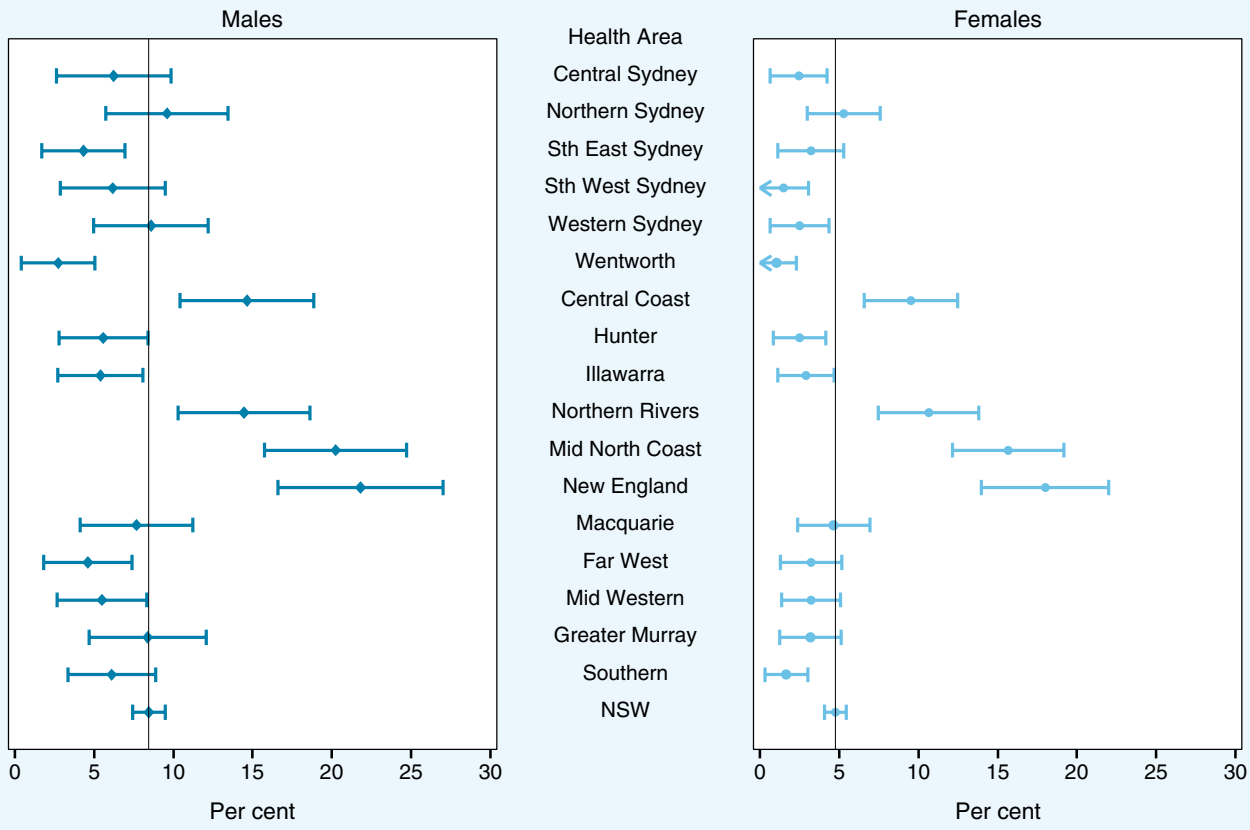
Colorectal cancer: new cases for 1992–1996 and deaths for 1994–1998, by Health Area and sex, NSW.

Health Area	Sex	New cases 1992–96 Number	Rate/ 100,000	LL95 % CI	UL95 % CI	Deaths 1994–98 Number	Rate/ 100,000	LL95 % CI	UL95 % CI
Central Sydney	Males	701	63.2	58.6	68.1	294	26.2	23.3	29.4
	Females	542	37.9	34.7	41.3	277	18.0	15.8	20.3
	Persons	1243	49.0	46.3	51.8	572	21.5	19.8	23.4
Northern Sydney	Males	1231	65.8	62.2	69.6	460	24.0	21.9	26.3
	Females	1201	46.4	43.7	49.2	496	17.4	15.8	19.1
	Persons	2432	54.5	52.4	56.8	956	20.1	18.8	21.5
Sth East Sydney	Males	1361	73.9	70.0	77.9	533	28.3	25.9	30.8
	Females	1077	45.2	42.5	48.0	449	17.3	15.7	19.1
	Persons	2438	57.6	55.3	59.9	982	21.9	20.5	23.3
Sth West Sydney	Males	809	61.0	56.7	65.5	337	25.5	22.7	28.4
	Females	594	37.6	34.6	40.7	261	15.4	13.6	17.4
	Persons	1403	48.2	45.7	50.8	598	19.7	18.2	21.4
Western Sydney	Males	699	59.4	54.9	64.2	309	26.4	23.4	29.7
	Females	627	42.0	38.8	45.4	263	16.7	14.8	18.9
	Persons	1326	49.5	46.8	52.2	572	20.7	19.0	22.5
Wentworth	Males	275	56.6	49.9	63.9	137	26.5	22.2	31.5
	Females	254	42.3	37.2	47.9	110	17.4	14.2	21.0
	Persons	529	48.6	44.5	53.0	247	21.3	18.7	24.2
Central Coast	Males	595	75.8	69.7	82.2	277	33.0	29.2	37.2
	Females	470	48.4	44.0	53.2	223	20.4	17.7	23.4
	Persons	1065	60.6	56.9	64.4	500	26.0	23.7	28.5
Hunter	Males	927	70.6	66.1	75.3	425	31.7	28.7	34.9
	Females	735	46.3	42.9	49.8	357	20.6	18.5	22.9
	Persons	1662	57.7	54.9	60.5	782	25.5	23.7	27.3
Illawarra	Males	625	73.2	67.4	79.3	269	30.0	26.4	33.8
	Females	491	49.3	45.0	53.9	197	18.2	15.7	21.0
	Persons	1116	60.3	56.8	64.0	466	23.8	21.7	26.1
Northern Rivers	Males	507	71.7	65.6	78.3	195	26.0	22.5	30.0
	Females	375	46.9	42.2	52.0	129	14.9	12.4	17.8
	Persons	882	58.5	54.7	62.6	324	20.0	17.8	22.3
Mid North Coast	Males	529	67.9	62.2	74.0	240	29.2	25.6	33.2
	Females	435	49.8	45.2	54.8	175	17.7	15.1	20.6
	Persons	964	58.3	54.6	62.1	415	23.2	21.0	25.5
New England	Males	258	58.8	51.8	66.5	124	27.7	23.0	33.0
	Females	232	44.1	38.6	50.3	124	21.5	17.8	25.8
	Persons	490	50.4	46.0	55.1	247	24.2	21.3	27.5
Macquarie	Males	152	61.5	52.0	72.2	60	23.9	18.1	30.8
	Females	113	38.1	31.3	45.9	49	15.0	11.0	20.0
	Persons	265	49.6	43.8	56.0	109	19.4	15.9	23.4
Far West	Males	87	68.0	54.1	84.2	36	29.0	20.1	40.3
	Females	51	35.4	26.3	46.7	25	17.1	11.0	25.3
	Persons	138	50.6	42.5	59.8	61	22.0	16.8	28.3
Mid Western	Males	242	60.3	52.9	68.5	102	26.0	21.1	31.6
	Females	251	51.5	45.2	58.4	123	23.5	19.4	28.1
	Persons	493	55.4	50.6	60.5	225	23.7	20.6	27.0
Greater Murray	Males	426	68.3	62.0	75.2	209	32.7	28.3	37.4
	Females	356	48.4	43.4	53.7	134	17.0	14.2	20.2
	Persons	782	56.9	53.0	61.0	343	23.9	21.5	26.6
Southern	Males	333	69.8	62.4	77.9	153	31.2	26.3	36.6
	Females	243	46.0	40.4	52.2	115	20.2	16.6	24.2
	Persons	576	57.3	52.7	62.2	268	25.1	22.2	28.3
NSW	Males	9757	66.9	65.6	68.3	4160	27.8	27.0	28.7
	Females	8047	44.6	43.6	45.6	3507	17.9	17.3	18.5
	Persons	17804	54.5	53.7	55.3	7667	22.2	21.7	22.7

Note: Colorectal cancers were classified according to the ICD-9 codes 153–154. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95 per cent CI=lower/upper limits of 95 per cent confidence interval for standardised rate.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Colorectal cancer: screening in last 12 months by Health Area and sex, persons aged 50 to 79 years, NSW 1997 and 1998



Note: Bowel cancer screening is defined as those who had a bowel X-ray, endoscopy or faecal test for cancer within the last year and who had no symptoms or family history of bowel cancer. Upper and lower limits of the 95 per cent confidence interval for the point estimate are shown.

Source: NSW Health Surveys 1997 and 1998 (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- The NSW Health Surveys in 1997 and 1998 collected data on tests for bowel cancer. Estimates of the proportion of the population having a screening test for bowel cancer excluded those who had bowel cancer, symptoms of bowel cancer or a family history of bowel cancer involving more than one relative, as tests in these people would be considered to be for diagnostic, rather than screening purposes (NSW Health Survey 1997 Report, 1998).
- After excluding people having diagnostic tests, an estimated 22.1 per cent of males and 19.3 per cent of females aged between 50–79 years had a screening test for bowel cancer in the last 12 months. These tests included faecal occult blood tests (FOBT), flexible sigmoidoscopy, colonoscopy and double-contrast barium enemas.
- The following Health Areas had reported high screening rates for colorectal cancer for both sexes: Central Coast, Northern Rivers, Mid North Coast and New England.
- The FOBT has been recommended as the preferred screening test for colorectal cancer for people aged over 50 years in Australia, with follow-up colonoscopy or barium enema if the test is positive (AHTAC, 1997). Further pilot tests to determine the most effective and acceptable test kit are underway (NCCI, 1999).
- With the exception of females in Central Coast, high rates of investigations for colorectal cancer in Health Areas do not correspond with high incidence and death rates. There is some evidence that higher screening rates in rural areas may be associated with the Bowelscan program under the auspice of Rotary Australia. This program has been implemented in north-eastern NSW (Rae, 1998).

For more information, see: The NSW Health Survey 1997 report may be viewed at the NSW Health Department's Web site at: www.health.nsw.gov.au/public-health.

Australian Health Technology Advisory Committee. *Colorectal cancer screening.* Canberra: Commonwealth Department of Health and Family Services, 1997.

National Cancer Control Initiative. Strategic plan. Melbourne: 1999.

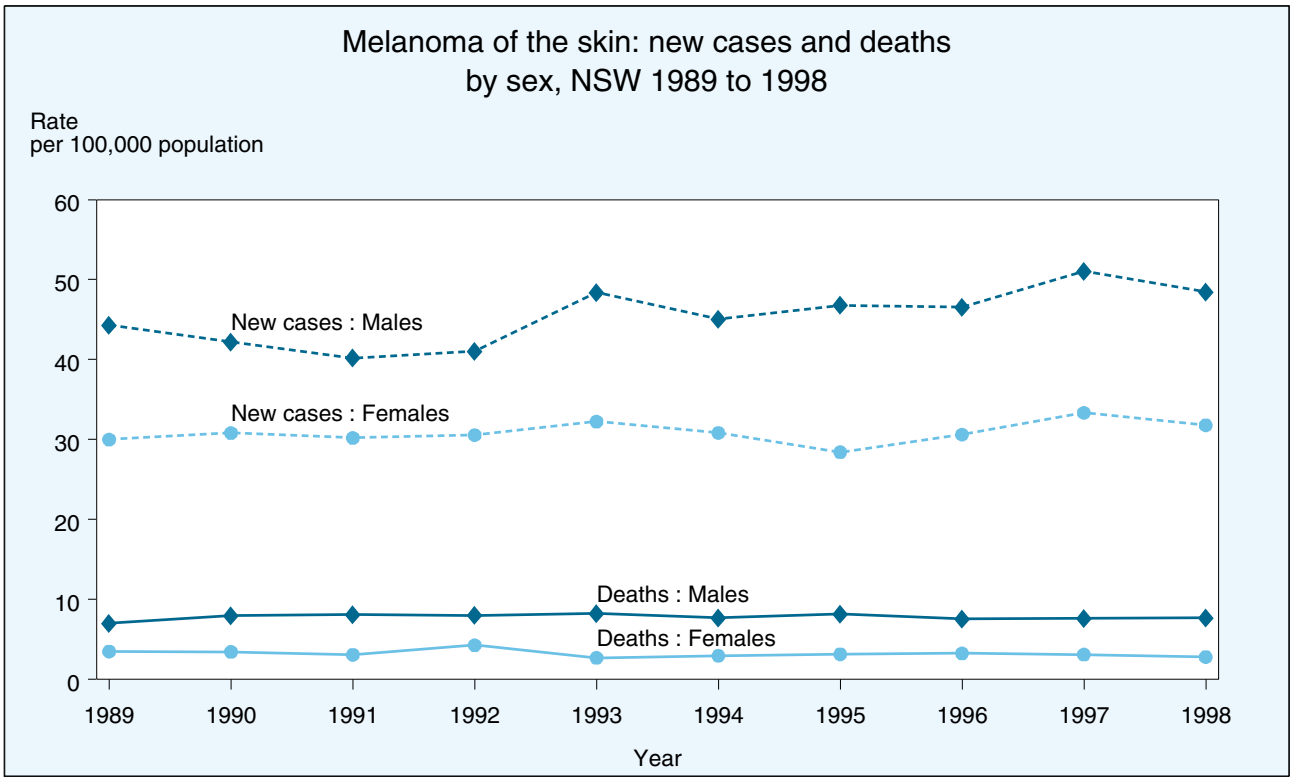
Rae L C. Community screening for colorectal cancer in north-eastern NSW, 1987– 996. *Med J Aust,* 1998; 168: 382–385.

Colorectal cancer: screening in the last 12 months by Health Area and sex, persons aged 50–79 years, NSW 1997 and 1998.

Health Area	Sex	Per cent	LL 95% CI	UL 95% CI
Central Sydney	Males	6.2	2.6	9.8
	Females	2.4	0.6	4.2
	Persons	4.3	2.4	6.2
Northern Sydney	Males	9.6	5.7	13.5
	Females	5.3	3.0	7.6
	Persons	7.4	5.2	9.5
Sth East Sydney	Males	4.3	1.7	7.0
	Females	3.2	1.1	5.3
	Persons	3.8	2.1	5.4
Sth West Sydney	Males	6.2	2.8	9.5
	Females	1.5	0.0	3.1
	Persons	3.9	2.0	5.7
Western Sydney	Males	8.6	5.0	12.2
	Females	2.5	0.6	4.3
	Persons	5.6	3.6	7.6
Wentworth	Males	2.7	0.4	5.1
	Females	1.1	0.0	2.3
	Persons	1.9	0.6	3.1
Central Coast	Males	14.6	10.4	18.9
	Females	9.5	6.6	12.5
	Persons	12.0	9.4	14.5
Hunter	Males	5.6	2.8	8.4
	Females	2.5	0.8	4.1
	Persons	4.0	2.4	5.6
Illawarra	Males	5.4	2.7	8.1
	Females	2.9	1.1	4.7
	Persons	4.1	2.5	5.7
Northern Rivers	Males	14.5	10.3	18.6
	Females	10.6	7.5	13.8
	Persons	12.5	9.9	15.1
Mid North Coast	Males	20.2	15.8	24.7
	Females	15.7	12.2	19.2
	Persons	17.9	15.1	20.7
New England	Males	21.8	16.6	27.0
	Females	18.0	14.0	22.0
	Persons	19.9	16.6	23.2
Macquarie	Males	7.7	4.1	11.2
	Females	4.7	2.4	6.9
	Persons	6.2	4.1	8.3
Far West	Males	4.6	1.8	7.4
	Females	3.2	1.3	5.2
	Persons	4.0	2.2	5.7
Mid Western	Males	5.5	2.7	8.3
	Females	3.2	1.4	5.1
	Persons	4.4	2.7	6.0
Greater Murray	Males	8.4	4.7	12.1
	Females	3.2	1.2	5.1
	Persons	5.7	3.7	7.7
Southern	Males	6.1	3.4	8.9
	Females	1.7	0.3	3.0
	Persons	3.9	2.4	5.4
NSW	Males	8.5	7.4	9.5
	Females	4.7	4.1	5.4
	Persons	6.6	6.0	7.2

Note: Bowel cancer screening is defined as those who had a bowel X-ray, endoscopy or faecal test for cancer within the last year and who had no symptoms or family history of bowel cancer. LL/UL95% CI=lower/upper limits of 95% confidence interval of the point estimate.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	Males	1216	1165	1137	1186	1421	1342	1418	1440	1625	1574
		Females	899	944	942	978	1040	1011	955	1057	1169	1121
		Persons	2115	2109	2079	2164	2461	2353	2373	2497	2794	2695
	Rate per 100,000	Males	44.3	42.2	40.2	41.0	48.4	45.0	46.8	46.5	51.0	48.5
		Females	30.0	30.8	30.2	30.5	32.2	30.8	28.4	30.6	33.3	31.8
		Persons	36.2	35.6	34.4	35.1	39.3	37.0	36.5	37.6	41.3	39.2
Deaths	Number	Males	187	214	220	221	235	219	239	227	237	244
		Females	109	112	100	145	96	105	112	119	115	114
		Persons	296	326	320	366	331	324	351	346	352	357
	Rate per 100,000	Males	7.0	7.9	8.1	8.0	8.2	7.7	8.2	7.6	7.6	7.7
		Females	3.5	3.4	3.1	4.3	2.7	2.9	3.1	3.2	3.1	2.8
		Persons	5.1	5.5	5.3	5.9	5.2	5.0	5.3	5.1	5.1	5.0

Note: Melanoma of the skin was classified according to the ICD-9 code 172. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

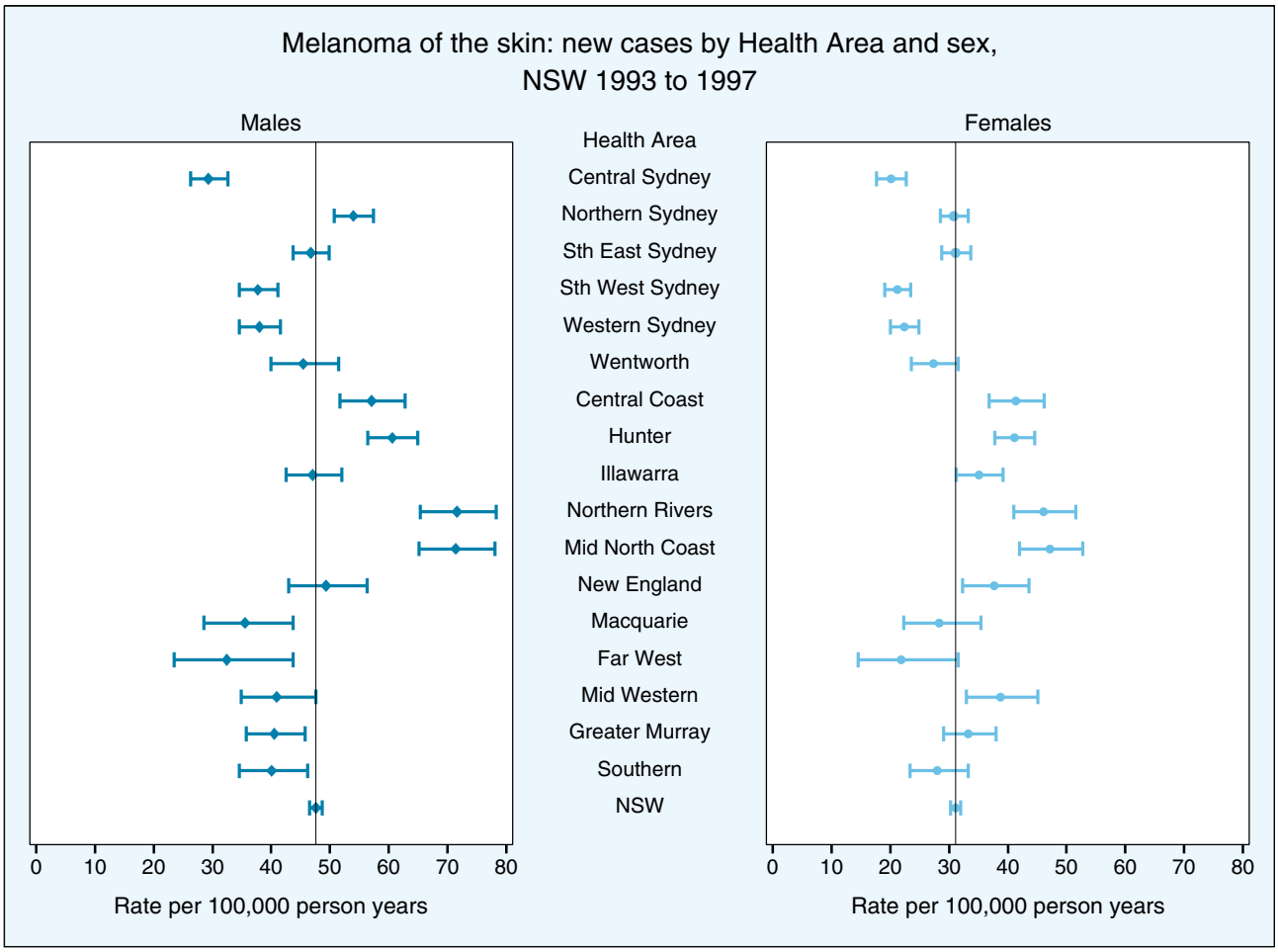
Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, melanoma ranked as the cancer with the third highest incidence in NSW in both sexes and ranked eighth in males and thirteenth in females in terms of cancer deaths. Between 1975–76 and 1996, the age-standardised incidence rates for melanoma rose by 96 per cent in males and 23 per cent in females. Compared with 1973–77, mortality rates rose by 41 per cent in males and 11 per cent in females.
- Five-year relative survival was 89 per cent in males and 95 per cent in females diagnosed with melanoma between 1980 and 1995 (Supramaniam et al. 1999).
- The Australian Cancer Network published guidelines for the management of cutaneous melanoma in June 1997 (NHRMC, 1999). These should assist in improving survival and quality of life.
- A comprehensive skin cancer prevention program jointly administered by the NSW Health Department and the NSW Cancer Council has been in place since 1995 (Nathan et al. 1995). This should result in reduced incidence rates for melanoma in the future.

For more information, see: Supramaniam R, Smith D P, Coates M S, Armstrong B K. *Survival from cancer in New South Wales in 1980 to 1995*. Sydney: NSW Cancer Council, 1998.

National Health and Medical Research Council. *Guidelines for the management of cutaneous melanoma*. Canberra: NHMRC, 1999.

Nathan S and Gaffney D. *Skin cancer control in New South Wales. Health promotion strategic plan 1995–2000*. Sydney: NSW Cancer Council and NSW Health Department, 1995.



Note: Melanoma of the skin was classified according to the ICD-9 code 162. Rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for the standardised rates are shown.

Source: NSW Central Cancer Registry incidence data, and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Data combined for the period between 1993–1997 show that melanoma incidence rates were high in males in the Northern Sydney, females in the New England and Mid Western and both males and females in the Central Coast, Hunter, Northern Rivers and Mid North Coast Health Areas, compared with the whole of NSW. The rates were low in males in the Macquarie, Far West, Greater Murray and Southern Health Areas. The rates were also low in both males and females in the Central Sydney, South Western Sydney and Western Sydney Health Areas. Death rates for the 1994–1998 period did not vary for either sex across the state, with the exception of the Central Sydney Health Area, which had a lower male death rate.
- The striking feature of the variation in melanoma incidence rates across NSW is the occurrence of higher rates along the coast compared to inland. Examination of the geographic distribution of melanoma in NSW by Local Government Areas and socioeconomic status (SES) revealed that the incidence of melanoma was higher in the north of the state. This pattern was more evident in females than in males (Lewis et al. 1995). Rates were also lower in LGAs of low SES for both sexes. The higher rates in coastal areas is likely to be associated with environments and behaviours resulting in greater sun exposure.
- A recent report on the projected incidence of cancer to 2001 and 2006 predicts that melanoma incidence rates will continue to increase in all Health Areas (Coory, 1998).

For more information, see: Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.

Coory M and Armstrong BK. *Cancer incidence projections for area and rural health services in New South Wales.* Sydney: NSW Cancer Council, 1998.

Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, July 1999.

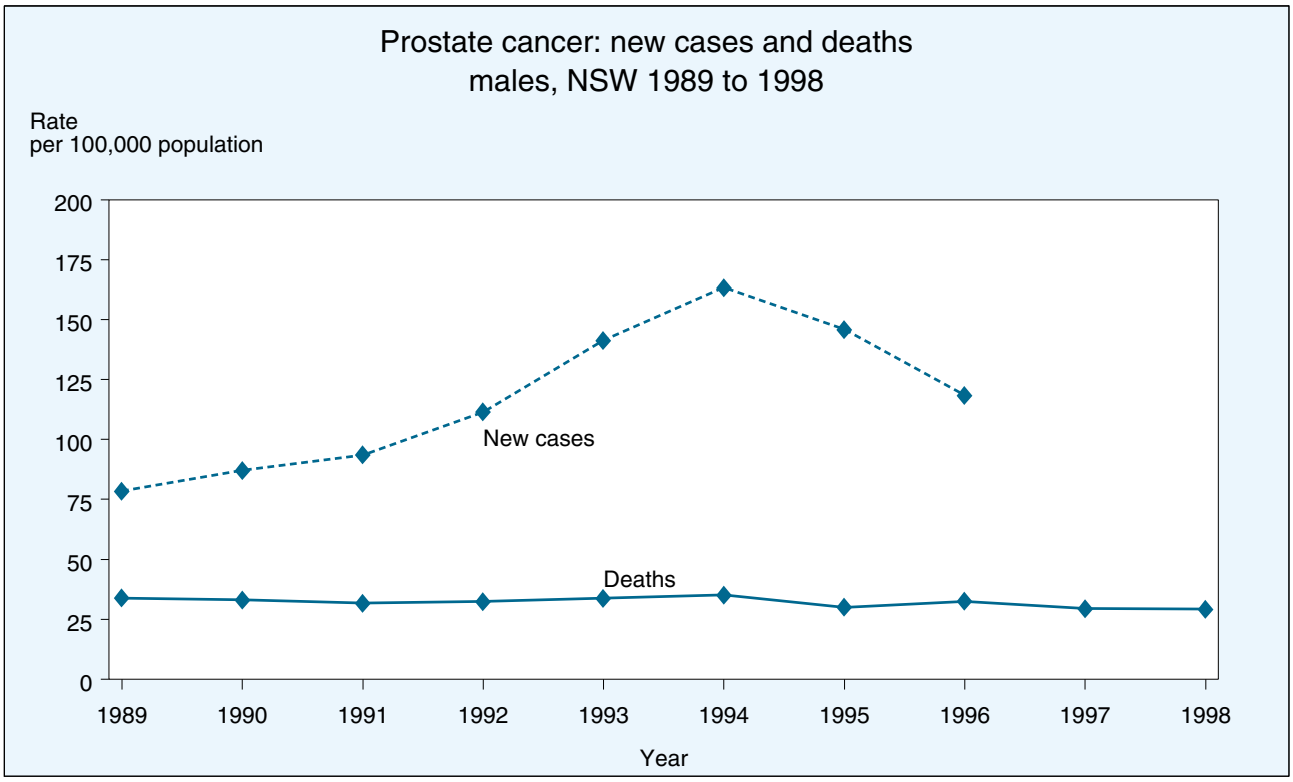
NSW Cancer Council Web site at: www.nswcc.org.au.

Melanoma of the skin: new cases for 1993–1997 and deaths for 1994–1998, by Health Area and sex, NSW.

Health Area	Sex	New cases 1993–97 Number	Rate/100,000	LL95 % CI	UL95 % CI	Deaths 1994–98 Number	Rate/100,000	LL95 % CI	UL95 % CI
Central Sydney	Males	339	29.3	26.2	32.6	53	4.7	3.5	6.1
	Females	262	20.1	17.7	22.7	39	2.8	1.9	3.8
	Persons	601	23.7	21.9	25.7	92	3.5	2.8	4.3
Northern Sydney	Males	1040	54.0	50.8	57.4	154	8.2	6.9	9.6
	Females	703	30.8	28.5	33.3	85	3.3	2.6	4.1
	Persons	1743	41.0	39.1	43.0	239	5.3	4.7	6.1
Sth East Sydney	Males	894	46.7	43.7	49.9	150	7.8	6.6	9.2
	Females	659	31.1	28.8	33.7	71	2.7	2.1	3.5
	Persons	1553	37.6	35.8	39.6	222	5.0	4.4	5.7
Sth West Sydney	Males	558	37.7	34.6	41.1	103	7.3	5.9	8.9
	Females	362	21.2	19.0	23.5	45	2.6	1.9	3.5
	Persons	920	28.5	26.7	30.5	148	4.7	4.0	5.5
Western Sydney	Males	510	38.0	34.6	41.6	89	6.9	5.5	8.5
	Females	349	22.4	20.1	24.8	47	3.0	2.2	3.9
	Persons	859	29.1	27.1	31.1	136	4.6	3.9	5.5
Wentworth	Males	269	45.5	39.9	51.5	48	8.4	6.1	11.3
	Females	191	27.4	23.6	31.6	26	4.0	2.6	5.9
	Persons	460	35.2	32.0	38.7	74	6.0	4.7	7.6
Central Coast	Males	433	57.1	51.7	62.8	68	8.4	6.5	10.7
	Females	329	41.3	36.8	46.2	26	2.8	1.7	4.1
	Persons	762	48.0	44.5	51.6	94	5.2	4.2	6.4
Hunter	Males	801	60.6	56.5	65.0	123	9.1	7.6	10.9
	Females	587	41.1	37.8	44.6	44	2.6	1.9	3.5
	Persons	1388	49.6	47.0	52.3	167	5.5	4.7	6.5
Illawarra	Males	405	47.1	42.5	52.0	65	7.7	5.9	9.8
	Females	317	35.1	31.3	39.2	34	3.3	2.3	4.6
	Persons	722	40.2	37.3	43.2	99	5.2	4.2	6.3
Northern Rivers	Males	499	71.6	65.4	78.3	72	10.0	7.8	12.7
	Females	321	46.1	41.0	51.6	29	3.3	2.2	4.8
	Persons	820	57.9	53.9	62.1	101	6.5	5.3	7.9
Mid North Coast	Males	518	71.4	65.1	78.1	79	10.2	8.0	12.8
	Females	337	47.1	42.0	52.8	29	3.4	2.2	5.0
	Persons	855	58.5	54.5	62.8	108	6.5	5.3	7.9
New England	Males	223	49.3	43.0	56.3	26	6.0	3.9	8.8
	Females	182	37.6	32.3	43.6	21	3.8	2.3	5.8
	Persons	405	43.0	38.9	47.4	47	4.7	3.5	6.3
Macquarie	Males	91	35.6	28.6	43.7	17	7.2	4.2	11.5
	Females	78	28.3	22.3	35.4	8	2.6	1.1	5.2
	Persons	169	31.9	27.2	37.1	25	4.6	3.0	6.8
Far West	Males	44	32.4	23.4	43.7	9	6.6	2.9	12.8
	Females	29	21.9	14.5	31.5	5	3.8	1.2	8.8
	Persons	73	27.1	21.3	34.2	14	5.1	2.8	8.5
Mid Western	Males	170	40.9	34.9	47.6	22	5.3	3.3	8.1
	Females	166	38.7	33.0	45.2	14	3.0	1.6	5.0
	Persons	336	39.3	35.2	43.8	36	3.9	2.7	5.5
Greater Murray	Males	259	40.5	35.7	45.8	53	8.3	6.2	10.9
	Females	226	33.3	29.0	38.0	21	2.8	1.7	4.3
	Persons	485	36.7	33.5	40.1	74	5.4	4.2	6.8
Southern	Males	193	40.0	34.5	46.2	33	7.0	4.8	9.9
	Females	134	28.0	23.3	33.2	17	3.2	1.8	5.2
	Persons	327	33.4	29.8	37.2	50	4.9	3.6	6.5
NSW	Males	7246	47.6	46.5	48.7	1166	7.7	7.3	8.2
	Females	5232	31.1	30.3	32.0	561	3.0	2.8	3.3
	Persons	12478	38.4	37.7	39.0	1727	5.1	4.8	5.3

Note: Melanoma of the skin was classified according to the ICD-9 code 162. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95% CI=lower/upper limits of 95% confidence interval for standardised rate.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	1887	2156	2403	2946	3890	4663	4287	3572	-	-
	Rate per 100,000	78.4	87.1	93.5	111.5	141.3	163.3	145.8	118.4	-	-
Deaths	Number	750	762	756	797	859	920	818	908	859	879
	Rate per 100,000	33.9	33.1	31.7	32.4	33.7	35.1	30.0	32.5	29.5	29.2

Note: Prostate cancers were classified according to the ICD-9 code 185. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, prostate cancer was the most common new cancer diagnosed in males and the second most common cause of cancer death in males. Between 1973–7 and 1988, the age-standardised incidence rate for prostate cancer rose by 40 per cent. However between 1988 and 1994, the rate rose by 125 per cent and has since declined to the 1992 level (Coates et al. 1999).
- The surge in prostate cancer incidence has been mirrored by a similar increase in the blood testing of men for Prostate Specific Antigen (PSA) (Smith et al. 1998). PSA testing has been used since the 1980s to monitor the progression of prostate cancer in men where the cancer has already been clinically diagnosed. More recently, however, it has been increasingly used as a screening test. The value of this earlier detection in improving outcomes for men remains unclear, as there is a lack of agreement about the type and value of treatment for men with early stage localised prostate cancer (Smith et al. 1998).
- The Australian Health Technology Advisory Committee does not recommend PSA testing as a screening tool for prostate cancer in Australian men (AHTAC, 1996).
- Five-year relative survival was 72.0 per cent in males diagnosed with cancer of prostate between 1980–1995. Survival has improved overall from 61.0 per cent for men diagnosed between 1980–1984 to 83.2 per cent for men diagnosed between 1990–1995 (Supramaniam et al. 1998).

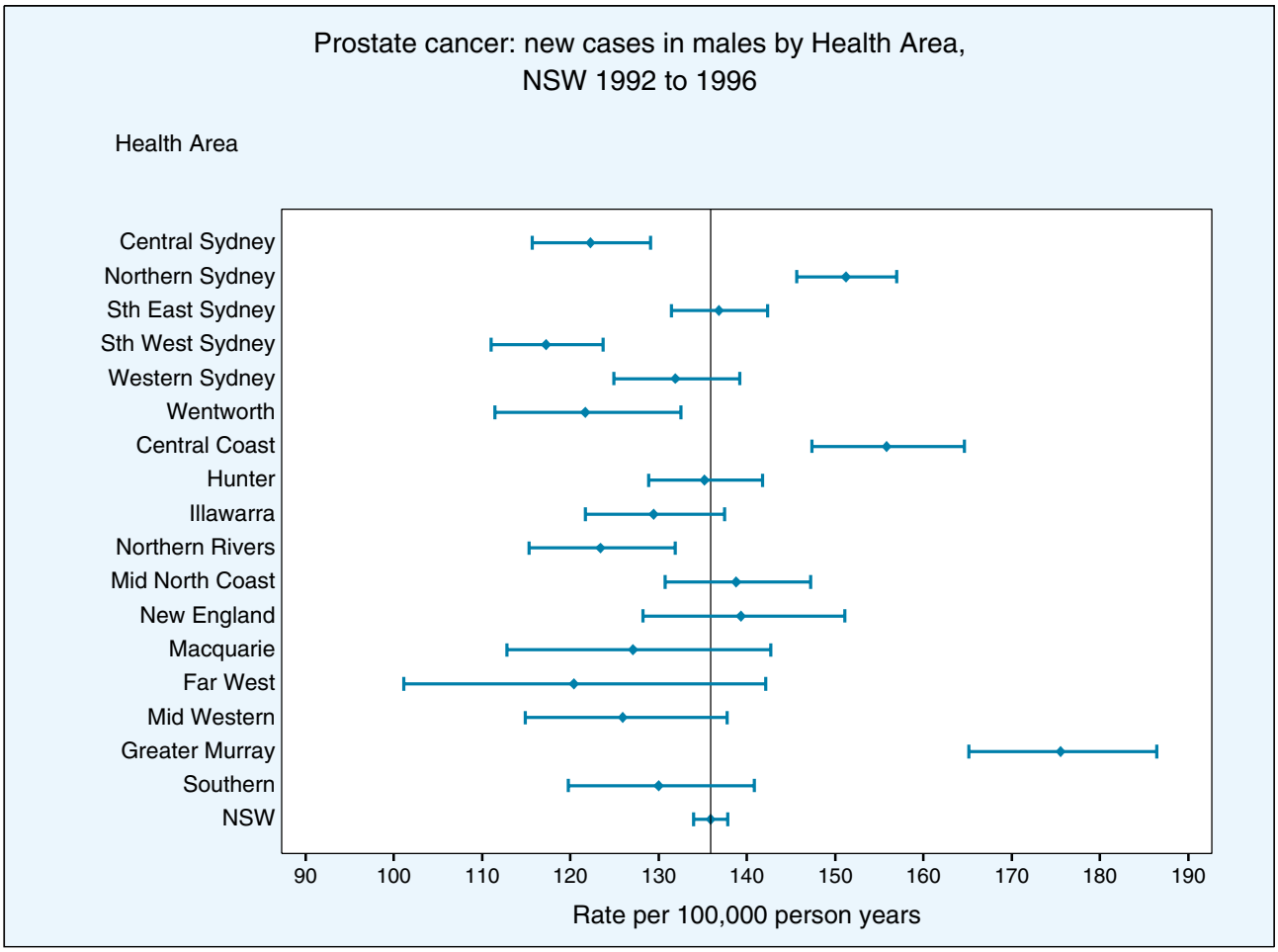
For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Australian Health Technology Advisory Committee. *Prostate cancer screening.* Canberra: Commonwealth Department of Health and Family Services, 1996.

Smith DP, Armstrong BK, Saunders R. *Patterns of Prostate Specific Antigen (PSA) testing in Australia in 1992 to 1996.* Sydney: NSW Cancer Council, 1998.

Supramaniam R, Smith DP, Coates MS and Armstrong BK. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

NSW Cancer Council Web site at: www.nswcc.org.au.



Health Area	New cases 1992-96				Deaths 1994-98			
	Number	Rate/100,000	LL95 % CI	UL95 % CI	Number	Rate/100,000	LL95 % CI	UL95 % CI
Central Sydney	1317	122.3	115.7	129.1	264	24.7	21.8	27.9
Northern Sydney	2774	151.2	145.6	157.0	600	31.7	29.2	34.3
Sth East Sydney	2493	136.8	131.5	142.3	515	28.1	25.7	30.6
Sth West Sydney	1425	117.2	111.0	123.7	318	28.2	25.1	31.5
Western Sydney	1428	131.9	125.0	139.2	308	31.3	27.8	35.1
Wentworth	539	121.7	111.5	132.6	137	32.1	26.9	38.0
Central Coast	1299	155.8	147.4	164.7	275	31.5	27.8	35.5
Hunter	1750	135.2	128.9	141.8	415	32.5	29.4	35.8
Illawarra	1106	129.4	121.7	137.5	274	34.2	30.1	38.6
Northern Rivers	893	123.4	115.3	131.9	231	30.9	27.0	35.2
Mid North Coast	1130	138.8	130.7	147.2	255	30.5	26.8	34.6
New England	589	139.3	128.2	151.1	167	40.1	34.2	46.7
Macquarie	294	127.1	112.8	142.7	96	42.6	34.4	52.1
Far West	144	120.4	101.2	142.2	53	47.0	35.0	61.7
Mid Western	485	125.9	114.9	137.7	145	38.3	32.3	45.1
Greater Murray	1077	175.5	165.1	186.4	212	35.4	30.7	40.5
Southern	615	130.0	119.8	140.8	122	27.0	22.4	32.4
NSW	19358	135.9	134.0	137.8	4386	31.2	30.3	32.1

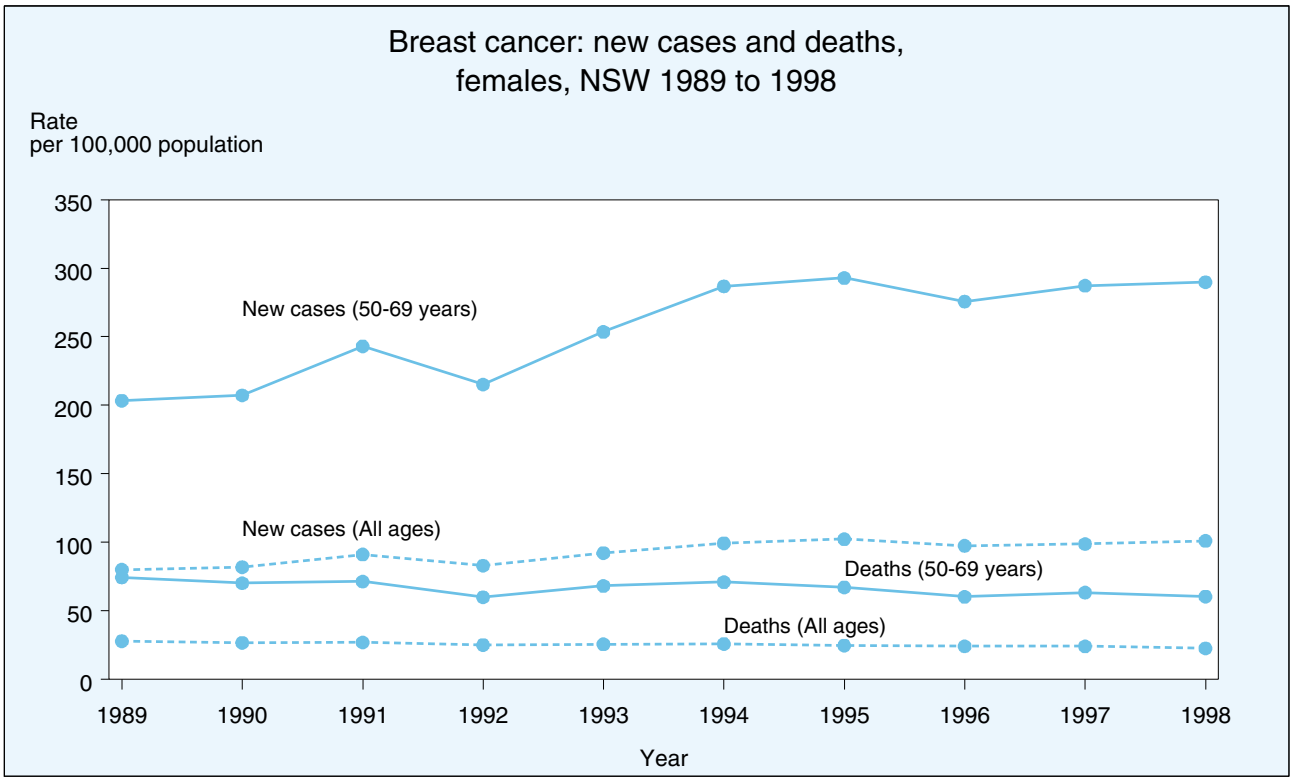
Note: Prostate cancers were classified according to the ICD-9 code 185. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for standardised rates.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the light of the relationship between Prostate Specific Antigen (PSA) testing and increased incidence of prostate cancer (see page 185), a likely explanation for the geographic variation in prostate cancer is a higher rate of PSA testing of men in LGAs in northern Sydney and around Albury.

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.



		Age	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	All ages	2448	2550	2901	2688	3037	3317	3493	3403	3514	3666
		50–69 years	1071	1099	1296	1152	1366	1558	1617	1544	1648	1708
	Rate per 100,000	All ages	80.0	81.8	91.1	82.9	92.1	99.3	102.2	97.4	98.7	101.0
		50–69 years	203.3	207.2	243.0	215.1	253.6	286.8	292.9	275.7	287.3	289.8
Deaths	Number	All ages	882	856	882	849	877	899	885	884	889	859
		50–69 years	394	373	381	322	366	386	369	335	361	351
	Rate per 100,000	All ages	27.8	26.6	26.9	25.0	25.5	25.7	24.6	24.0	24.0	22.5
		50–69 years	74.3	70.1	71.3	59.8	68.1	70.9	67.0	60.2	63.3	60.4

Note: Female breast cancer was classified according to the ICD-9 code 174. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

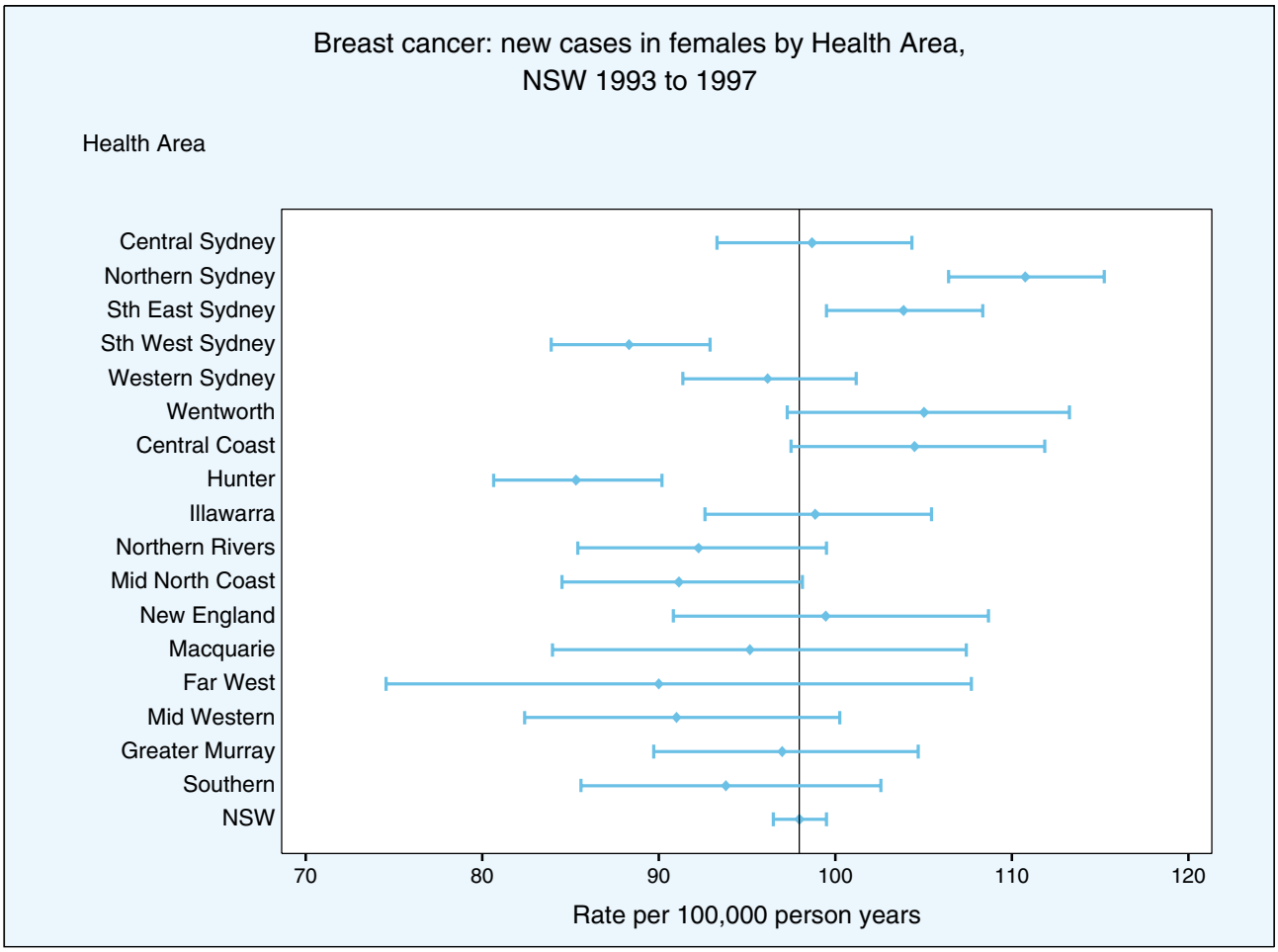
- In 1996, the breast was the most common site for new cases of cancer and the leading cause of death from cancer in NSW women (Coates et al. 1999).
- In NSW between 1989 and 1998, the age adjusted rate for new cases of breast cancer rose by 42.2 per cent in women aged 50–69 years, peaking at 292.9 cases per 100,000 in 1995. Part of the increasing incidence in breast cancer is likely to be explained by earlier detection through the BreastScreen NSW mammographic screening program, which is targeted at women aged 50–69 years.
- Death rates in NSW were relatively stable between 1989–1994, and declined slightly since then. The five-year relative survival in women with breast cancer in NSW has steadily increased. In 1980–84 the survival was 74 per cent and in 1990–95 it was 83 per cent (Supramanian et al. 1998).
- A combination of increased mammographic screening and the implementation in NSW of evidence-based clinical practice guidelines for the management of early and advanced breast cancer should bring a further increase in survival rates in the long term (NHMRC, 1991 and 1999).

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Supramaniam R, Smith DP, Coates MS and Armstrong BK. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

National Health and Medical Research Council National Breast Cancer Centre. *Clinical practice guidelines for the management of early breast cancer.* Canberra: NHMRC, 1991 and *Draft Clinical practice guidelines for the management of advanced breast cancer.* Canberra: NHMRC, 1999.

National Breast Cancer Centre Web site at: www.nbcc.org.au.



Health Area	New cases 1993–97				Deaths 1994–98			
	Number	Rate/100,000	LL95 % CI	UL95 % CI	Number	Rate/100,000	LL95 % CI	UL95 % CI
Central Sydney	1281	98.7	93.3	104.3	358	25.6	22.9	28.4
Northern Sydney	2551	110.8	106.4	115.3	639	25.2	23.2	27.4
Sth Eastern Sydney	2221	103.9	99.5	108.3	605	26.2	24.1	28.4
Sth Western Sydney	1503	88.3	83.9	92.9	364	21.1	18.9	23.4
Western Sydney	1516	96.2	91.4	101.2	386	23.9	21.5	26.4
Wentworth	700	105.0	97.3	113.3	172	26.1	22.3	30.4
Central Coast	886	104.5	97.5	111.9	216	23.3	20.2	26.8
Hunter	1277	85.3	80.7	90.2	370	22.4	20.1	24.9
Illawarra	940	98.9	92.6	105.5	231	22.9	20.1	26.1
Northern Rivers	694	92.3	85.4	99.5	193	23.5	20.2	27.2
Mid North Coast	736	91.1	84.5	98.1	197	22.6	19.5	26.1
New England	497	99.5	90.8	108.7	144	28.2	23.7	33.2
Macquarie	266	95.2	84.0	107.4	88	29.6	23.6	36.5
Far West	121	90.0	74.5	107.7	43	30.7	22.1	41.5
Mid Western	421	91.0	82.4	100.3	119	24.3	20.0	29.1
Greater Murray	670	97.0	89.7	104.7	171	23.1	19.7	26.9
Southern	484	93.8	85.6	102.6	122	22.3	18.5	26.7
NSW	16764	98.0	96.5	99.5	4417	24.1	23.4	24.9

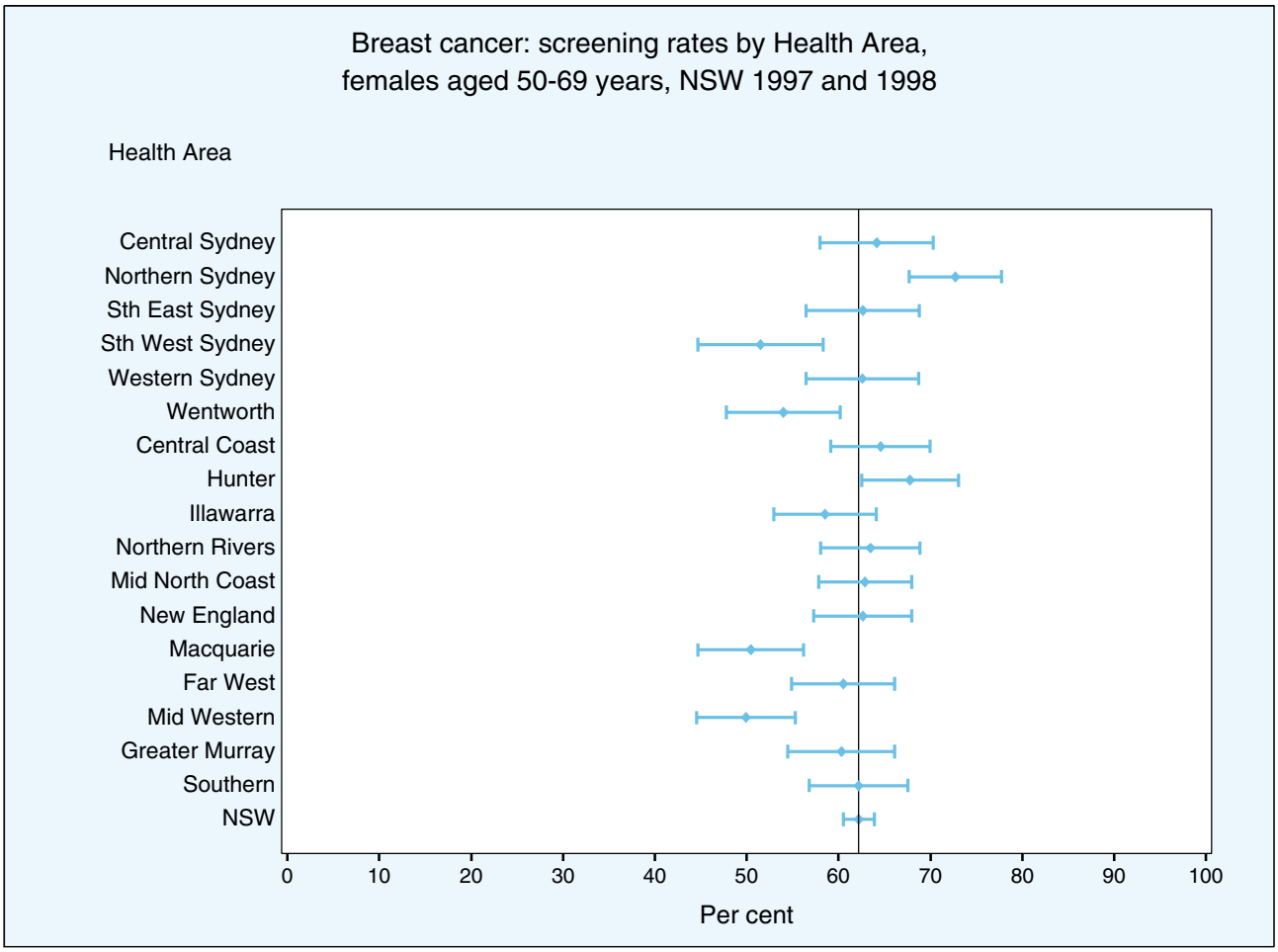
Note: Breast cancers were classified according to the ICD-9 code 174. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95 per cent CI = lower/upper limits of 95% confidence interval for standardised rate.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the period 1993–1997, the age-adjusted rate for new cases of breast cancer in females was high in the Northern Sydney and South Eastern Sydney Health Areas and low in the Hunter and South Western Sydney Health Areas, compared to the NSW rate.

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.



Note: Breast cancer screening is defined as those women who had a mammogram in the past two years and who did not have symptoms of or previous breast cancer. Upper and lower limits of the 95 per cent confidence interval of the point estimate are shown.

Source: NSW Health Surveys 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The BreastScreen NSW program began in 1991. It invites all women in NSW aged 50–69 years to have a mammogram every two years to screen for early stage breast cancer and aims to reduce deaths from breast cancer in this group by 30 per cent (Breast Cancer Screening Evaluation Steering Committee, 1990).
- In the 1997 and 1998 NSW Health Surveys, after excluding women reporting previous breast cancer or breast problems, the estimated proportion of women aged 50–69 years having a screening mammogram in the last two years was 62.2 per cent. This includes mammograms conducted by BreastScreen NSW and those conducted privately. The proportion of women receiving a screening mammogram between September 1997 and September 1999 under the BreastScreen NSW program was 58.0 per cent.
- The proportion of women in the target group who reported having a screening mammogram within the past two years was low in the South Western Sydney, Wentworth, Mid Western and Macquarie Health Areas and high in the Northern Sydney Health Area in comparison with NSW.
- A recent study of the changing trend in the size of breast cancer tumours in NSW concluded that mammographic screening of women aged 50–69 years is resulting in the earlier detection of breast cancer in NSW. The study showed a significant increase in the rate of smaller tumours (less than one cm) between 1986–1995 (Kricker et al, 1999).

For more information, see: Breast Cancer Screening Evaluation Steering Committee. Australian Health Ministers Advisory Council. *Breast cancer in Australia: Future directions.* Canberra: Australian Institute of Health Prevention Program Evaluation, 1990.

Kricker A, Farac K, Smith D, Sweeny A, McCredie M and Armstrong BK. Breast cancer in New South Wales in 1972–1995: Tumour size and the impact of mammographic screening. *Int J Cancer,* 1999; 81: 877–81.

NHMRC National Breast Cancer Centre Web site at:

www.nbcc.org.au.

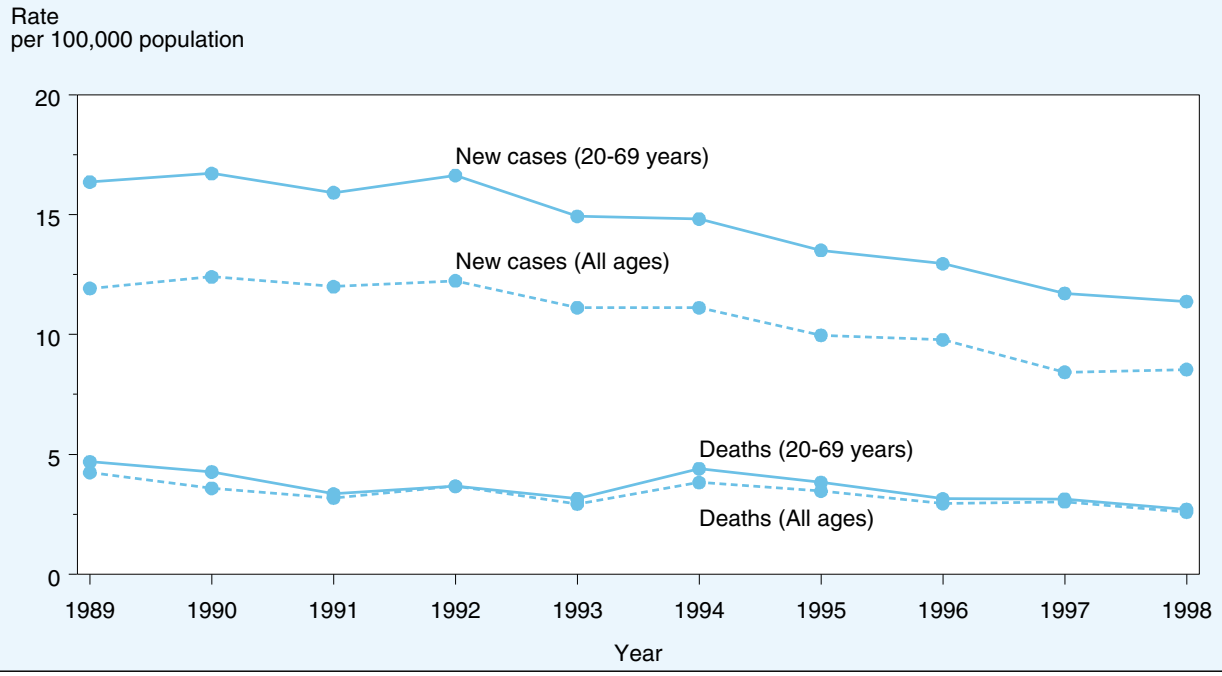
Breast cancer screening rates by Health Area, females aged 50–69 years, NSW 1997 and 1998.

Health Area	Age-adjusted rate	LL 95 % CI	UL 95 % CI
Central Sydney	64.2	58.0	70.3
Northern Sydney	72.7	67.7	77.7
Sth East Sydney	62.6	56.5	68.8
Sth West Sydney	51.5	44.7	58.3
Western Sydney	62.6	56.5	68.7
Wentworth	54.0	47.8	60.2
Central Coast	64.6	59.2	70.0
Hunter	67.8	62.5	73.0
Illawarra	58.5	52.9	64.1
Northern Rivers	63.5	58.1	68.9
Mid North Coast	62.9	57.8	68.0
New England	62.6	57.3	68.0
Macquarie	50.4	44.7	56.2
Far West	60.5	54.9	66.1
Mid Western	49.9	44.5	55.3
Greater Murray	60.3	54.5	66.1
Southern	62.2	56.8	67.5
NSW	62.2	60.5	63.9

Note: Breast cancer screening is defined as those women who had a mammogram in the past two years and who did not have symptoms of or previous breast cancer. LL/UL95% CI = lower/upper limits of 95% confidence interval of the point estimate.

Source: NSW Health Survey 1997 and 1998 (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Cancer of the cervix: new cases and deaths, females, NSW 1989 to 1998



		Age	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
New cases	Number	All ages	355	374	371	384	354	361	327	331	286	296
		20–69 years	298	306	297	316	286	289	266	261	239	235
	Rate per 100,000	All ages	11.9	12.4	12.0	12.2	11.1	11.1	10.0	9.8	8.4	8.5
		20–69 years	16.4	16.7	15.9	16.6	14.9	14.8	13.5	12.9	11.7	11.4
Deaths	Number	All ages	132	112	105	122	99	131	121	106	113	99
		20–69 years	86	79	64	70	61	87	77	64	65	57
	Rate per 100,000	All ages	4.2	3.6	3.2	3.7	2.9	3.8	3.5	2.9	3.0	2.6
		20–69 years	4.7	4.3	3.3	3.7	3.1	4.4	3.8	3.1	3.1	2.7

Note: Cancers of the cervix were classified according to the ICD-9 code 180. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

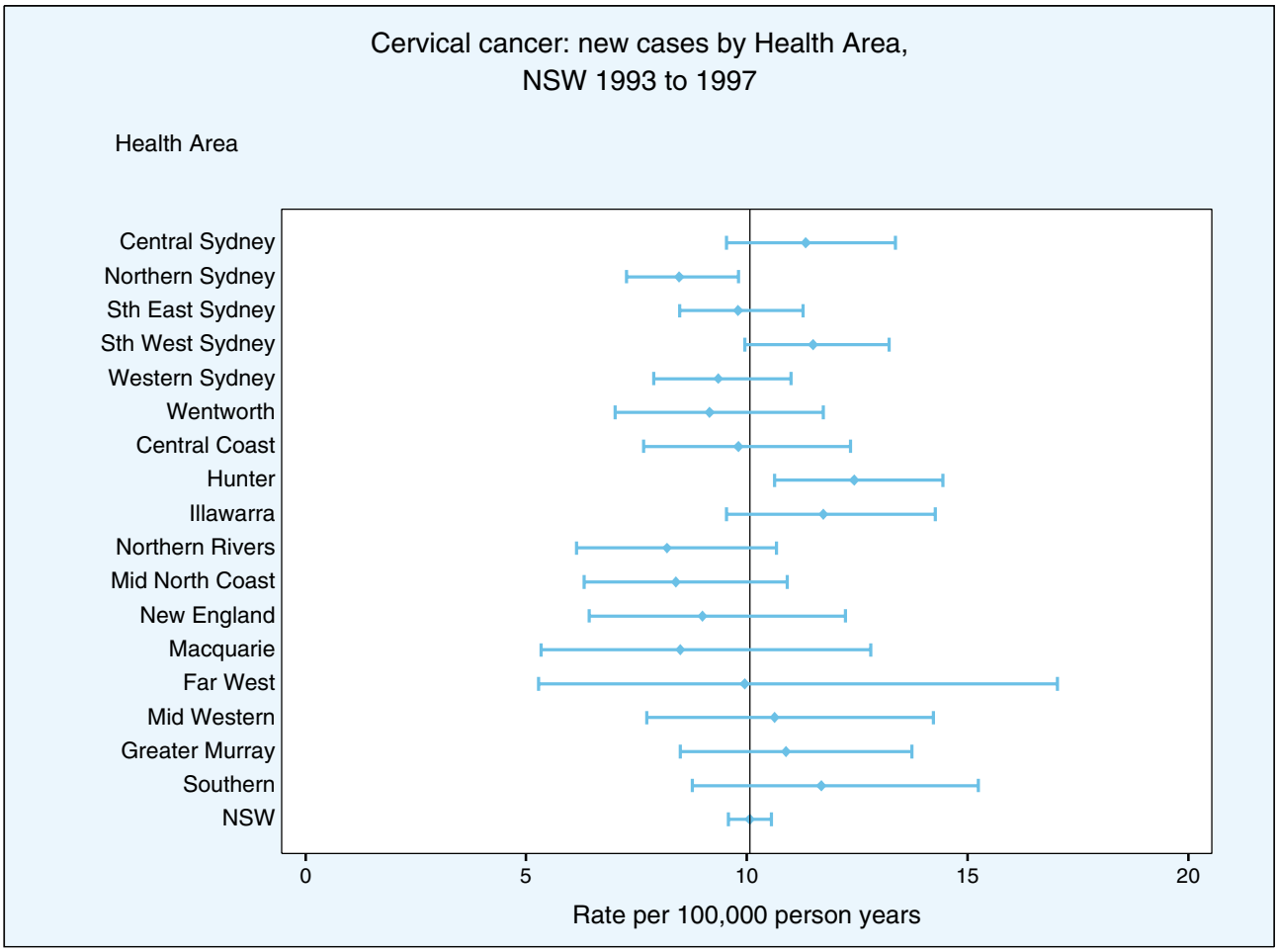
Source: NSW Central Cancer Registry incidence data, and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1996, cervical cancer was the ninth most common site for new cases of invasive cancer in women in NSW and the fourteenth most common cause of death from cancer in women. This contrasts with 1973, when cervical cancer was the fourth most common cancer in women (Coates et al. 1999).
- Between 1989 and 1998, the incidence rate for cervical cancer among women aged 20–69 years fell by just over 30 per cent. Death rates fell by 34 per cent in the same period.
- The main risk factors for cancer of the cervix are infection of the cervix with the human papilloma virus, the number of sexual partners and age at first sex. The Pap test is very effective at detecting precancerous lesions in the cervix and regular two-yearly testing, with appropriate treatment, can prevent cervical cancer from developing in most cases (Evaluation Steering Committee, 1995).
- The NSW Cervical Screening Program recommends two yearly Pap testing and appropriate follow up treatment for women aged 18–70 years who have ever been sexually active. The NSW Pap Test Register is part of the NSW Program and collects data on women's screening history and provides a safety net to remind women in NSW to have regular Pap tests.
- The five-year relative survival of women with cervical cancer in NSW was 74.5 per cent (Supramaniam et al. 1998).

For more information, see: Coates M, Armstrong B. *Cancer in New South Wales: Incidence and mortality 1996.* Sydney: NSW Central Cancer Registry, 1999.

Supramaniam R, Smith D P, Coates M S and Armstrong B K. *Survival from cancer in New South Wales in 1980 to 1995.* Sydney: NSW Cancer Council, 1998.

Evaluation Steering Committee. *The Interim evaluation of the organised approach to preventing cancer of the cervix 1991–95.* Canberra: Commonwealth Department of Human Services and Health, 1995.



Health Area	New cases 1993–97				Deaths 1994–98			
	Number	Rate/ 100,000	LL95 % CI	UL95 % CI	Number	Rate/ 100,000	LL95 % CI	UL95 % CI
Central Sydney	144	11.3	9.5	13.4	36	2.7	1.9	3.8
Northern Sydney	187	8.5	7.3	9.8	52	1.9	1.4	2.5
Sth East Sydney	200	9.8	8.5	11.3	67	3.0	2.3	3.8
Sth West Sydney	199	11.5	9.9	13.2	62	3.6	2.7	4.6
Western Sydney	147	9.4	7.9	11.0	43	2.7	2.0	3.7
Wentworth	64	9.2	7.0	11.7	26	3.9	2.5	5.7
Central Coast	77	9.8	7.7	12.3	34	3.9	2.6	5.5
Hunter	174	12.4	10.6	14.4	77	4.9	3.8	6.1
Illawarra	102	11.7	9.5	14.3	33	3.3	2.3	4.7
Northern Rivers	57	8.2	6.1	10.7	23	3.0	1.9	4.5
Mid North Coast	58	8.4	6.3	10.9	26	2.9	1.9	4.3
New England	41	9.0	6.4	12.2	12	2.4	1.2	4.1
Macquarie	23	8.5	5.3	12.8	10	3.7	1.7	6.8
Far West	13	9.9	5.3	17.0	9	6.3	2.8	11.9
Mid Western	46	10.6	7.7	14.2	12	2.7	1.4	4.8
Greater Murray	72	10.9	8.5	13.7	26	3.7	2.4	5.5
Southern	55	11.7	8.8	15.2	20	3.7	2.3	5.8
NSW	1659	10.1	9.6	10.6	567	3.2	2.9	3.4

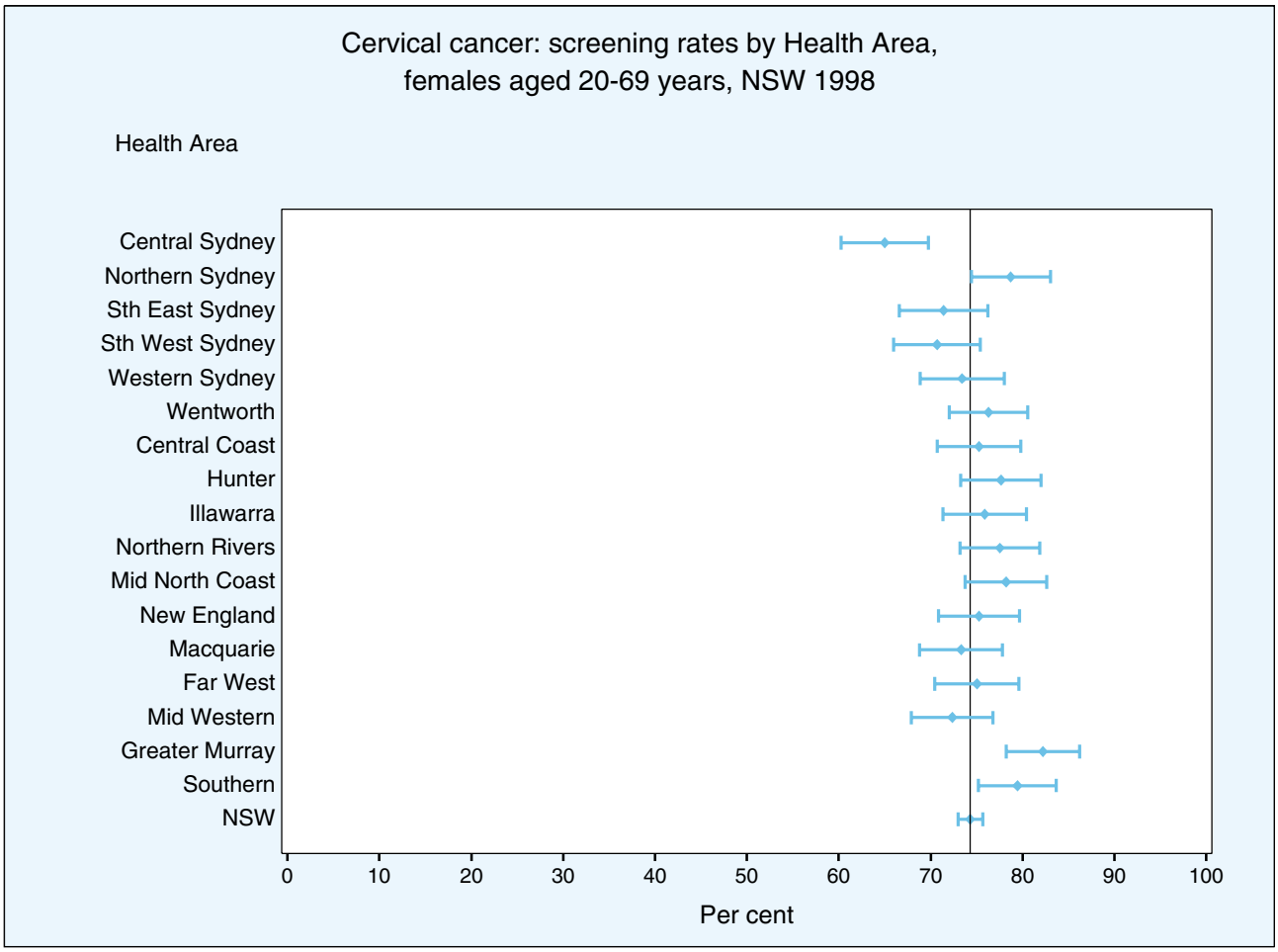
Note: Cervical cancers were classified according to the ICD-9 code 180. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. LL/UL95 per cent CI = lower/upper limits of 95% confidence interval for the standardised rate.

Source: NSW Central Cancer Registry incidence data, ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

A recent report on the variation in cancer rates by local government area (LGA) showed little variation in cervical cancer rates across the state. However, it did indicate that for the period 1991–1995, cervical cancer incidence rates were higher in LGAs of low socioeconomic status (Lewis et al.1999).

For more information, see: Lewis N, Nguyen H, Smith D, Coates M, Armstrong B. *Cancer maps for New South Wales: Variation by local government area 1991 to 1995.* Sydney: NSW Cancer Council, 1999.

Kricker A, Bell J, Coates M, Taylor R and Armstrong B K. *Cancer of the Cervix in NSW in 1972 to 1992.* Sydney: NSW Cancer Council, 1996.



Health Area	Per cent	LL 95 % CI	UL 95 % CI	Health Area	Per cent	LL 95 % CI	UL 95 % CI
Central Sydney	65.0	60.3	69.7	Northern Rivers	77.5	73.2	81.8
Northern Sydney	78.7	74.4	83.0	Mid North Coast	78.2	73.8	82.6
Sth East Sydney	71.4	66.6	76.2	England	75.3	70.9	79.7
Sth West Sydney	70.7	66.0	75.4	Macquarie	73.3	68.8	77.8
Western Sydney	73.4	68.9	78.0	Far West	75.0	70.5	79.6
Wentworth	76.3	72.0	80.6	Mid Western	72.3	67.9	76.8
Central Coast	75.3	70.7	79.8	Greater Murray	82.2	78.2	86.2
Hunter	77.6	73.3	82.0	Southern	79.4	75.2	83.7
Illawarra	75.9	71.3	80.4	NSW	74.3	73.0	75.7

Note: Cervical cancer screening is defined as those women who reported having a Pap test in the past two years. Denominators used for the calculation of rates excluded women who reported that they had had a hysterectomy. LL/UL95% CI=lower/upper limits of 95% confidence interval of the point estimate.

Source: NSW Health Survey, 1998 (HOIST). Epidemiology and Surveillance Branch,NSW Health Department.

- The target for the NSW Cervical Screening Program is to increase the percentage of women at risk screened at least once during a two-year period to 75 per cent by 1999. Data from the NSW Health Survey estimate a 74.3 per cent cervical screening rate in NSW in 1998. The NSW Cervical Screening Program, reported a screening rate for the period July 1997–June 1999 of 61.5 per cent (NSW Cervical Screening Program, 1999).
- The discrepancy between the two figures may result from inadequate recall, particularly of the timing of the test, among survey respondents; the inclusion in the survey data of women with abnormalities detected through previous Pap tests; or test results not being forwarded to the NSW Pap Test Register, resulting in an underestimate of screening rates for the Program.
- The graph shows that in 1998, self-reported cervical screening rates were higher in the Greater Murray Health Area and lower in the Central Sydney Health Area, than for NSW as a whole.

For more information, see: NSW Cervical Screening Program. *Screening rate data for NSW for the period ending 30 June 1999.* Sydney: NSW Cervical Screening Program, 1999.

Evaluation Steering Committee. *The Interim evaluation of the organised approach to preventing cancer of the cervix 1991–95.* Canberra: Commonwealth Department of Human Services and Health, 1995.

New South Wales Cancer Council Web site at: http://www.nswcc.org.au.

Chapter 4.4

Asthma

- The prevalence of asthma in Australia is among the highest in the world, and prevalence has been increasing since the 1980s.
- In 1997 and 1998, one in 10 NSW adults reported currently having asthma.
- Almost 40 per cent of people with current asthma reported having one or more nights of sleep disturbed in the previous month.
- The prevalence of current asthma varied from 8.5 per cent in the South Western Sydney Health Area to 13.7 per cent in the Greater Murray Health Area.
- There are over 20,000 hospitalisations for asthma each year in NSW. The rate of hospitalisation for asthma has been fairly stable in recent years.
- The number of deaths in NSW due to asthma decreased from 366 in 1989 to 246 in 1998, a decrease of almost one-third over the 10-year period.
- In 1997 and 1998, approximately one-third of people with current asthma reported having a written asthma management plan.

In this chapter

Introduction

Asthma is a significant public health problem in Australia, with prevalence rates among the highest in the world. For many individuals, the consequences of asthma include loss of lung function, occasional hospitalisation, reduced participation in work and other activities, and sometimes premature death. The cost of asthma to the Australian community has been estimated as around $700 million per year (National Asthma Campaign, 1992).

This chapter presents information on the prevalence of self-reported doctor-diagnosed current asthma, disturbed sleep caused by asthma, hospitalisations for asthma, deaths due to asthma, and the use of asthma management plans.

Asthma can be difficult to distinguish from other conditions causing wheeze and breathlessness, especially among the very young and older age groups. This can lead to inappropriate diagnosis of asthma in infants and older people. For this reason, deaths and hospitalisations for asthma in people aged 5–34 years are considered the most reliable indicators of hospitalisation and mortality due to asthma.

The methods used for analysing and presenting death and hospitalisation data are described in more detail in the Methods section (see page 265).

Preventing asthma and improving health outcomes for people with asthma is a priority for the NSW Health Department. The Asthma Health Improvement Project aims to reduce the prevalence of asthma in NSW, improve the health of people with asthma, and optimise the clinical management of asthma.

The National Asthma Campaign comprises strategies to improve the diagnosis and treatment of asthma, improve asthma education, and increase public awareness about asthma. Treatment strategies include the promotion of preventer medication, structured asthma management plans, more frequent reviews by general practitioners, and improved management in emergency departments.

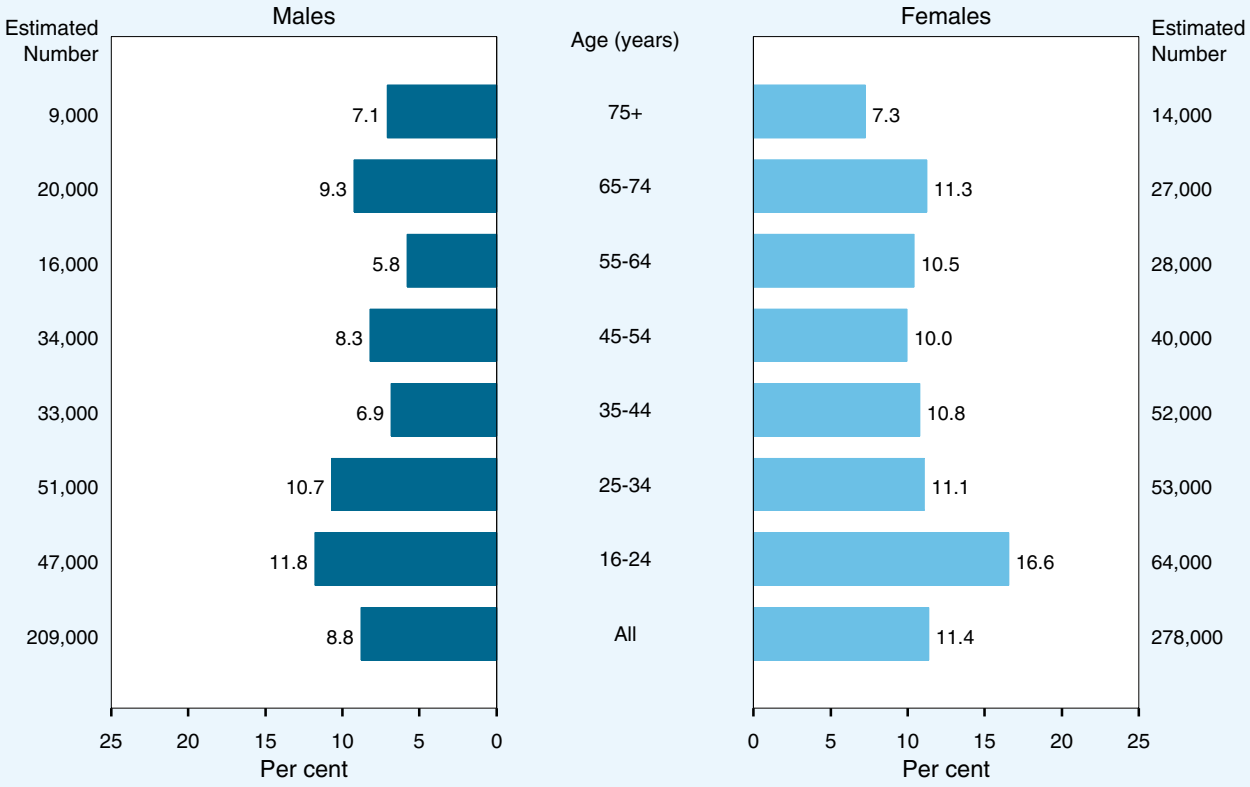
For more information, see: NSW Health Department. *Improving Asthma Care and Outcomes: Report of the Asthma Health Improvement Project 1995–1997*. Sydney: NSW Health Department, 1998. This report is available from the NSW Health Department's Web site at http://www.health.nsw.gov.au/public-health/asthma/asthmaip.html.

NSW Health Department. *Asthma and the Environment: Perspectives on the Prevention of Asthma*. This report is available from the NSW Health Department's Web site at http://www.health.nsw.gov.au/public-health/asthma/asthma1.html.

National Asthma Campaign. *A decade of co-ordinated asthma management in Australia*. Melbourne: National Asthma Campaign, 1998. This report is available from the National Asthma Campaign Web site at http://www.nationalasthma.org.au/cam/camia/html.

National Asthma Campaign. *Report on the Cost of Asthma in Australia*. Melbourne: National Asthma Campaign, 1992.

Current asthma by sex and age,
persons aged 16 years and over, NSW 1997 and 1998

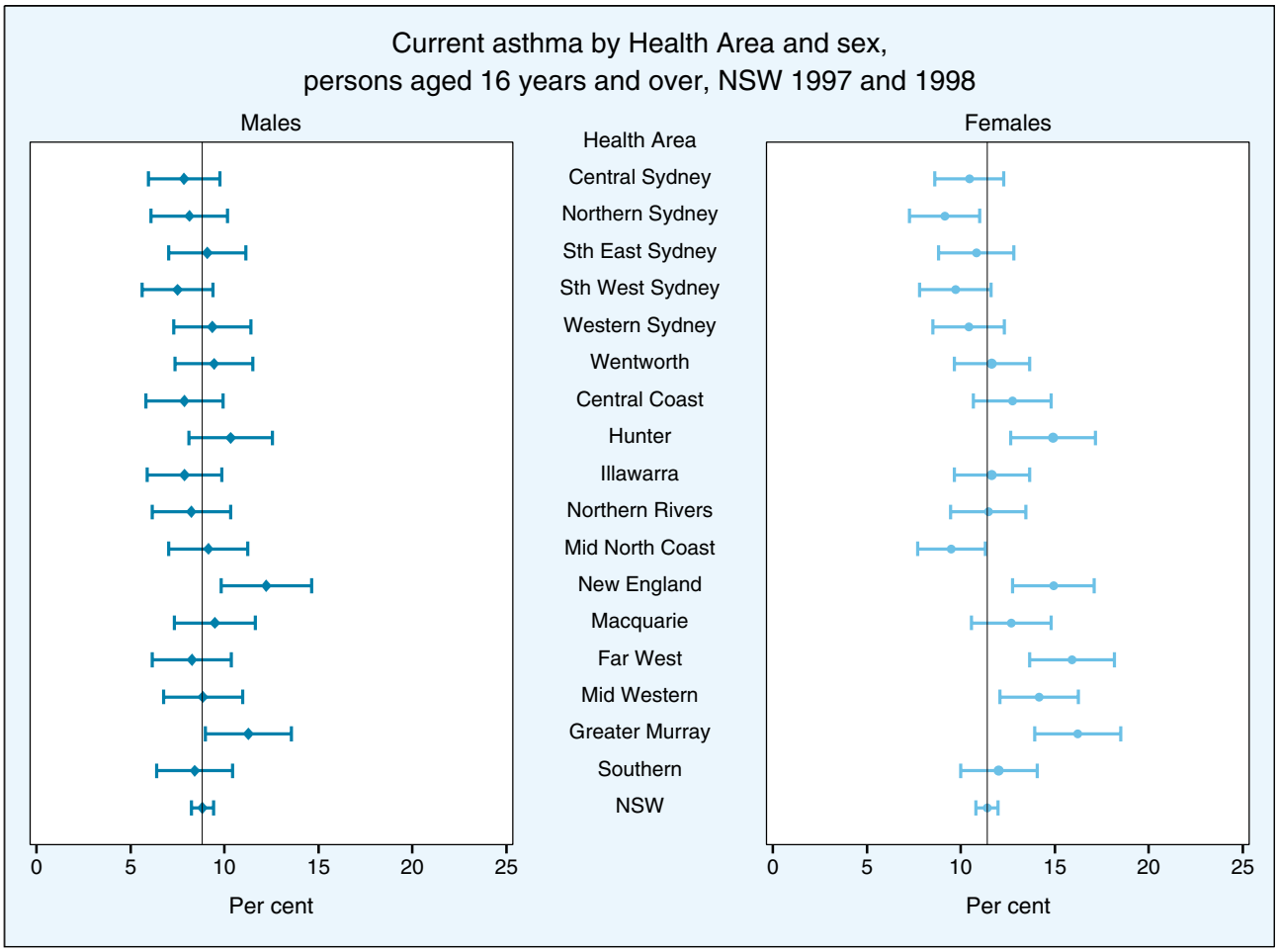


Note: Current asthma classified where diagnosed by a doctor and had asthma symptoms or treatment in last 12 months.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There are wide variations in asthma prevalence around the world, with Australia having a higher reported prevalence than almost all other countries. Since the 1980s, the prevalence of asthma has been increasing. Some of this increase is due to improved diagnosis of asthma.
- In the 1997 and 1998 NSW Health Surveys, respondents who reported ever being diagnosed with asthma by a doctor and having asthma treatment or symptoms in the last 12 months, were defined as having current asthma. Using this definition, 8.8 per cent of males and 11.4 per cent of females aged 16 years and over had current asthma.
- Prevalence of reported current asthma in 1997 and 1998 was higher in females than males in all age groups. The prevalence in males ranged from 5.8 per cent in the 55–64 year group to 11.8 per cent in those aged 16–24 years. Prevalence in females ranged from 7.7 per cent in the group aged 75 years and over, to 16.6 per cent in the 16–24 year group.
- The International Study of Asthma and Allergies in Childhood, currently being conducted in 155 centres around the world, is providing a valuable international comparison of the prevalence and characteristics of asthma (Beasley et al. 1998).

For more information, see: Beasley R et al. Worldwide variation in prevalence of symptoms of asthma, allergenic rhinoconjunctivitis and atopic eczema: ISAAC. *Lancet* 1998; 351: 1225–32.



Note: Current asthma classified where diagnosed by a doctor and had asthma symptoms or treatment in last 12 months. Upper and lower limits of the 95 per cent confidence interval for the rates are shown.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In the 1997 and 1998 NSW Health Surveys, the prevalence of current asthma among adult males varied from 7.6 per cent in the South Western Sydney Health Area to 12.0 per cent in New England Health Area.
- In the same period, the prevalence of current asthma in females over 16 years varied from 9.2 per cent in the Northern Sydney Health Area (lower than NSW overall) to 16.2 per cent in the Greater Murray Health Area.
- While there is evidence of some differences in the geographical distribution of asthma within Australia, there is a lack of evidence of large discrepancies between or within states and territories (National Asthma Campaign, 1998).
- A study carried out in several centres in NSW found that some regional variations could be related to different levels of allergic sensitisation. For example, sensitisation to house dust mites was more common in coastal than in inland regions, while sensitisation to *alternatia* (a mould common in agricultural areas) was more common in inland regions (Peat et al. 1995).

For more information, see: Peat JK, Toelle BG, Haby MH, et al. Prevalence and severity of childhood asthma and allergic sensitisation in seven climatic regions of New South Wales. *Med J Aust* 1995; 163: 22–26.

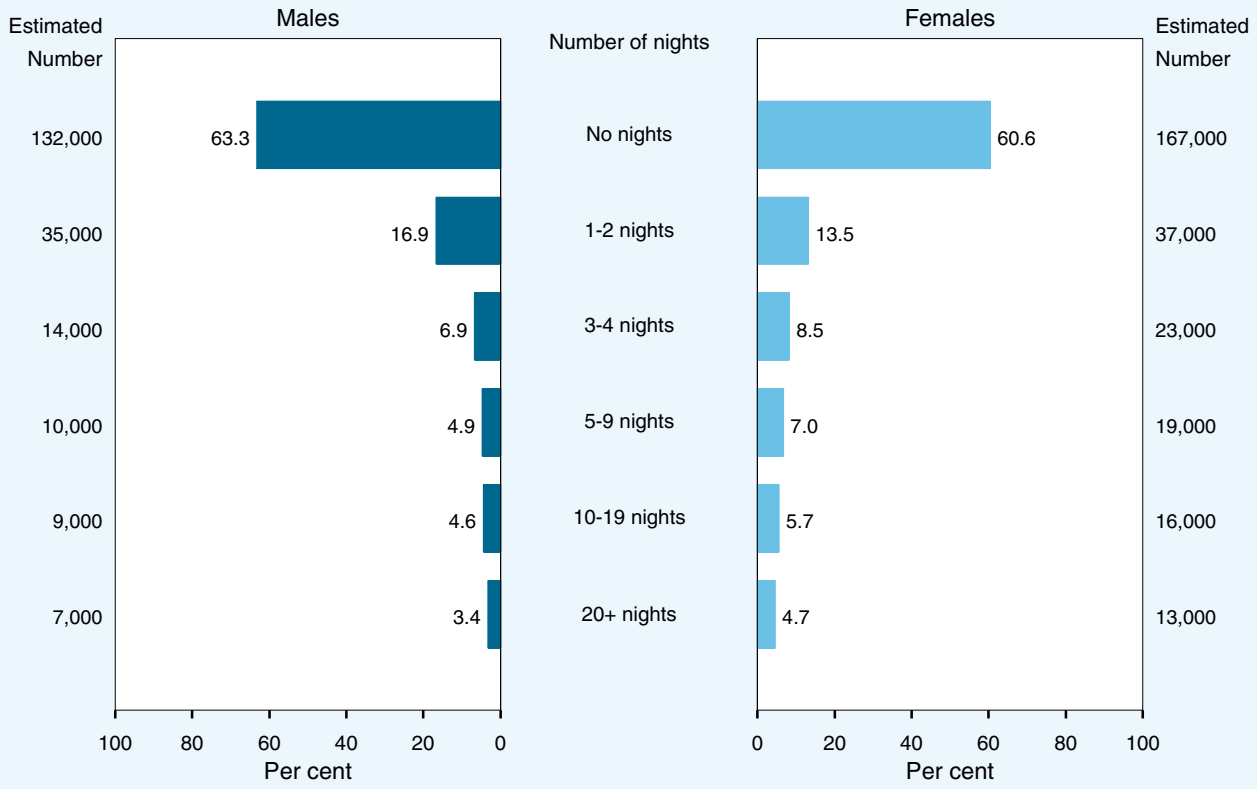
Current asthma by Health Area and sex, NSW 1997 and 1998.

Health Area	Sex	%	LL95 % CI	UL95 % CI
Central Sydney	Males	7.9	6.0	9.8
	Females	10.5	8.6	12.3
	Persons	9.2	7.8	10.5
Northern Sydney	Males	8.1	6.1	10.2
	Females	9.1	7.3	11.0
	Persons	8.6	7.3	10.0
Sth East Sydney	Males	9.1	7.0	11.1
	Females	10.8	8.8	12.8
	Persons	10.0	8.5	11.4
Sth West Sydney	Males	7.5	5.6	9.4
	Females	9.7	7.8	11.6
	Persons	8.6	7.3	10.0
Western Sydney	Males	9.4	7.3	11.4
	Females	10.4	8.5	12.3
	Persons	9.9	8.5	11.3
Wentworth	Males	9.4	7.4	11.5
	Females	11.7	9.6	13.7
	Persons	10.6	9.1	12.0
Central Coast	Males	7.9	5.8	9.9
	Females	12.7	10.7	14.8
	Persons	10.4	8.9	11.9
Hunter	Males	10.3	8.1	12.5
	Females	14.9	12.7	17.2
	Persons	12.7	11.1	14.3
Illawarra	Males	7.9	5.9	9.9
	Females	11.7	9.7	13.6
	Persons	9.8	8.3	11.2
Northern Rivers	Males	8.2	6.1	10.3
	Females	11.5	9.4	13.5
	Persons	9.9	8.4	11.3
Mid North Coast	Males	9.1	7.0	11.2
	Females	9.5	7.7	11.3
	Persons	9.3	7.9	10.7
New England	Males	12.2	9.8	14.6
	Females	14.9	12.7	17.1
	Persons	13.6	12.0	15.2
Macquarie	Males	9.5	7.3	11.6
	Females	12.7	10.6	14.8
	Persons	11.1	9.6	12.6
Far West	Males	8.3	6.2	10.4
	Females	15.9	13.7	18.2
	Persons	11.9	10.3	13.5
Mid Western	Males	8.9	6.8	11.0
	Females	14.2	12.1	16.3
	Persons	11.5	10.0	13.0
Greater Murray	Males	11.3	9.0	13.6
	Females	16.2	13.9	18.5
	Persons	13.8	12.1	15.4
Southern	Males	8.4	6.4	10.4
	Females	12.0	10.0	14.1
	Persons	10.2	8.8	11.7
NSW	Males	8.8	8.2	9.4
	Females	11.4	10.8	12.0
	Persons	10.1	9.7	10.5

Note: Current asthma classified where diagnosed by a doctor and had asthma symptoms or treatment in last 12 months. Persons aged 16 years and over. LL/UL95 per cent CI=lower/upper limits of 95% confidence interval for point estimate.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Nights of disturbed sleep in the last month due to asthma by sex, persons aged 16 years and over with current asthma, NSW 1997 and 1998



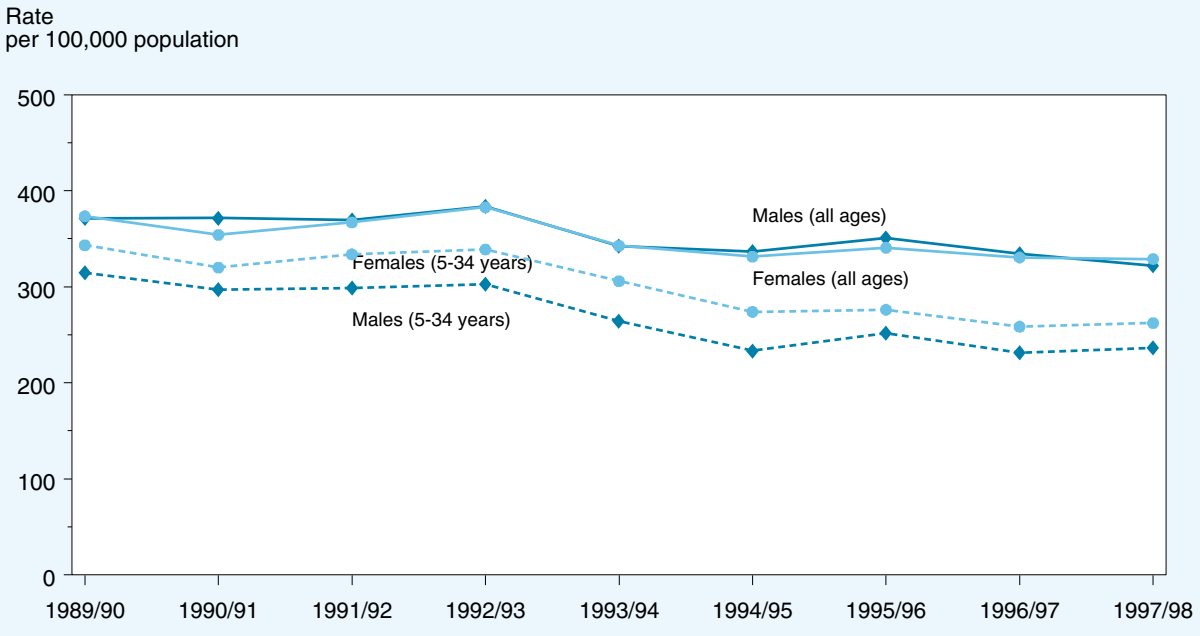
Note: Current asthma classified where diagnosed by a doctor and had asthma symptoms or treatment in last 12 months.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Nights of disturbed sleep due to asthma is used as an indicator of asthma severity among people with current asthma.
- In the 1997 and 1998 NSW Health Surveys, almost 40 per cent of people with current asthma reported having one or more nights of sleep disturbed in the last month due to asthma.
- At least one night of sleep per week disturbed due to asthma was reported by 17.4 per cent of females and 12.8 per cent of males with current asthma.
- These results were similar to those from a 1996 South Australian survey that found that 15 per cent of people with self-reported asthma were wakened weekly or more frequently by their asthma symptoms. (Ruffin et al. 1999)

For more information, see: Ruffin RE, Wilson D, Southcott AM, et al. A South Australian population survey of the ownership of asthma action plans. *Med J Aust* 1999; 171: 348–351.

Hospital separations for asthma by sex, persons of all ages and aged 5-34 years, NSW 1989/90 to 1997/98



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
5–34 years	Number	Males	3928	3795	4139	4199	3658	3247	3526	3256	3337
		Females	4138	3892	4418	4493	4050	3639	3679	3467	3522
		Persons	8066	7687	8557	8692	7708	6886	7205	6723	6859
	Rate per 100,000	Males	284.6	274.3	298.3	302.5	264.1	233.2	251.5	231.0	236.5
		Females	312.3	293.5	332.1	338.3	305.8	273.9	276.1	258.5	262.2
		Persons	298.6	284.1	315.2	320.3	284.8	253.5	263.9	244.9	249.6
All ages	Number	Males	9719	10094	10908	11447	10284	10172	10663	10246	9920
		Females	9743	9550	10856	11434	10387	10179	10600	10442	10587
		Persons	19462	19644	21764	22881	20671	20351	21263	20688	20507
	Rate per 100,000	Males	333.1	344.4	368.5	383.2	342.5	336.6	350.6	334.3	321.9
		Females	335.5	326.2	364.6	381.1	342.7	331.3	340.6	330.5	328.9
		Persons	335.0	335.5	367.4	383.2	343.6	334.8	346.9	333.5	326.6

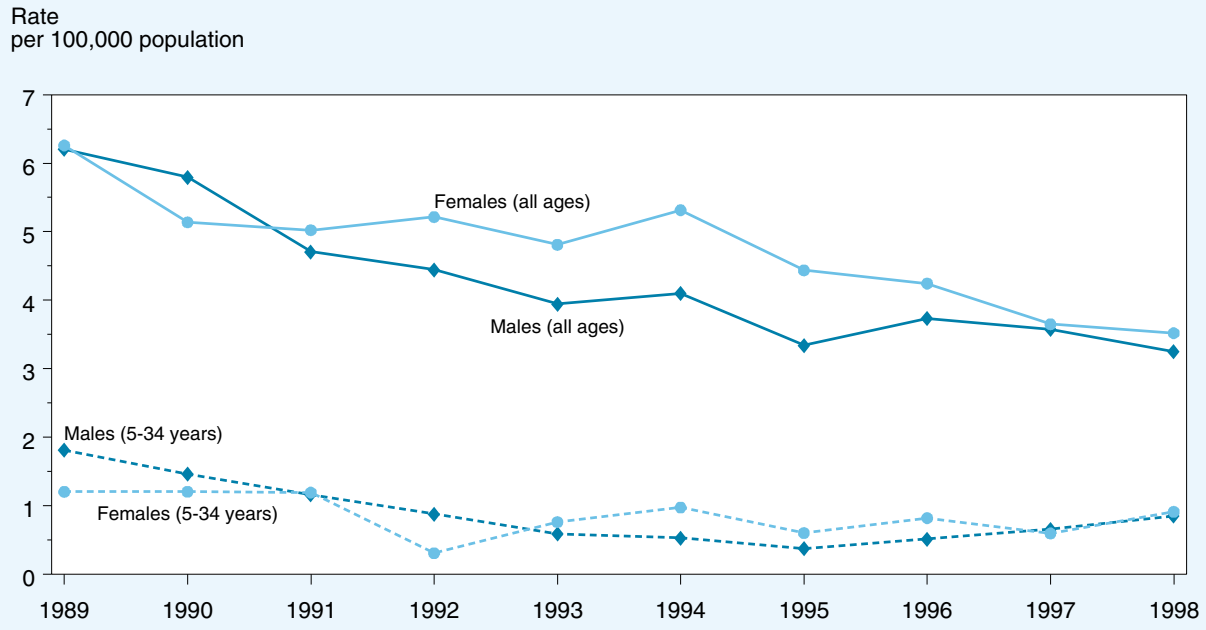
Note: Asthma was classified according to the ICD-9-CM code 493. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collection (ISC) data and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98 in NSW, the hospital separation rate for asthma for males of all ages was 322 per 100,000, and for females was 329 per 100,000. Since 1989/90, rates of hospital separations for asthma have remained fairly stable for all ages and for the 5–34 year age group (235 per 100,000 for males and 260 per 100,000 for females in 1997/98).
- Care should be taken when using asthma hospitalisation rates alone as an indicator of the outcome of asthma management. Admission to hospital is not only indicated for severe attacks of asthma, but may also be indicated where asthma is unstable.
- There is evidence that regular review by a general practitioner and the use of a written asthma management plan are effective in preventing hospital admissions and attendance at emergency departments for asthma.

For more information, see: The National Asthma Campaign Web site at: http://www.nationalasthma.org.au.

Deaths from asthma by sex,
persons of all ages and aged 5-34 years, NSW 1989 to 1998



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
5–34 years	Number	Males	25	20	16	12	8	7	5	7	9	12
		Females	16	16	16	4	10	13	8	11	8	12
		Persons	41	36	32	16	18	20	13	18	17	24
	Rate per 100,000	Males	1.8	1.5	1.2	0.9	0.6	0.5	0.4	0.5	0.7	0.8
		Females	1.2	1.2	1.2	0.3	0.8	1.0	0.6	0.8	0.6	0.9
		Persons	1.5	1.3	1.2	0.6	0.7	0.7	0.5	0.7	0.6	0.9
All ages	Number	Males	165	151	123	120	111	111	97	109	108	101
		Females	201	171	169	188	172	198	169	164	150	145
		Persons	366	322	292	308	283	309	266	273	258	246
	Rate per 100,000	Males	6.2	5.8	4.7	4.4	3.9	4.1	3.3	3.7	3.6	3.2
		Females	6.3	5.1	5.0	5.2	4.8	5.3	4.4	4.2	3.6	3.5
		Persons	6.2	5.4	4.8	4.9	4.4	4.7	4.0	4.0	3.7	3.4

Note: Asthma was classified according to the ICD-9 code 493. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

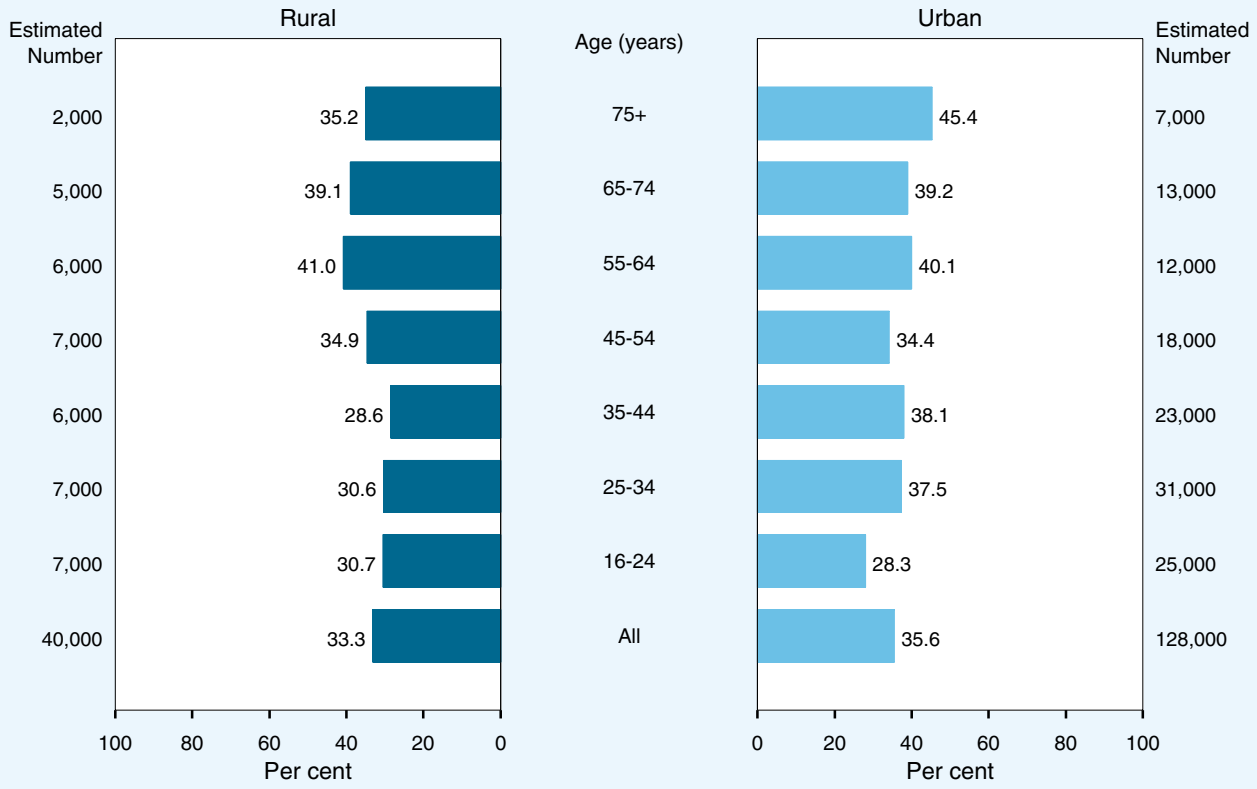
- Since 1989, both the number and rate of asthma deaths have gradually declined for all ages in NSW. Asthma deaths decreased from 366 in 1989 to 246 in 1998, and the death rate decreased from 6.2 to 3.4 per 100,000 over the same period. Nationally, there was a similar trend, with death rates decreasing from 5.8 to 3.3 per 100,000 over the 10 year period.
- Deaths from asthma for people aged 5–34 years also declined, but the decline was not as marked.
- The fall in asthma deaths is thought to be due to improved classification of the cause of death, and improvement in asthma management and education.

For more information, see: The National Asthma Campaign Web site at http:// www.natioanalasthma.org.au.

Taylor R, Comino E and Bauman A. Asthma mortality in Australia 1920–94: age, period and cohort effects. *J Epi and Comm Health* 1997; 51: 408–11.

National Institutes of Health (US) National Heart, Lung and Blood Institute Web site at: http://www.nhlbi.nih.gov/health/prof/lung/.

Written asthma management plan by region and age,
persons aged 16 years and over with current asthma, NSW 1997 and 1998



Note: Current asthma classified where diagnosed by a doctor and had asthma symptoms or treatment in last 12 months. Persons aged 16 years and over. Urban areas include the Sydney metropolitan, Hunter, Central Coast and Illawarra Health Areas.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The aims of an asthma management plan are to minimise the symptoms of asthma, maintain best lung function at all times, identify trigger factors, and minimise side-effects from medication.
- Self-management education for asthma, combined with a tailored self-management plan, and regular review and optimising of medication, leads to a clinically significant reduction in hospitalisations, emergency room visits and unscheduled visits to the doctor.
- At the 1997 and 1998 NSW Health Surveys, 35 per cent of people with current asthma reported having a written asthma management plan (33 per cent of males and 35 per cent of females). This is higher than the rate of 19.9 per cent found in a study of adults in Eastern Australia in 1993 (Comino et al. 1993).
- The proportion of people with asthma who had an asthma management plan varied little between urban (36 per cent) and rural (34 per cent) Health Areas in NSW.
- The proportion of people with asthma who had an asthma management plan was slightly higher in older people compared to younger age groups for both urban and rural areas.

For more information, see: Comino E J, Mitchell CA, Bauman A, et al. Asthma management in Eastern Australia 1990 and 1993. *Med J Aust* 1996; 164: 403–6.

Ruffin RE, Wilson D, Southcott AM, et al. A South Australian population survey of the ownership of asthma action plans. *Med J Aust* 1999; 171: 348–351.

National Asthma Campaign. *Asthma Management Handbook 1998*, Melbourne: National Asthma Campaign, 1998, available from the National Asthma Campaign Web site at: http://www.nationalasthma.org.au/amh/amhand.htm.

Chapter 4.5

Injury and poisoning

- It is estimated that there were 2,551 deaths in NSW due to injury and poisoning in 1998, making it the fourth leading cause of death in both sexes.
- The major causes of injury death were suicide, road injury, falls and poisoning.
- The main causes of injury hospitalisation in 1997/98 were falls, road injury and sports injuries.
- In 1998, it is estimated that there were 526 road injury deaths. The highest rate was in young men aged 15–24 years.
- Falls are the leading cause of hospitalisation for injuries. Persons over 65 years of age are most at risk of falls. The estimated lifetime cost of injuries from falls in 1995/96 was $1,073 million.
- In 1998, it is estimated that there were 91 unintentional drownings. The highest rate of drowning was in children aged 0–4 years.
- In 1997/98, there were almost 5,000 hospitalisations for unintentional poisoning, 851 of whom were children aged 0–4 years.
- In 1998, it is estimated that there were 116 homicides in NSW, 91 in males and 25 in females, with almost half of these in people aged 20–39 years.
- Deaths and hospitalisations due to firearm injury have decreased slightly in recent years. In 1998 it is estimated that there were 90 deaths involving firearms compared to 179 in 1988.
- Hospitalisations following interpersonal violence have increased gradually in the last decade, with 6,036 such hospitalisations in 1997/98.
- In the same year the highest hospitalisation rates for unintentional injuries resulting from fire, burns and scalds were among young children aged 0–4 years.

In this chapter

Introduction

This chapter describes trends in deaths and hospitalisations due to injury and poisoning in NSW. The specific injury types chosen reflect priorities for injury prevention in NSW.

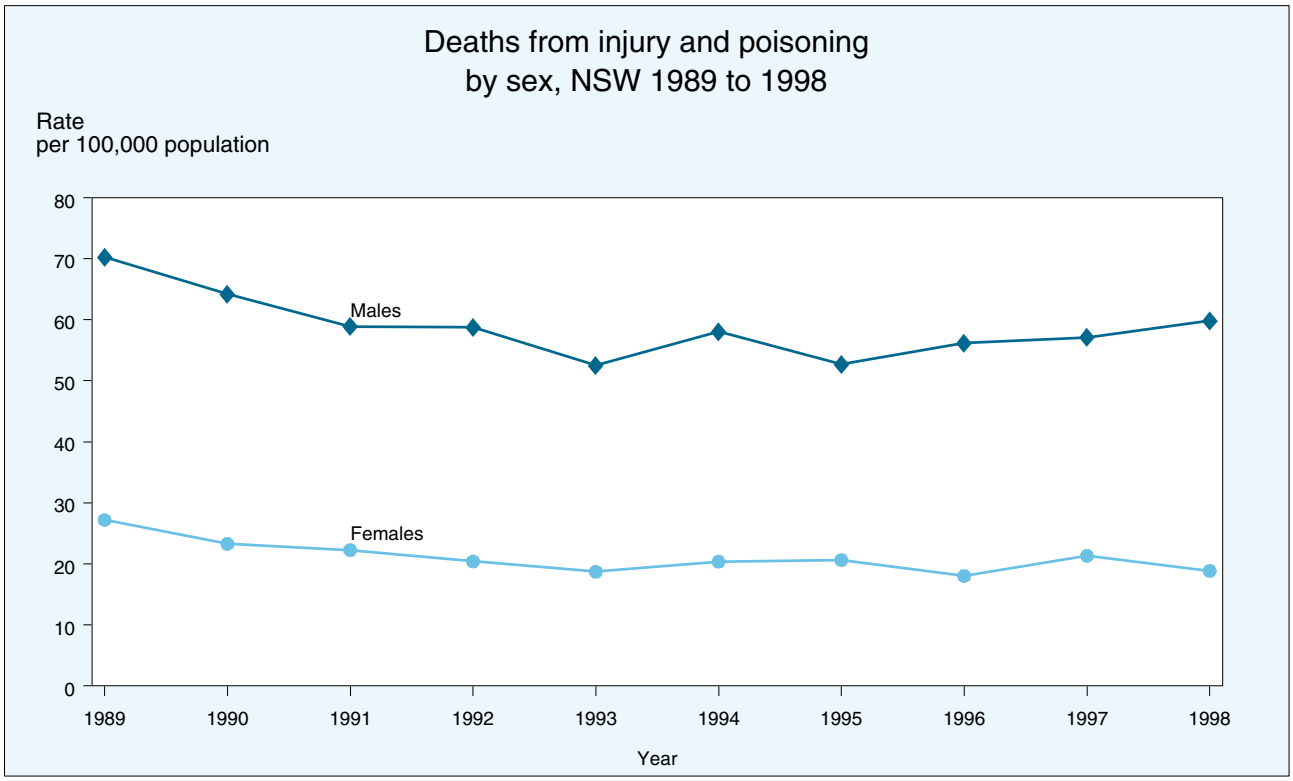
The hospitalisation figures are calculated from the Inpatients Statistics Collection (ISC). In this chapter all of the indicators using ISC data exclude those records where a patient was transferred from one hospital to another acute care hospital, or where they were discharged on paper only (a 'statistical discharge'), that is they are still a patient in the same hospital, but the type of service being provided has changed. These exclusions have been made to eliminate 'double counting' of injury hospitalisations.

In addition to these exclusions, the analysis of hospitalisations for falls also excludes hospital stays for one day only. These records were excluded on the assumption that very brief stay cases are likely to reflect low injury severity. It is more plausible that the increase in the numbers of these day-only stay cases in recent years reflects changes in admission policy (that is patients being admitted now where they were not before), rather than an actual increase in the incidence of injuries related to falls.

For details of the methods used for analysing death and hospitalisation data, refer to the Methods section (page 265).

For more information, see: NSW Expert Working Panel. *Injury prevention and management NSW goals and targets.* Sydney: NSW Health Department, 1995.

The National Injury Surveillance Unit Web site at:http://www.nisu.flinders.edu.au.



	Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Males	1941	1785	1675	1686	1521	1698	1564	1694	1740	1848
	Females	856	742	712	672	631	696	711	641	778	704
	Persons	2797	2527	2387	2358	2152	2394	2275	2335	2518	2551
Rate per 100,000 population	Males	70.3	64.2	58.9	58.8	52.5	58.1	52.7	56.2	57.1	59.8
	Females	27.2	23.3	22.3	20.4	18.7	20.4	20.6	18.0	21.3	18.9
	Persons	48.5	43.2	40.2	39.1	35.2	38.8	36.3	36.6	38.8	38.8

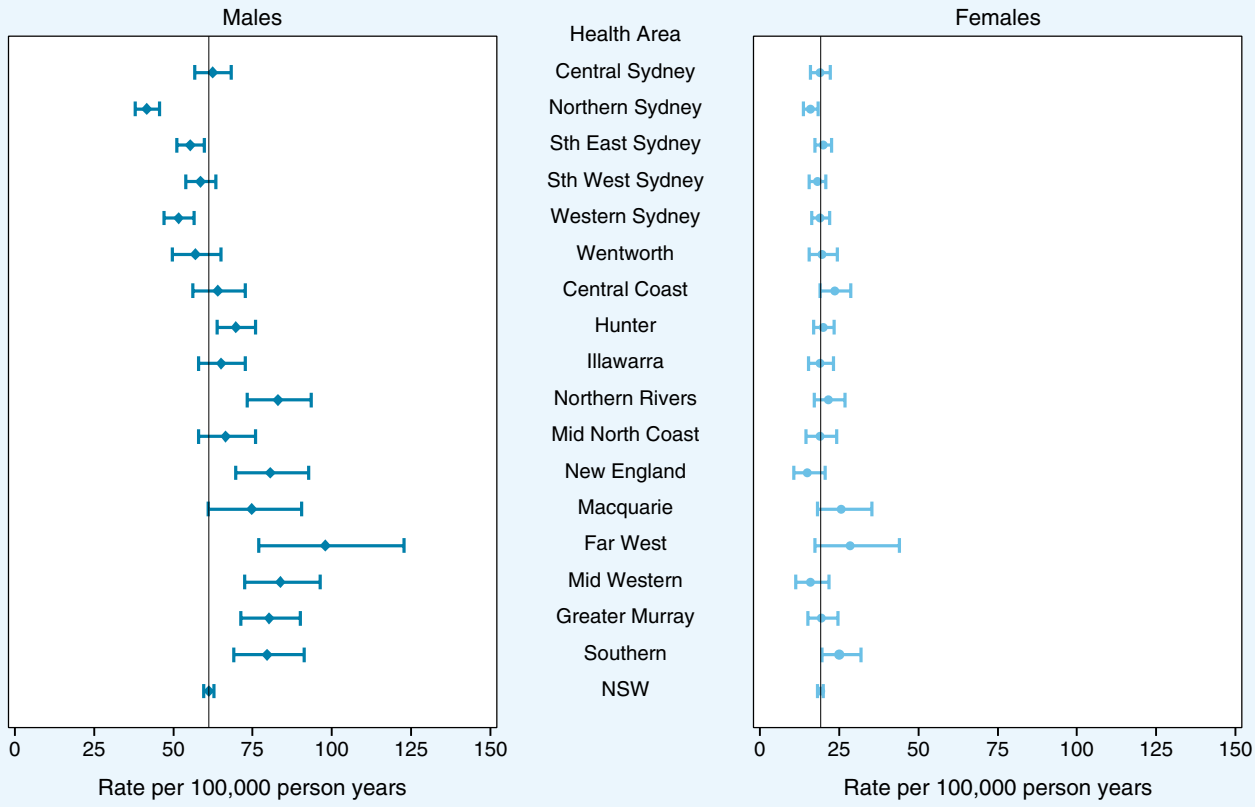
Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869, E880–929 and E950–E999. NSW population estimates as at 30 June each year. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1998, there were 2,551 deaths in NSW due to injury and poisoning, with the majority of these among males (72.4 per cent).
- Since 1989, age-adjusted death rates due to injury and poisoning for males have been steadily falling from 48.5 per 100,000 in 1988 to an estimated 38.8 per 100,000 in 1998. The age-adjusted death rate for females was less than half that of males and decreased more slowly over the period.
- The most common causes of injury-related deaths in 1998 were suicide (34.0 per cent), road vehicle accidents (23.4 per cent), falls (19.0 per cent) and poisoning (10.0 per cent).
- The rate of injury-related death in NSW compares favourably with other States having similar geographical distances, such as Queensland, Western Australia and the Northern Territory (Bordeaux, 1999).

For more information, see: Bordeaux S. *Australian injury prevention bulletin 20—Injury mortality Australia 1997.* Adelaide: AIHW National Injury Surveillance Unit, 1999.

Deaths from injury and poisoning
by Health Area and sex, NSW 1994 to 1998



Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869, E880–929 and E950–E999. NSW populations estimates as at 30 June each year. Death data are reportrted by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of the 95 per cent confidence interval for standardised rates are shown.

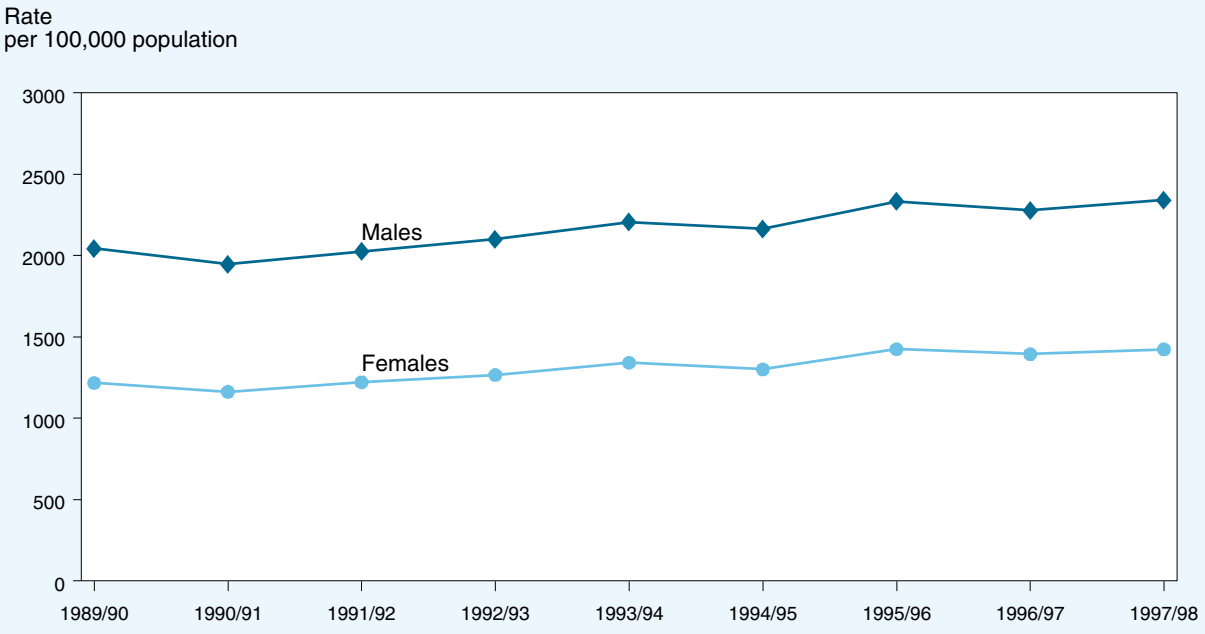
Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The average male death rate for injury and poisoning between the years 1994–1998 showed considerable variation among Health Areas.
- Overall, the highest rates of deaths related to injury and poisoning in males occurred in the areas furthest from Sydney. These were in the Far West, Mid Western, Northern Rivers, New England, Greater Murray, Southern and Hunter Health Areas. The lowest rates were in the Northern Sydney and Western Sydney Health Areas.
- Injury-related death rates for males were around three times higher than females. Death rates for females were similar throughout the state.
- For males, death rates varied from 41.6 per 100,000 in the Northern Sydney Health Area to 97.9 per 100,000 in the Far West Health Area. For females, death rates varied from 14.9 per 100,000 in the New England Health Area to 28.4 per 100,000 in the Far West Health Area.

For more information, see: Moller J. Australian injury prevention bulletin issue 8. *The spatial distribution of injury deaths in Australia: urban, rural and remote areas.* Adelaide: AIHW National Injury Surveillance Unit, 1994.

National Injury Surveillance Unit Web site at: http://www.nisu.flinders.edu.au.

Hospital separations for injury and poisoning by sex, NSW 1989/90 to 1997/98



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	58679	56384	59138	61631	65032	64356	70213	69262	71843
	Females	36865	35677	38223	40129	43060	42470	47178	47190	48978
	Persons	95544	92062	97360	101761	108092	106826	117391	116452	120821
Rate per 100,000	Males	2043.4	1947.0	2025.3	2100.0	2205.8	2163.4	2332.8	2278.1	2340.7
	Females	1216.7	1162.2	1220.9	1266.0	1340.8	1300.0	1424.1	1393.7	1423.5
	Persons	1647.8	1571.6	1641.4	1700.0	1789.2	1747.2	1894.3	1850.7	1897.7

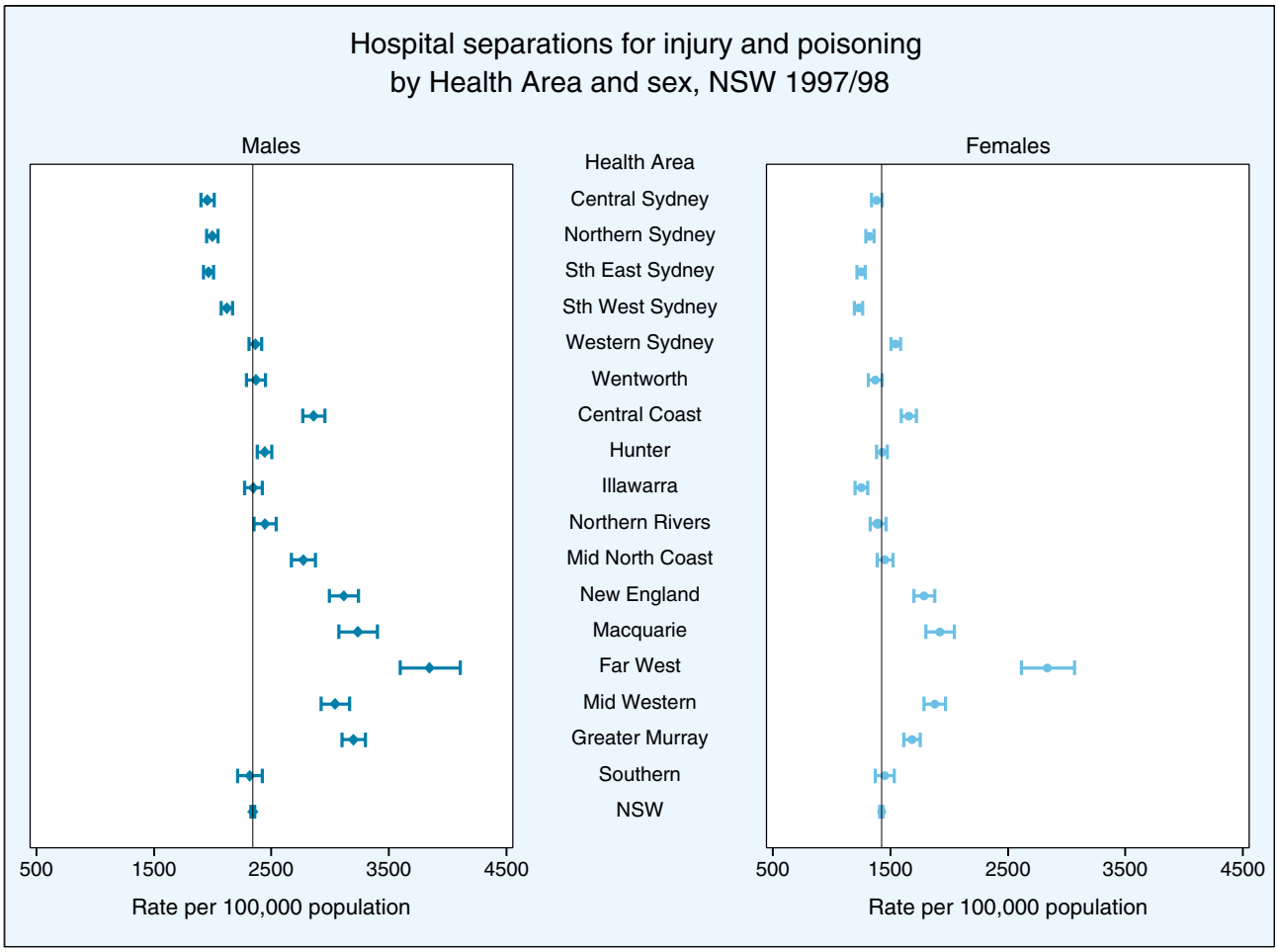
Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869, E880–929 and E950–E999. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 30 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, there were 120,821 hospitalisations of NSW residents following injury or poisoning. The majority (59.5 per cent) were in males. Injury and poisoning accounted for 8.3 per cent of all male hospitalisations, and 4.8 per cent of all female hospitalisations. These data include patients who were admitted to hospital for one day or more and do not include hospital transfers, statistical discharges or injuries caused by medical treatments.
- About three-quarters of hospitalisations for injury in NSW in 1997/98 were caused by falls (33.0 per cent), road accidents (11.1 per cent), sports injury (8.1 per cent), injuries resulting from unintentional cutting and piercing (6.2 per cent), self-inflicted injury (5.2 per cent), interpersonal violence (4.7 per cent), accidental poisoning (4.1 per cent) and burns and scalds (1.9 per cent).
- Hospitalisation rates for injury and poisoning increased gradually over the 10-year period. At the same time, there was an increasing rate of same-day admissions, while rates of hospitalisation for more than one day remained stable. Between 1989/90 and 1997/98, the same-day age-adjusted hospitalisation rate increased by 75.1 per cent, whereas the rate for stays longer than one day increased by only 1.3 per cent.
- This large increase in the hospitalisation rates for same-day stays may be due to changes in hospital admission policies. The increase in overall injury hospitalisation rates over the 10-year period may therefore reflect changes in hospital administrative practice, rather than an underlying increase in injury incidence in NSW.

For more information, see: NSW Expert Working Panel. *Injury prevention and management NSW goals and targets.* Sydney: NSW Health Department, 1995.

The National Injury Surveillance Unit Web site at: http://www.nisu.flinders.edu.au.



Note: Injury and poisoning were classified according to the ICD-9 external cause codes E800–869, E880–929 and E950–E999. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 30 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

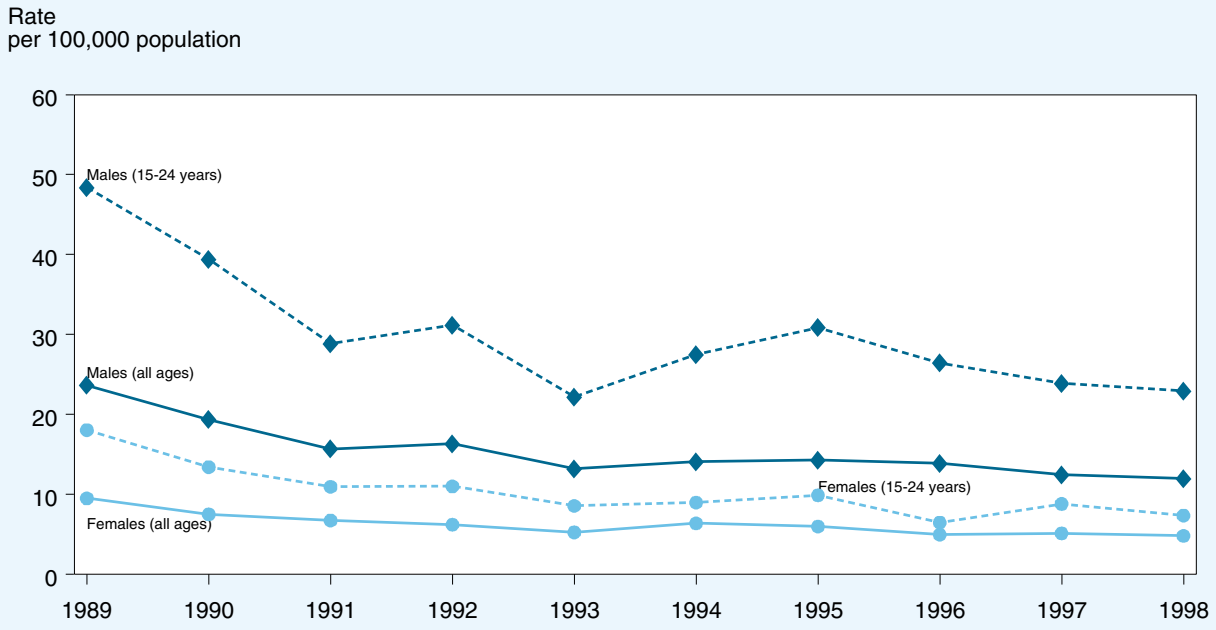
Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The pattern of hospitalisation for injury and poisoning across Health Areas is similar to that for injury-related deaths, with generally higher rates in rural Areas and lower rates in metropolitan Areas.
- Hospital separation rates were 64 per cent lower overall for females compared to rates for males, although the overall pattern across NSW Health Areas was similar for males and females.
- After adjusting for age differences, the highest hospitalisation rates for both males and females in 1997/98 were found in the Far West Health Area. This was followed by the Macquarie, Greater Murray, New England, Mid Western and Mid North Coast Health Areas for males and the Macquarie, Mid Western, New England and Greater Murray Health Areas for females.
- The exception to this pattern was the Central Coast Health Area, where rates were higher than the state average for both males and females, and the Hunter Health Area, which had a high male rate. The only inner metropolitan Health Area with a higher hospitalisation rate for injury and poisoning was the Western Sydney Health area for females.
- Hospital separation rates in the Northern Sydney, South Eastern Sydney, and South Western Sydney Health Areas were all lower than the average rates for NSW for males and females. In addition, Central Sydney rates were lower for males and Illawarra Health area rates were lower for females.

For more information, see: Moller J. *Australian injury prevention bulletin issue 8—The spatial distribution of injury deaths in Australia: urban, rural and remote areas.* Adelaide: AIHW National Injury Surveillance Unit, 1994.

The National Injury Surveillance Unit Web site at: http://www.nisu.flinders.edu.au.

Deaths from road injury by sex
persons of all ages and aged 15-24 years, NSW 1989 to 1998



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	All ages	Males	674	556	452	477	384	412	421	416	376	366
		Females	279	225	206	191	162	201	190	160	164	160
		Persons	953	781	658	668	546	613	611	576	540	526
	15–24	Males	225	184	135	145	102	126	141	120	107	103
		Females	81	60	49	49	38	39	43	28	38	32
		Persons	306	244	184	194	140	165	184	148	145	135
Rate per 100,000	All ages	Males	23.6	19.3	15.7	16.3	13.2	14.1	14.3	13.9	12.5	11.9
		Females	9.5	7.5	6.7	6.2	5.2	6.4	6.0	4.9	5.1	4.8
		Persons	16.5	13.4	11.1	11.2	9.1	10.1	10.0	9.3	8.7	8.3
	15–24	Males	48.4	39.4	28.9	31.2	22.2	27.5	30.9	26.4	23.9	22.9
		Females	18.0	13.4	10.9	11.0	8.6	9.0	9.9	6.5	8.8	7.3
		Persons	33.5	26.7	20.1	21.3	15.5	18.4	20.6	16.6	16.5	15.3

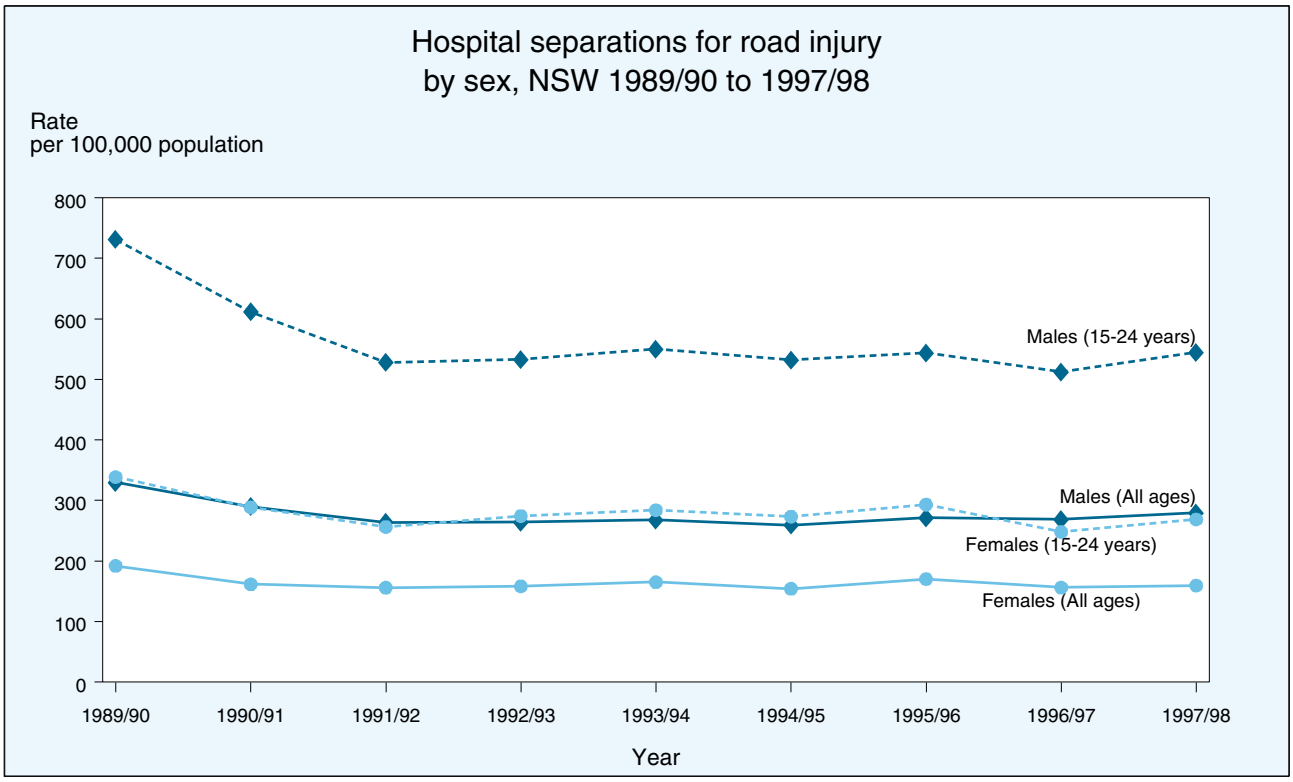
Note: Road injury was classified according to the ICD-9 external cause codes E810–819 and E826–829. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Death rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- There were 540 deaths due to road injury in 1997 and an estimated 526 in 1998, which placed road traffic injury as the most common cause of death from injury after suicide. Between 1989 and 1998, death rates from road injuries for males were more than twice those for females.
- Between 1989 and 1998, death rates due to injury on the road halved both for all ages and for younger drivers.
- Males aged 15–24 years accounted for 28 per cent of all male deaths due to road injury in 1998, whereas females in this age group accounted for 20 per cent of all female road injury deaths. Young men had a death rate about three times higher than young women and about double that for males overall.
- Alcohol was involved in 25 per cent of all fatal accidents in 1995 in which blood alcohol level was known. Speeding was a factor in at least 34 per cent of fatal accidents (RTA, 1996).
- The NSW Health Department set a target for the year 2000 of reducing mortality and serious casualties as a result of transport related injury by 14 per cent compared with the 1994 rate. This target has been reached.

For more information, see: Roads and Traffic Authority NSW (RTA). *Road traffic accidents in NSW—1995.* Sydney: Roads and Traffic Authority, 1996.

Henderson M. Report of the Wodonga seminar rural road safety: Focus for the future. *Towards an action plan for rural road safety.* Canberra: Federal Office of Road Safety, 1997.



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	Males	9601	8467	7752	7776	7900	7714	8138	8124	8508
		Females	5561	4716	4609	4696	4930	4647	5174	4832	4949
		Persons	15162	13183	12361	12471	12830	12361	13312	12956	13457
	15–24	Males	3424	2859	2460	2466	2522	2428	2463	2301	2443
		Females	1523	1296	1145	1219	1255	1197	1274	1073	1158
		Persons	4947	4156	3604	3684	3777	3625	3737	3374	3601
Rate per 100,000	All ages	Males	330.1	289.8	263.6	263.9	267.9	259.2	271.5	268.7	279.7
		Females	191.9	161.6	155.9	158.2	165.0	154.2	170.2	156.1	159.4
		Persons	261.8	226.1	210.2	211.4	216.5	207.1	220.9	212.6	219.8
	15–24	Males	731.1	611.7	528.1	533.0	549.7	531.9	543.7	512.4	544.4
		Females	338.6	288.8	256.2	274.3	283.9	273.3	293.2	248.1	268.7
		Persons	539.0	453.5	395.0	406.2	419.4	405.1	420.7	382.6	409.2

Note: Road injury was classified according to the ICD-9 external cause codes E810–819 and E826–829. Records relating to acute hospital transfer and statistical discharge were excluded. NSW populations estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

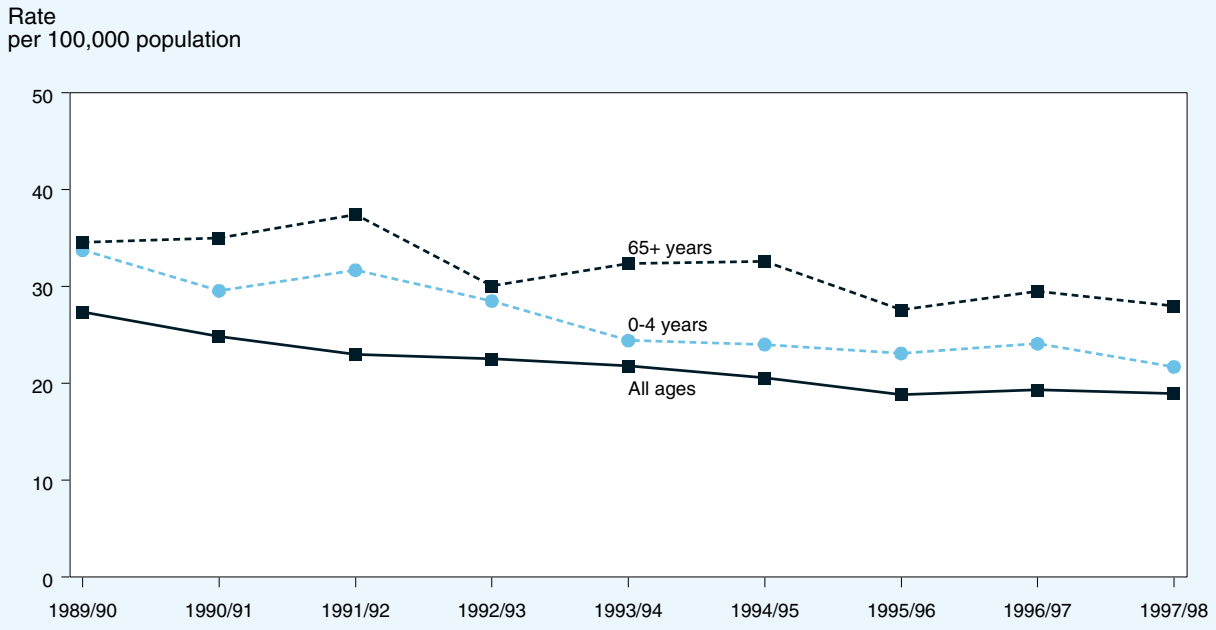
Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, road vehicle injury was the second largest cause of injury hospitalisations accounting for 11 per cent (13,457) of admissions. Road vehicle injuries accounted for 12 per cent of injury hospitalisations for males and 10 per cent for females. This includes accidents involving any vehicle travelling on a public road, but excludes accidents occurring off-road.
- Among those aged 15–24 years in 1997/98, road injury resulted in 2,443 hospitalisations in males and 1,158 in females. People in this age group were almost twice as likely to be hospitalised due to road-related injury compared with the general population.

For more information, see: Roads and Traffic Authority NSW (RTA). *Road traffic accidents in NSW—1995.* Sydney: NSW Roads and Traffic Authority, 1996.

The National Injury Surveillance Unit Web site at: http://www.nisu.flinders.edu.au.

Hospital separations for pedestrian road traffic accidents, persons of all ages, 0-4 years, and 65 years and over, NSW 1989/90 to 1997/98



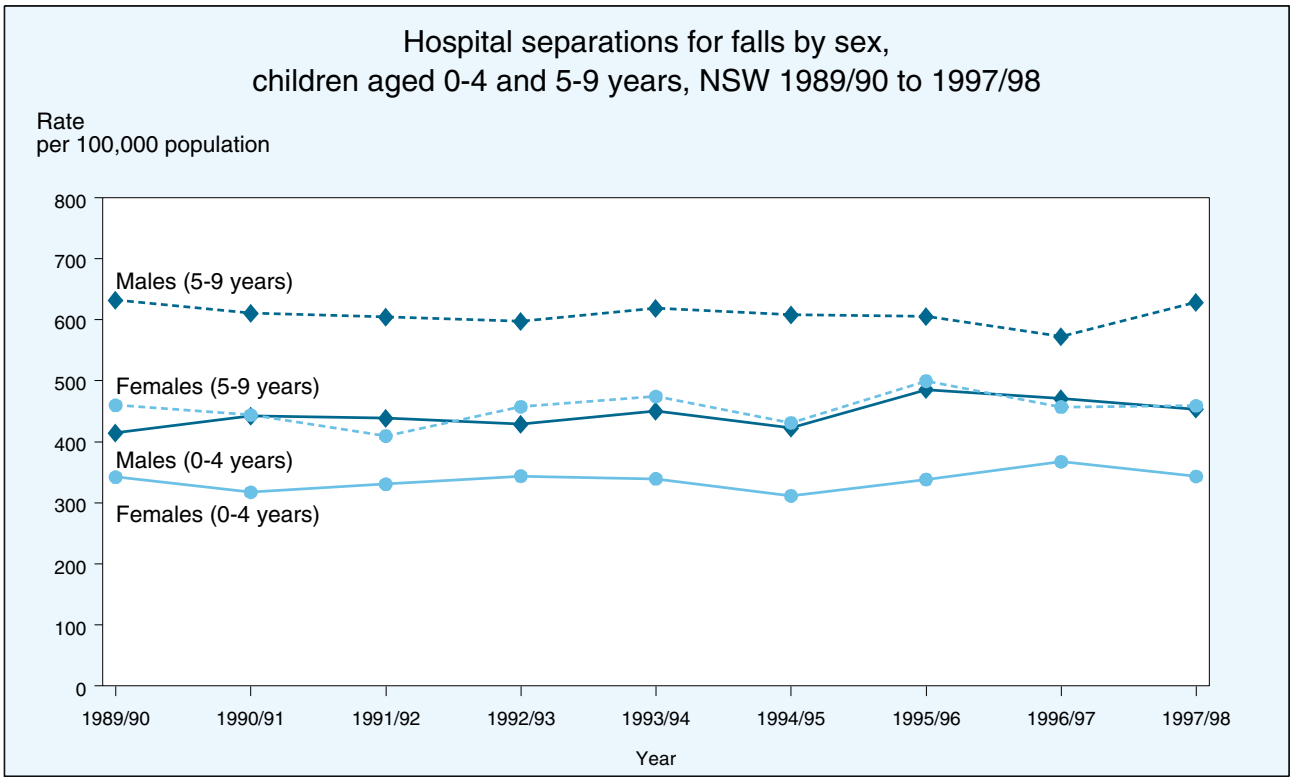
		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	Males	1051	920	860	842	833	791	729	752	731
		Females	539	537	505	507	481	463	429	449	459
		Persons	1590	1457	1365	1349	1314	1254	1158	1201	1190
	0–14	Males	278	241	266	239	202	212	191	202	177
		Females	147	133	138	127	113	100	111	115	109
		Persons	426	374	404	366	315	312	302	317	286
	65+ years	Males	109	128	128	105	113	116	106	109	104
		Females	121	113	137	114	129	135	112	128	126
		Persons	231	240	265	219	242	251	218	237	230
Rate per 100,000	All ages	Males	36.6	32.1	29.6	28.7	28.3	26.6	24.3	24.8	23.9
		Females	18.1	18.0	16.5	16.6	15.5	14.6	13.5	13.9	14.2
		Persons	27.4	24.9	23.0	22.6	21.8	20.6	18.8	19.3	18.9
	0–14	Males	43.1	37.2	40.7	36.3	30.6	31.9	28.5	30.0	26.2
		Females	23.9	21.6	22.2	20.3	18.0	15.8	17.4	17.9	16.9
		Persons	33.7	29.6	31.7	28.5	24.4	24.0	23.1	24.1	21.7
	65+ years	Males	40.6	47.4	44.4	36.2	37.6	36.9	32.9	32.5	31.0
		Females	30.8	28.2	33.1	26.7	29.7	30.6	24.9	28.1	27.2
		Persons	34.6	35.0	37.4	30.1	32.4	32.6	27.6	29.5	28.0

Note: Injury to pedestrians in road traffic accidents was classified according to the ICD-9 external cause code E814.7. Records relating to acute hospital transfer and statistical discharge were excluded. NSW populations estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The rate of hospitalisation for pedestrians being struck by a motor vehicle declined by 31 per cent (from 27.4 to 18.8 per 100,000) over the period 1989/90 to 1997/98. In 1997/98, there were 1,190 hospitalisations as a result of pedestrians being struck by motor vehicles.
- In 1997/98, there were 286 hospitalisations as a result of road traffic accidents to children aged 0–14 years. The hospitalisation rate for this age group has declined by about 40 per cent since 1989/90.
- NSW Health has set a target for the year 2000 of reducing hospital separations owing to transport-related injury by 14 per cent compared with 1992/93. This reduction was achieved for injuries to pedestrians by 1997/98.

For more information, see: The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	0–4 years	Males	906	972	977	965	1017	955	1095	1060	1016
		Females	712	665	700	733	726	668	725	786	731
		Persons	1619	1637	1677	1698	1743	1623	1820	1846	1747
	5–9 years	Males	1369	1330	1322	1309	1355	1341	1350	1291	1427
		Females	945	920	853	956	992	907	1063	981	991
		Persons	2314	2250	2176	2265	2347	2248	2413	2272	2418
Rate per 100,000	0–4 years	Males	414.8	442.2	439.0	429.1	450.4	422.6	485.6	470.8	453.5
		Females	342.3	317.4	330.6	343.8	339.5	311.5	338.4	367.4	343.3
		Persons	379.4	381.3	386.2	387.6	396.5	368.5	413.9	420.4	399.8
	5–9 years	Males	632.1	611.0	604.9	597.3	618.6	608.3	605.4	572.6	628.5
		Females	459.9	444.0	409.6	457.5	474.3	431.1	499.7	457.1	459.2
		Persons	548.3	529.6	509.6	529.0	548.1	521.8	553.8	516.3	546.0

Note: Falls were classified according to the ICD-9 external cause codes E880–E888. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 31 December each year.

Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

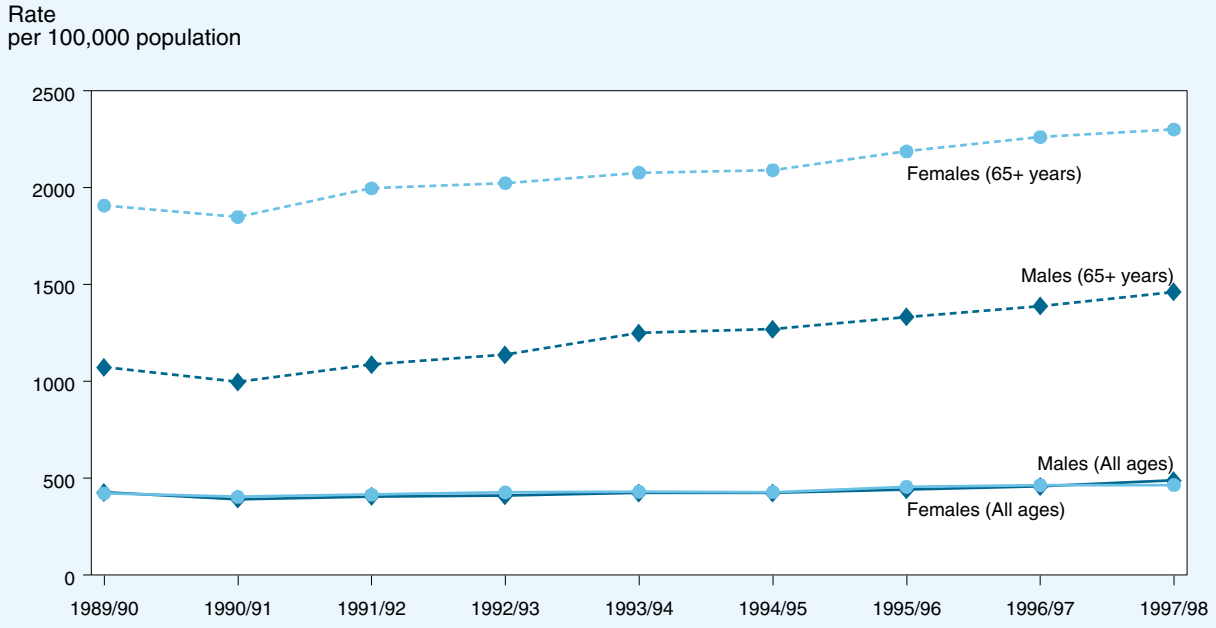
- Falls are the leading injury-related cause of hospitalisation. For 1997/98, children aged under five years represented five per cent of all fall-related hospitalisations and those aged 5–9 years represented seven per cent.
- Hospitalisation rates for falls in males were around one-third higher in both age groups compared with females. Between 1989/90 and 1997/98, hospitalisation rates for falls in children have remained stable for both age groups and both sexes.
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the rate of hospital separations resulting from falls in children aged 0–4 and 5–9 years by 10 per cent compared with the rate in 1992/93. It is unlikely that this target will be achieved.

For more information, see: NSW Health Department. Area Health Service health status profiles on the NSW Health Department Web site at:
www.health.nsw.gov.au/public-health/ahsprof/ahsprof.html

The National Injury Surveillance Unit at Web site at:
http://www.nisu.flinders.edu.au.

Australian Institute of Health and Welfare. *National health priority areas report. Injury prevention and control, 1997.* Catalogue no. PHE 3. Canberra: Australian Institute of Health and Welfare, 1997.

Hospital separations for falls by sex, persons of all ages and aged 65 years and over, NSW 1989/90 to 1997/8



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	Males	11659	10851	11392	11603	12168	12319	13092	13811	14948
		Females	13724	13406	14244	14959	15443	15775	17125	17920	18478
		Persons	25382	24257	25636	26562	27611	28094	30217	31731	33426
	65 years and over	Males	2657	2573	2915	3139	3608	3784	4115	4447	4848
		Females	7798	7765	8699	9117	9638	10004	10791	11513	12103
		Persons	10455	10338	11614	12257	13246	13788	14906	15960	16951
Rate per 100,000	All ages	Males	426.4	391.4	406.1	409.5	424.1	423.1	441.7	457.8	488.6
		Females	421.7	403.7	415.0	427.0	430.5	428.6	455.8	464.0	465.0
		Persons	435.9	409.4	423.3	430.3	438.6	436.7	459.7	471.8	488.0
	65 years and over	Males	1072.3	997.1	1087.0	1138.0	1250.1	1270.0	1332.4	1388.5	1462.2
		Females	1907.3	1848.6	1996.4	2023.4	2077.2	2090.3	2187.2	2261.0	2300.3
		Persons	1585.7	1519.7	1646.4	1680.6	1756.4	1770.0	1851.4	1915.9	1973.2

Note: Falls were classified according to the ICD-9 external cause codes E880–E888. Records relating to acute hospital transfer, statistical discharge and same day admissions were excluded. NSW population estimates as at 31 December each year. Hospitalisation rates were age-adjusted using the Australian population as at 30 June 1991.

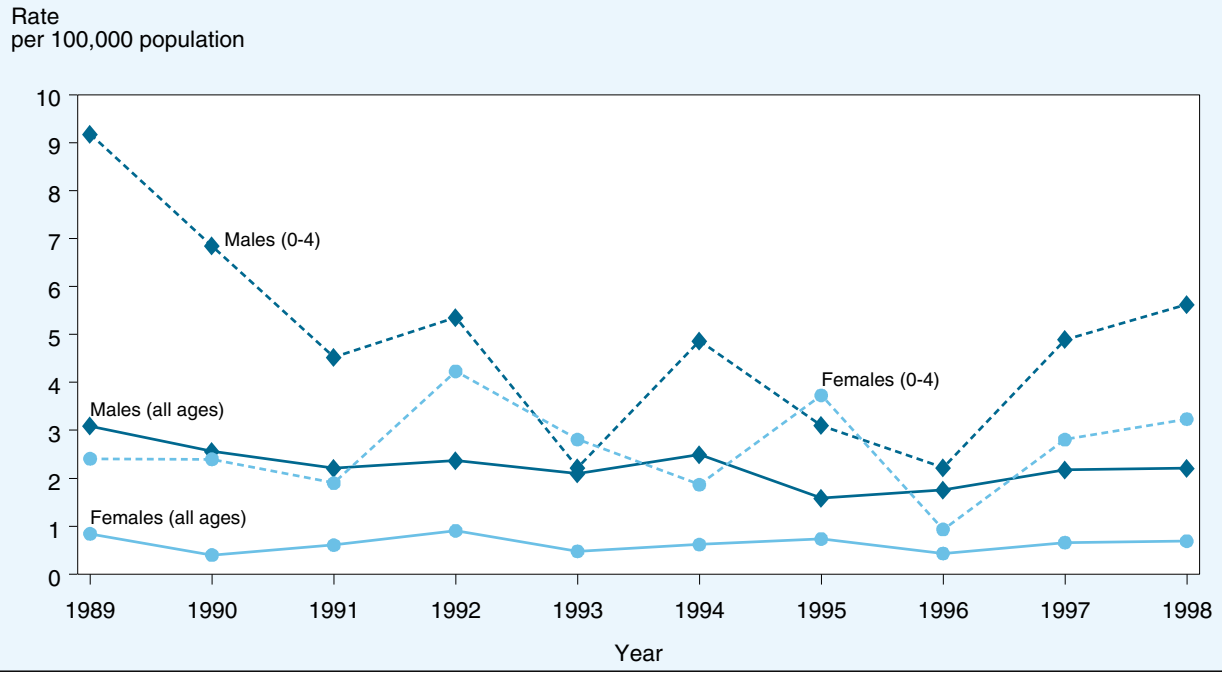
Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- Falls constituted the leading cause of hospitalisation in 1997/98, accounting for more than one in four hospitalisations (28 per cent) due to injury. The hospitalisation rate for falls has increased by 12 per cent over the last eight years.
- Persons aged 65 years and over are at most risk for falls. In 1997/98, 16,951 persons over 65 were hospitalised for more than one day due to falls. This represents 14 per cent of all hospitalisations due to injury.
- The estimated cost of fall related injury in 1995/96 in NSW was $1,073 million (Moller, 1998). This is nearly twice the cost of road trauma in NSW.
- Almost half of all falls in older people in NSW occur at home, and about a quarter occur in the street. Risk factors for falls in older people include disability, medication use, chronic disease, and environmental hazards
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the rate of hospitalisations resulting from falls in men and women aged 65 years and over by five per cent and 10 per cent respectively compared with 1992/93. This target is unlikely to be reached.

For more information, see: Moller J. *Patterns of injury costs NSW 1995/96, New directions in health and safety.* Adelaide: National Injury Surveillance Unit, 1999.

Graham-Clarke P, Fisher J and Elkington J. *Preventing injuries from falls in older people.* Sydney: National Centre for Health Promotion, Sydney University and NSW Health, 1998.

Unintentional drowning by sex,
persons of all ages and children 0-4 years, NSW 1989 to 1998



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	All ages	Males	87	74	65	71	63	75	49	54	67	69
		Females	26	12	18	27	15	20	23	14	21	22
		Persons	113	86	83	98	78	95	72	68	88	91
	0–4 years	Males	20	15	10	12	5	11	7	5	11	13
		Females	5	5	4	9	6	4	8	2	6	7
		Persons	25	20	14	21	11	15	15	7	17	19
Rate per 100,000	All ages	Males	3.1	2.6	2.2	2.4	2.1	2.5	1.6	1.8	2.2	2.2
		Females	0.8	0.4	0.6	0.9	0.5	0.6	0.7	0.4	0.7	0.7
		Persons	2.0	1.5	1.4	1.6	1.3	1.6	1.2	1.1	1.4	1.4
	0–4 years	Males	9.2	6.8	4.5	5.4	2.2	4.9	3.1	2.2	4.9	5.6
		Females	2.4	2.4	1.9	4.2	2.8	1.9	3.7	0.9	2.8	3.2
		Persons	5.9	4.7	3.2	4.8	2.5	3.4	3.4	1.6	3.9	4.5

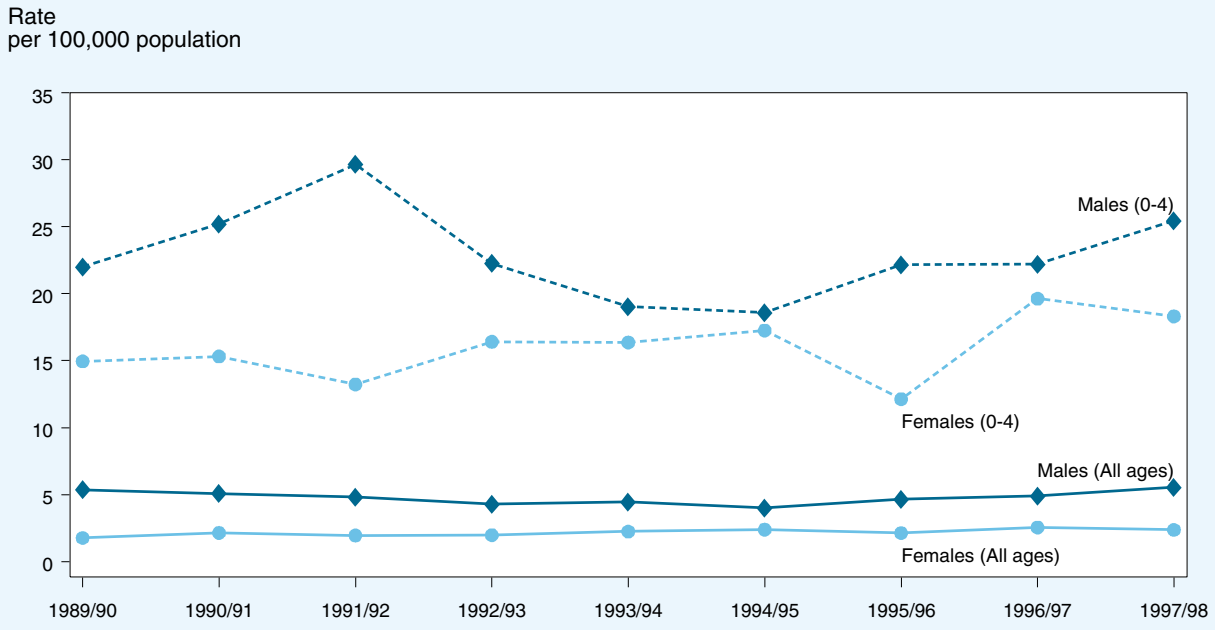
Note: Unintentional drowning was classified according to the ICD-9 external cause code E910. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Death rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There were 88 unintentional drownings in NSW in 1997 and an estimated 91 in 1998. About two-thirds of drownings occur in males. Over recent years, one in five drownings involved children under the age of five years.
- In the period 1995 to 1997, 62 males (36 per cent of male drownings) and 26 females (43 per cent), drowned as a result of unintentionally falling or wandering into a swimming pool, river, beach, or any other body of water. The next most frequent circumstance was drowning while swimming, paddling or wading in any body of water: 79 males (46 per cent), 12 females (21 per cent).
- In children aged 0–4 years, in the same period, there were 39 unintentional drownings. Of these, 28 (72 per cent) were caused by falling or wandering into a private swimming pool and seven (18 per cent) were bathtub drownings.The rate of drowning in private swimming pools in this age group fell from 2.7 per 100,000 in 1985 to 1989 to 2.1 per 100,000 in 1995 to 1997, a reduction of 22 per cent.
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the rate of drowning in children aged 0–4 years by 50 per cent (compared to the 1992 rate), and reducing the death rate due to all water related injury by 20 per cent over the same period. These targets are unlikely to be reached.

For more information, see: NSW Expert Working Panel. *Injury prevention and management NSW goals and targets.* Sydney: NSW Health Department, 1995.

Hospital separations for near-drowning by sex, persons of all ages and children aged 0-4 years, NSW 1989/90 to 1997/98



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	Males	157	150	143	128	134	120	142	148	169
		Females	50	62	57	59	66	71	64	77	70
		Persons	207	212	201	187	200	191	206	225	239
	0–4	Males	48	55	66	50	43	42	50	50	57
		Females	31	32	28	35	35	37	26	42	39
		Persons	79	88	94	85	78	79	76	92	96
Rate per 100,000	All ages	Males	5.4	5.1	4.8	4.3	4.4	4.0	4.6	4.9	5.6
		Females	1.8	2.2	2.0	2.0	2.2	2.4	2.1	2.6	2.4
		Persons	3.6	3.6	3.4	3.1	3.4	3.2	3.4	3.7	4.0
	0–4	Males	22.0	25.2	29.7	22.3	19.0	18.6	22.2	22.2	25.4
		Females	15.0	15.3	13.2	16.4	16.4	17.3	12.1	19.6	18.3
		Persons	18.6	20.4	21.6	19.4	17.7	17.9	17.3	21.0	22.0

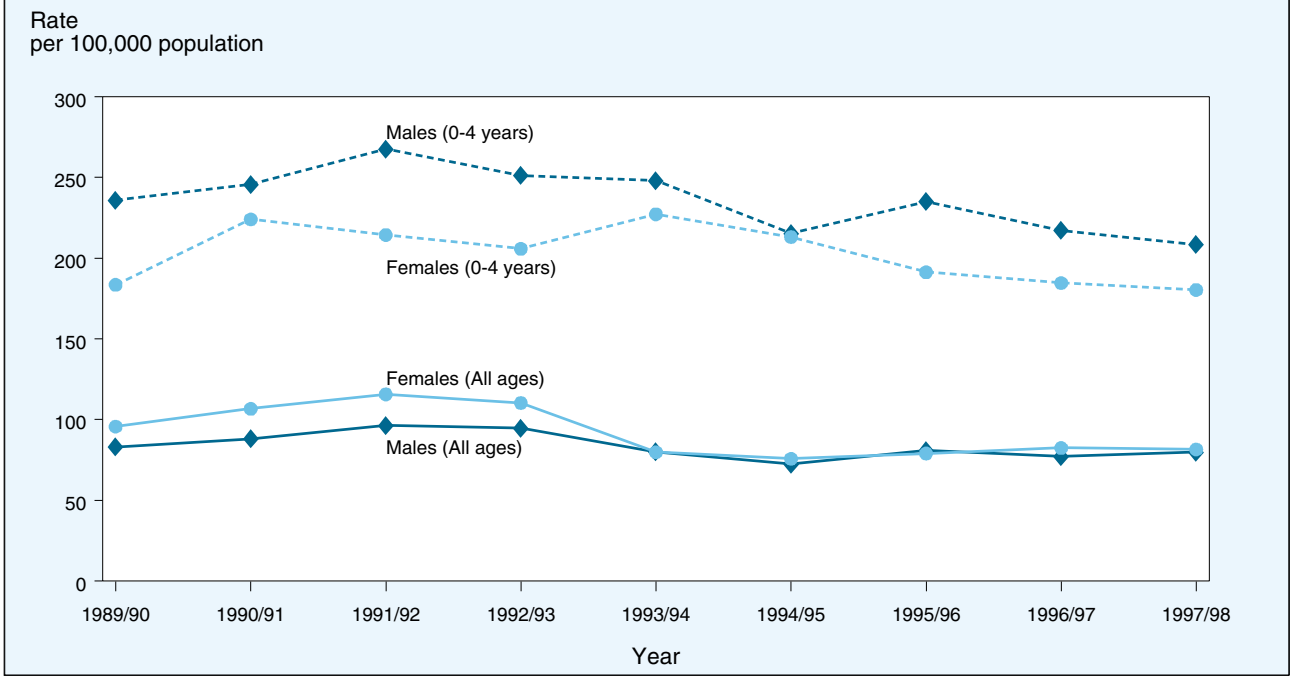
Note: Near-drowning were classified according to the ICD-9 external cause code E910. Records relating to acute hospital transfer and statistical discharge were excluded. NSW populations estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, 239 persons were hospitalised in NSW due to a near-drowning episode. Forty per cent of hospitalisations following a near-drowning episode were for children under five years of age. One in 5,000 children less than five years of age were hospitalised in 1997/98 following near-drowning.
- The rates of hospitalisation following near-drowning have remained at around the same level since 1989/90 for all ages and for children aged under five years. The rate of swimming pool-related hospitalisations declined in younger children from 14 to 11 per 100,000 over the period 1989/90 to 1995/96.
- The main risk factors for domestic pool drowning in NSW between 1990 and 1995 were lack of fencing, non-functioning fencing or gates and inadequate supervision. The main risk factor for bathtub drowning was inadequate supervision, particularly leaving infants unattended or in the care of siblings during bathing (Cass et al. 1996).
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the hospital separation rate resulting from near-drowning in 0–4 year olds by 50 per cent compared with 1992/93. This target is unlikely to be reached.

For more information, see: Cass D, Ross R and Lam L. Childhood drowning in NSW 1990–95: A population based study. *Med J Aust* 165: 610–612.

Hospital separations for unintentional poisoning by sex, persons of all and children aged 0-4 years, NSW 1989/90 to 1997/98



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	Males	2409	2571	2842	2812	2376	2178	2442	2348	2446
		Females	2762	3098	3384	3242	2384	2274	2409	2545	2512
		Persons	5172	5669	6227	6054	4760	4452	4851	4893	4958
	0–4 years	Males	515	540	596	565	560	487	530	489	467
		Females	382	469	454	439	486	457	410	395	384
		Persons	897	1010	1050	1004	1046	944	940	884	851
Rate per 100,000	All ages	Males	83.0	88.1	96.3	94.6	80.1	72.5	80.9	77.2	79.9
		Females	95.7	106.7	115.7	110.4	79.8	75.8	79.0	82.4	81.5
		Persons	89.2	97.1	105.8	102.2	79.6	73.9	79.9	79.7	80.5
	0–4 years	Males	235.9	245.8	267.7	251.2	248.0	215.5	235.1	217.2	208.5
		Females	183.6	224.1	214.4	205.9	227.2	213.1	191.3	184.6	180.3
		Persons	210.4	235.2	241.7	229.1	237.9	214.3	213.8	201.3	194.8

Note: Unintentional poisoning was classified according to the ICD-9 external cause codes E850–869. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 30 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

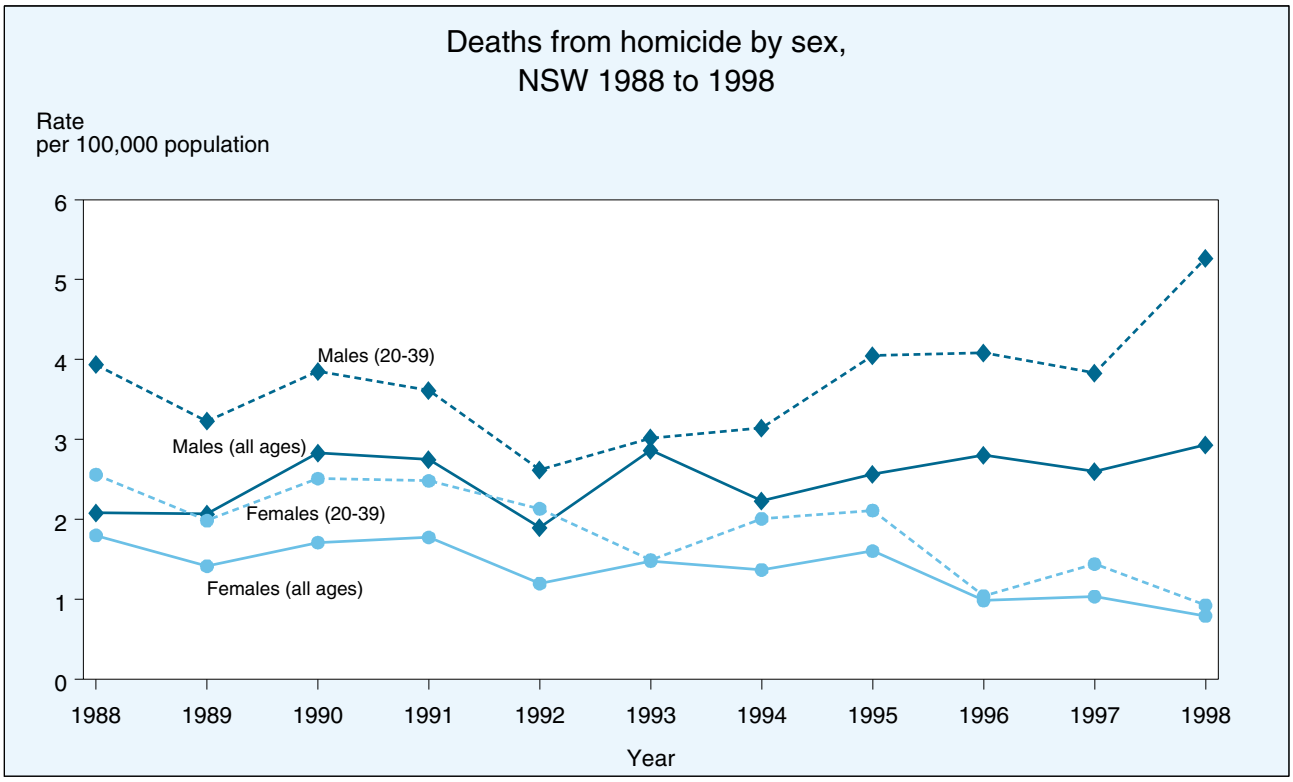
Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98 there were 4,958 hospitalisations reported for unintentional poisoning. These were about evenly distributed between males (49 per cent), and females (51 per cent). Hospitalisation rates for poisoning declined in 1992/93, but have have remained at around the same level since then.
- Children under five years of age are one of the most vulnerable groups for unintentional poisoning. In 1997/98, there were 851 children in this age group hospitalised for unintentional poisoning. The rates for boys were slightly higher than for girls for 1997/98 and for most of the past eight years.
- Of the 24,707 calls to the NSW Poisons Information Centre in 1996 regarding children aged 0–4 years, 1,024 (four per cent) were related to paracetamol ingestions. Paracetamol was the most common single agent involved in calls for ingestion incidents (Poisons Information Centre, 1996).

For more information, see: NSW Poisons Information Centre call data collection 1996 (unpublished).

NSW Health Department. Area Health Service health status profiles on the NSW Health Department Web site at: http://www.health.nsw.gov.au/public-health/ahsprof/ahsprof.html.

The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.



		Sex	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	All ages	Males	59	59	83	81	57	85	67	78	86	80	91
		Females	51	42	50	52	35	45	42	50	31	32	25
		Persons	110	101	133	133	92	130	109	128	117	112	116
	20–39 years	Males	36	30	36	34	25	29	30	39	39	37	51
		Females	23	18	23	23	20	14	19	20	10	14	9
		Persons	59	48	59	57	45	43	49	59	49	51	60
Rate per 100,000	All ages	Males	2.1	2.1	2.8	2.7	1.9	2.9	2.2	2.6	2.8	2.6	2.9
		Females	1.8	1.4	1.7	1.8	1.2	1.5	1.4	1.6	1.0	1.0	0.8
		Persons	1.9	1.8	2.3	2.3	1.5	2.1	1.8	2.1	1.9	1.8	1.9
	20–39 years	Males	3.9	3.2	3.8	3.6	2.6	3.0	3.1	4.0	4.1	3.8	5.3
		Females	2.6	2.0	2.5	2.5	2.1	1.5	2.0	2.1	1.0	1.4	0.9
		Persons	3.3	2.6	3.2	3.1	2.4	2.3	2.6	3.1	2.6	2.6	3.1

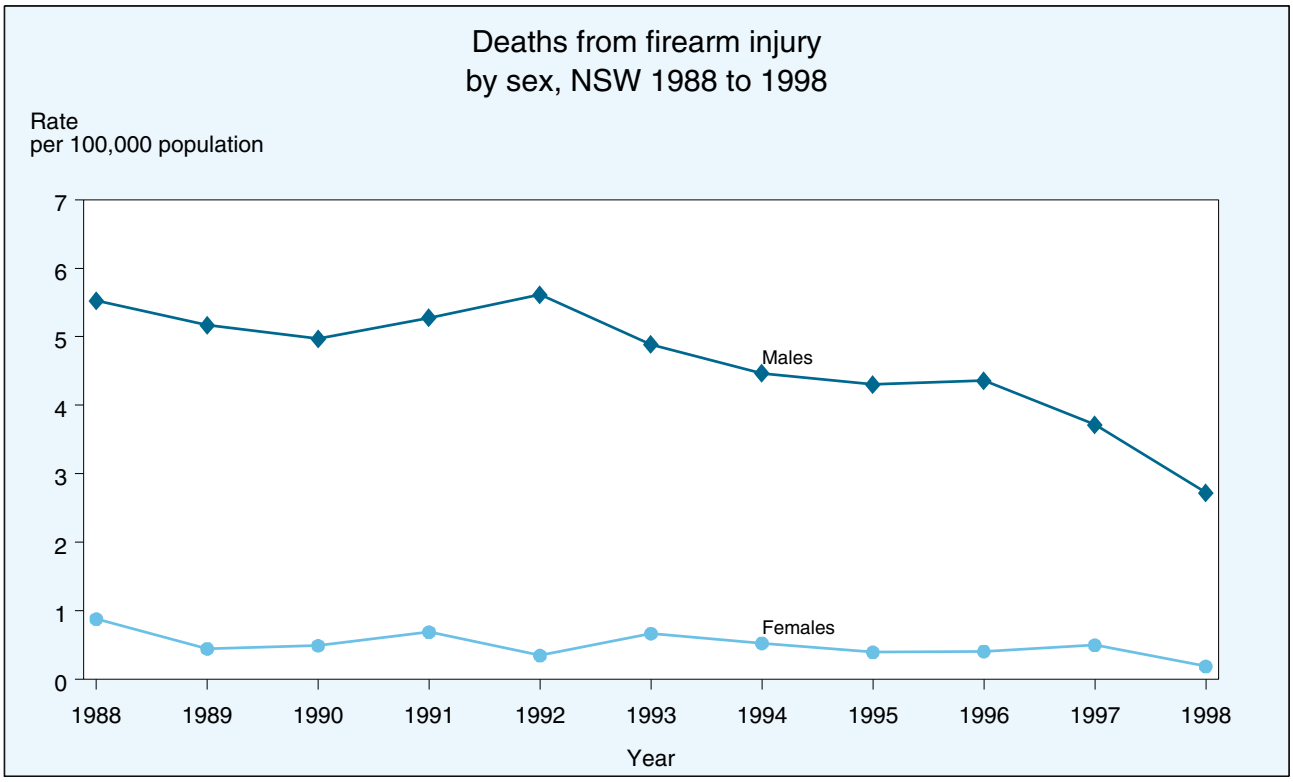
Note: Homicide death was classified according to the ICD-9 external cause codes E960–969. NSW population estimates as at 30 June each year. Death data are reported by year of death and include an estimate of the small number of deaths occurring in 1998, but registered in 1999. Death rates were age-adjusted using the Australian population as at 30 June 1991.

Source: ABS mortality data and population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- There were 112 deaths due to homicide in 1997 and an estimated 116 homicides in 1998. About 70 per cent of homicides were in males and about 50 per cent occurred in the 20–39 year age group.
- Homicide rates are relatively low in comparison to other causes of injury-related death and have remained fairly stable since 1988.
- An analysis of homicide data for the years 1968 to 1992 found no general trend in incidence. Forty-one per cent of homicides were committed by members of the same family and in 38 per cent, the suspect and victim were acquaintances. In 17 per cent of cases during this period, the suspect was not known to the victim (Gallagher et al. 1994).
- The NSW Health Department in collaboration with other government departments, established a target for the year 2000 of reducing the homicide rate in people aged 20–39 from the 1992 level. This target is unlikely to be achieved.

For more information, see: Gallagher S, Nguyen da Huong MT and Bonney R. *Crime and justice bulletin no 21. Trends in homicide 1868–92. Sydney: NSW Bureau of Crime Statistics and Research, 1994.*

The National Injury Surveillance Unit Web site at: http://www.nisu.flinders.edu.au.



	Sex	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Number	Males	155	148	143	155	166	145	133	129	134	116	84
	Females	24	13	14	20	10	20	16	12	13	16	6
	Persons	179	161	157	175	176	165	149	141	147	132	90
Rate per 100,000	Males	5.5	5.2	5.0	5.3	5.6	4.9	4.5	4.3	4.4	3.7	2.7
	Females	0.9	0.4	0.5	0.7	0.3	0.7	0.5	0.4	0.4	0.5	0.2
	Persons	3.2	2.8	2.7	3.0	2.9	2.7	2.4	2.3	2.3	2.1	1.4

Note: Firearm injury was classified according to the ICD-9 external cause codes E922, E955.0 – 955.4/9, E965.0 – 965.4, E970, and E985.0 – 985.4. Data are reported by year of death. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production. Death rates were age-adjusted using the Australian population as at 30 June 1991.

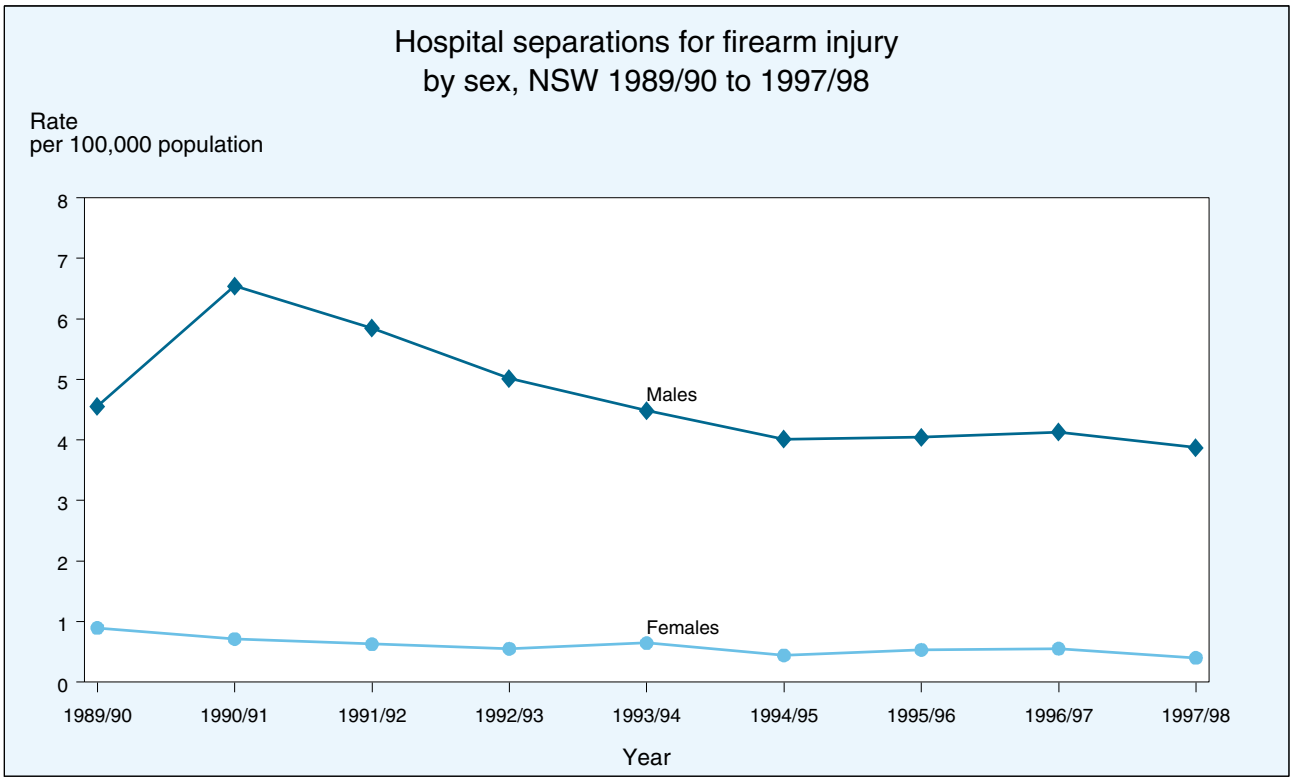
Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- There were 132 deaths by firearms in 1997 and an estimated 90 deaths in 1998. Males accounted for virtually all of these deaths (93 per cent). However, since 1988, the rates of firearm-related deaths in males have halved, from 5.5 per 100,000 to 2.7 per 100,000.
- The death rate for firearm injury in all persons for the period 1990 to 1994 (2.7 per 100,000) was 23 per cent lower than for the period 1985 to 1989 (3.5 per 100,000). The suicide component of the rate declined from 2.6 to 2.1 per 100,000, and the firearm assault component from 0.6 to 0.5 per 100,000 (Peters et al. 1999).

For more information, see: The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.

Harrison J, Moller J, Bordeaux S. Australian injury prevention bulletin supplement. *Injury by firearms Australia 1994.* Adelaide: AIHW National Injury Surveillance Unit, 1996.

Peters R, Fitzsimmons G, Nguyen R. Firearm injury and death in NSW. *NSW Public Health Bulletin* 1999; 10 (7): 74–79.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	133	192	173	148	132	120	121	124	118
	Females	25	20	18	16	19	13	16	17	12
	Persons	158	213	191	164	151	133	137	141	130
Rate per 100,000	Males	4.6	6.5	5.8	5.0	4.5	4.0	4.0	4.1	3.9
	Females	0.9	0.7	0.6	0.6	0.6	0.4	0.5	0.6	0.4
	Persons	2.8	3.7	3.3	2.8	2.6	2.2	2.3	2.3	2.1

Note: Firearm injury was classified according to the ICD-9 external cause codes E922, E955.0–955.4/9, E965.0–965.4, E970, and E985.0–985.4. Records relating to acute hospital transfer and statistical discharge were excluded. NSW populations estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

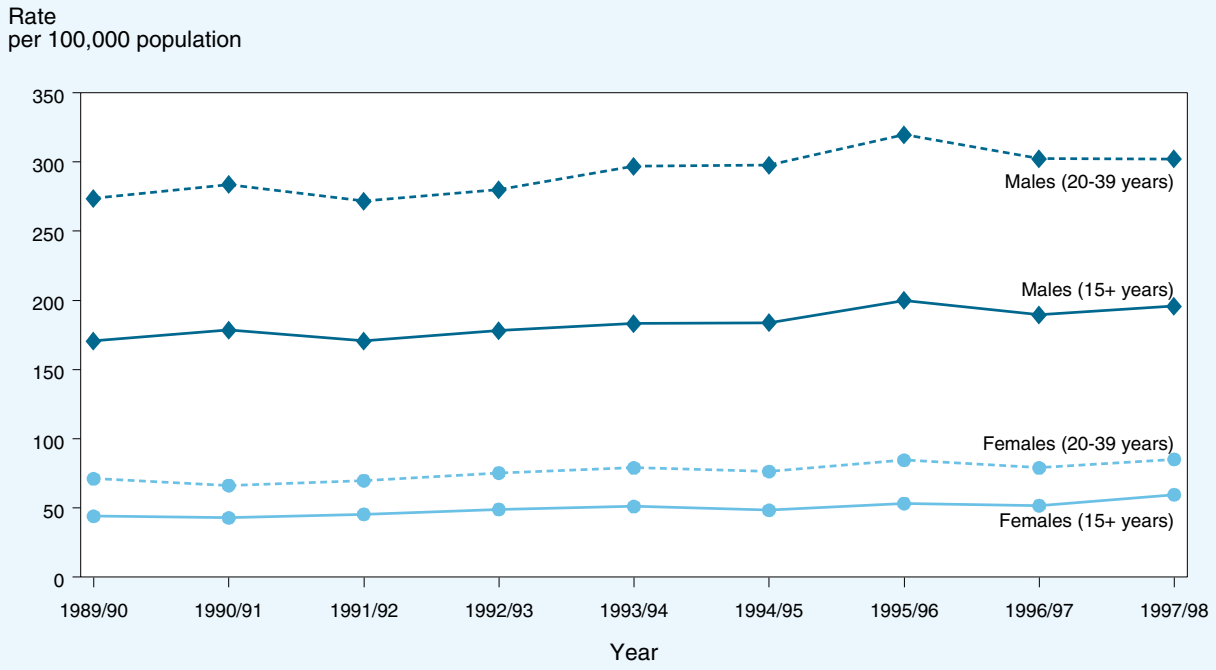
- In 1997/98, there were 130 hospitalisations for firearm injury in NSW. Of these, 118 (91 per cent) were males. Hospitalisation rates for firearm related injury have declined since the early 1990s, particularly for males.
- In the five years to 1995/96, there were, on average, 160 hospitalisations per year following firearm injury in males and 17 in females. The yearly average number of unintentional firearm injury hospitalisations was 90 for males and nine for females (56 per cent of male and 51 per cent of female hospitalisations). For firearm assault, the yearly average was 25 for males (16 per cent) and five for females (30 per cent). For self-inflicted firearm injury, the yearly average was 24 for males (15 per cent) and two for females (14 per cent) (Peters et al. 1999).

For more information, see: The National Injury Surveillance Unit Web site at: www.flinders.edu.au.

Harrison J, Moller J, Bordeaux S. *Australian injury prevention bulletin supplement. Injury by firearms Australia 1994.* Adelaide: AIHW National Injury Surveillance Unit, 1996.

Peters R, Fitzsimmons, G Nguyen R. Firearm injury and death in NSW. *NSW Public Health Bulletin* 1999; 10(7):74–79.

Hospital separations for interpersonal violence by sex, persons aged 15 years and over and 20-39 years, NSW 1989/90 to 1997/98



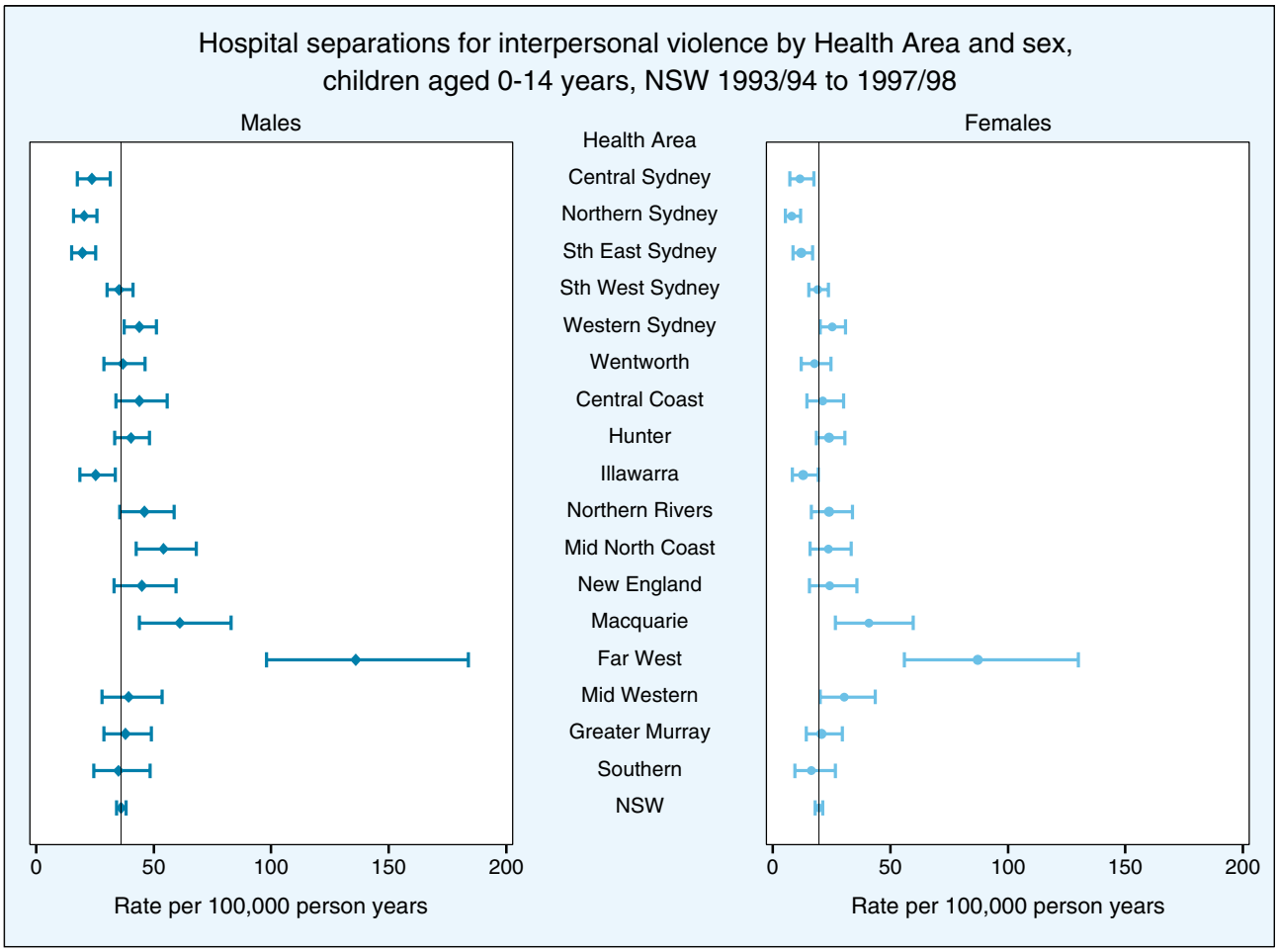
		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	15+ years	Males	3885	4087	3929	4108	4223	4251	4659	4438	4609
		Females	980	962	1028	1114	1165	1118	1240	1222	1427
		Persons	4865	5050	4957	5222	5388	5369	5899	5660	6036
	20–39 years	Males	2536	2651	2572	2663	2820	2839	3047	2878	2872
		Females	646	608	649	705	740	720	800	749	809
		Persons	3182	3258	3221	3368	3560	3559	3847	3627	3681
Rate per 100,000	15+ years	Males	170.7	178.5	170.7	178.1	183.2	183.8	199.9	189.5	195.9
		Females	44.0	42.8	45.4	48.9	51.0	48.3	53.1	51.6	59.5
		Persons	108.1	111.4	108.5	114.1	117.6	116.6	127.1	121.0	128.2
	20–39 years	Males	273.7	283.7	271.7	280.0	296.9	297.8	319.6	302.3	302.2
		Females	71.0	66.1	69.7	75.2	78.9	76.3	84.5	78.9	85.1
		Persons	173.4	176.0	171.6	178.5	188.7	187.8	202.7	191.1	194.1

Note: Interpersonal violence was classified according to the ICD-9 external cause codes E960–969. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, there were 6,036 hospitalisations for injury due to interpersonal violence in NSW. About three-quarters of these involved males (76 per cent). Most hospitalisations due to interpersonal violence occurred in people aged 20–39 years (61 per cent), with males again representing around three-quarters of all cases (78 per cent).
- Hospitalisation rates related to interpersonal violence have steadily increased since 1989/90. The rate of increase has been higher in females than in males, resulting in a 35 per cent increase in injuries from interpersonal violence between 1989/90 and 1997/98 in females compared to a 15 per cent increase over the same period in males.
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the hospital admission rate for intentional injury in persons aged 20–39 years by 10 per cent, compared with 1992/93. It is unlikely that this target will be reached.

For more information, see: The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.



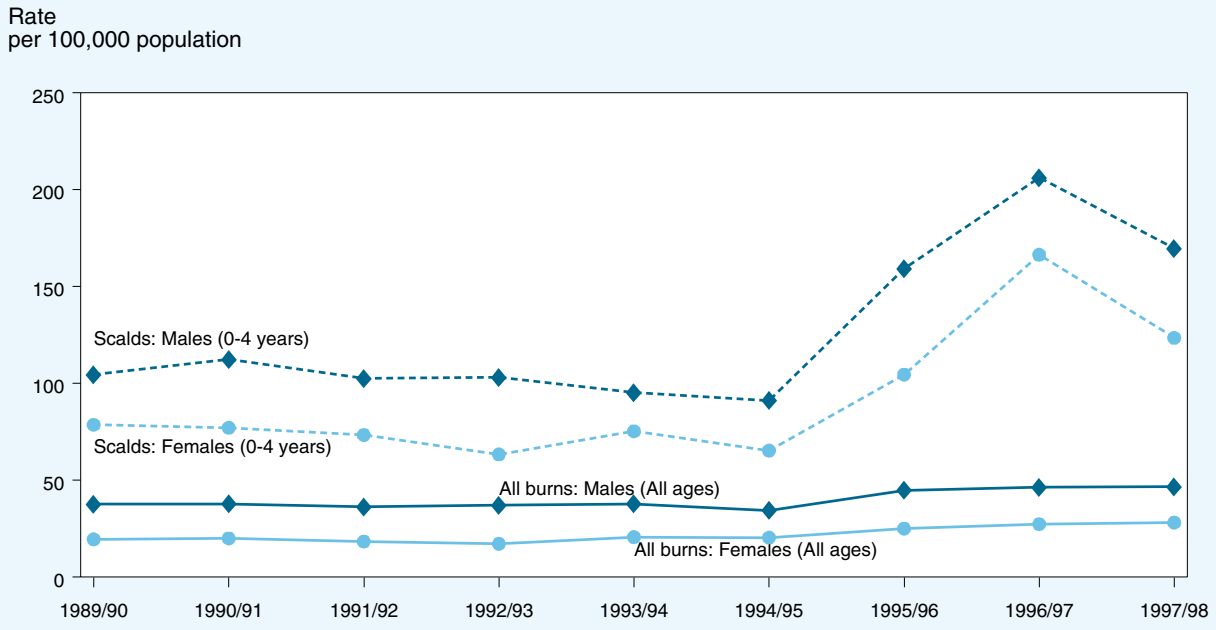
Note: Interpersonal violence was classified according to the ICD-9 external cause codes E960–969 and E980–989 and the supplementary diagnosis code V61.21. NSW populations estimates as at 30 December each year. Records relating to acute hospital transfer and statistical discharge were excluded. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991. Upper and lower limits of 95% confidence interval for the point estimate are shown.

Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- For children aged 0–14 years, rates of hospitalisation for injuries resulting from interpersonal violence over the five years to 1997/98 showed considerable differences among Health Areas.
- The Far West had higher rates than any other Health Area for both males and females (136.7 per 100,000 for males and 87.3 per 100,000 for females), although the actual numbers involved were small (42 males and 24 females). The Macquarie Health Area had the second highest rates for both males and females (61.1 per 100,000 for males and 40.8 per 100,000 for females), representing 41 males and 26 females. The rate for males in the Mid North Coast was also higher than the state average (54.2 per 100,000 representing 75 males).
- Rates for the Central Sydney, Northern Sydney and South Eastern Sydney Health Areas for both sexes and Illawarra Health Area for males were lower than the state average.
- The overall NSW hospitalisation rate for males was twice that of females (36.1 per 100,000 for males and 19.6 per 100,000 for females). The rates for males was consistently higher than females in every Health Area.

For more information, see: The National Injury Surveillance Unit Web site at:http://www.nisu.flinders.edu.au.

Hospital separations for burns and scalds by sex, persons of all ages and children aged 0-4 years, NSW 1989/90 to 1997/98



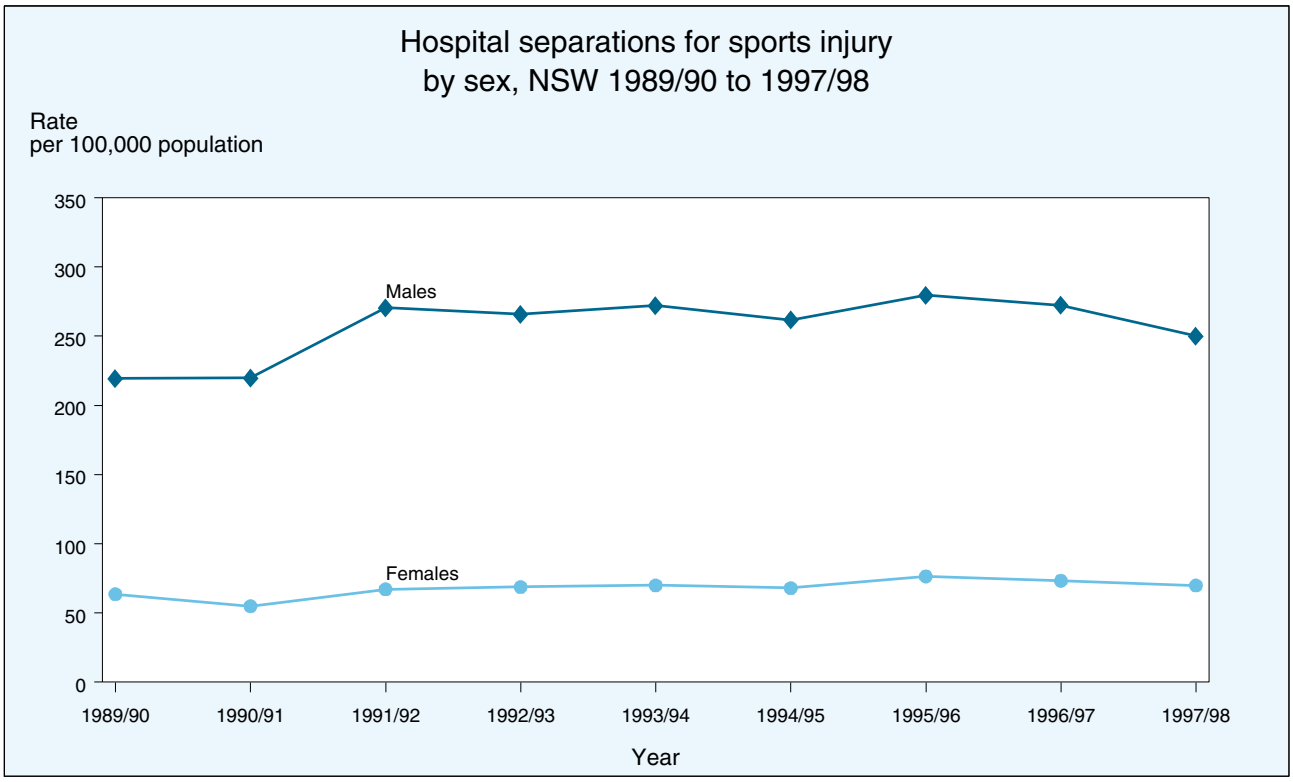
			Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	All ages	All burns	Males	1092	1103	1067	1104	1114	1038	1358	1410	1425
			Females	568	590	550	521	645	622	762	840	866
			Persons	1660	1693	1617	1624	1759	1660	2120	2250	2291
	0–4 years	Scalds	Males	228	247	228	232	215	206	359	464	380
			Females	164	161	155	135	161	140	224	356	263
			Persons	392	408	383	367	376	346	583	820	643
Rate per 100,000	All ages	All burns	Males	37.6	37.7	36.2	37.2	37.7	34.4	44.8	46.4	46.6
			Females	19.5	20.0	18.4	17.2	20.6	20.4	25.1	27.4	28.2
			Persons	28.7	29.0	27.4	27.3	29.2	27.5	35.0	37.0	37.4
	0–4 years	Scalds	Males	104.5	112.3	102.4	103.2	95.2	91.1	159.2	206.1	169.6
			Females	78.6	77.1	73.4	63.3	75.3	65.3	104.5	166.4	123.5
			Persons	91.9	95.1	88.3	83.8	85.5	78.6	132.6	186.8	147.2

Note: Accidents due to fire, burns and scalds were classified according to the ICD-9 external cause codes E890–899, E924.0, E924.2, E924.8 and E924.9. Records relating to acute hospital transfer and statistical discharge were excluded.NSW populations estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, there were 2,291 hospitalisations for unintentional injuries resulting from fire, burns and scalds. Of these, 28 per cent were for scalds among young children aged 0–4 years. For the last 10 years, hospitalisation rates for scalds in under five-year-olds have been substantially higher than hospitalisation rates for all types of burns in all age groups.
- There was little change in the overall numbers or rates of burns and scalds between 1989/90 and 1994/95, including the rates for children aged under five years. The striking increase in the rate of hospitalisations in children aged 0–4 years in 1995/96 was largely due to an increase in the number of reported day-only admissions for burns treatment. Rates continued to increase in 1996/97 but are now beginning to decline.
- Tap water scalds are responsible for most long-stay cases. Following the introduction of new standards requiring hot water delivered to bathing areas to be less than 50°C and a statewide information campaign, there was a 25 per cent reduction in scalds requiring five or more days in hospital. This is equivalent to preventing 65 cases of serious scalds annually in children aged five years or less (NSW Health Department, 1998).

For more information, see: NSW Health Department. Draft final report. *Hot water burns like fire—The NSW scalds prevention campaign phases 1 and 2, 1992–94*. Sydney: NSW Health Department, 1998.



	Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	Males	6421	6463	7969	7837	8003	7731	8333	8175	7569
	Females	1829	1599	1975	2027	2083	2044	2326	2263	2195
	Persons	8250	8062	9944	9864	10086	9775	10659	10438	9764
Rate per 100,000	Males	219.4	219.7	270.4	265.9	272.2	261.7	279.6	272.3	250.1
	Females	63.5	54.8	67.1	68.7	69.9	67.9	76.4	73.2	69.8
	Persons	142.7	138.7	170.3	168.8	172.6	166.1	179.3	174.0	161.3

Note: Sports injury was classified according to the ICD-9 external cause codes E886.0, E889, E917.0 and E927. Records relating to acute hospital transfer and statistical discharge were excluded. NSW population estimates as at 30 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Health Department Inpatient Statistics Collections (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, there were 7,569 hospital separations for sports injuries in males (11 per cent of male injury hospitalisations) and 2,195 in females (five per cent of female injury hospitalisations). Sports injury was the third leading cause of injury hospitalisation in both males and females, however the rate for sports injury in males was almost four times that for females (249 per 100,000 for males and 69 per 100,000 for females).
- Around 92 per cent of NSW high school students aged 11–19 years in 1994/95 reported participating in at least one sport, and 54 per cent reported being injured during a sporting activity at least once in the previous six months. The sports causing the most injuries were rugby union, rugby league, gymnastics, netball, hockey, and Australian Rules Football. The main sports injuries experienced were bruising, muscle strain, joint or ligament strain, joint swelling or inflammation, bleeding, broken bones and dislocation (NSAHS, 1997).
- NSW Health, in collaboration with other government departments, established a target for the year 2000 of reducing the hospital admission rate for sports injury by 20 per cent compared with 1992/93. This target is unlikely to be achieved.

For more information, see: Northern Sydney Area Health Service (NSAHS). *NSW sports injury report*. Sydney: Northern Sydney Area Health Service, 1997.

The National Injury Surveillance Unit Web site at: www.nisu.flinders.edu.au.

Chapter 4.6

Mental health

- The ABS National Survey of Mental Health and Wellbeing of Adults found that almost one in five adults may have at least one of the common mental health disorders at some time during a 12-month period. Young people are more likely to have a major mental disorder than older people.
- The most common mental disorders in adults are anxiety disorders (9.7 per cent), affective disorders (5.8 per cent) and substance use disorders (7.7 per cent).
- In NSW in 1997 and 1998, females reported higher levels of psychological distress than males, and young adults reported higher levels than older adults.
- In 1998, an estimated 844 deaths in NSW were caused by suicide or self-inflicted injury. Most of these deaths were in males.
- Over the 10 years to 1998, suicide deaths were about three times more common among males than females. Death rates from suicide among young men aged 15–24 years increased slightly in NSW over the past 10 years, while remaining relatively stable among young women.
- Hospitalisation for attempted suicide, on the other hand, is more common among females than males. For females in 1997/98, hospitalisation for attempted suicide was most common in the 15–30 years age group, and for males in the 25–29 years age group.

In this chapter

Introduction

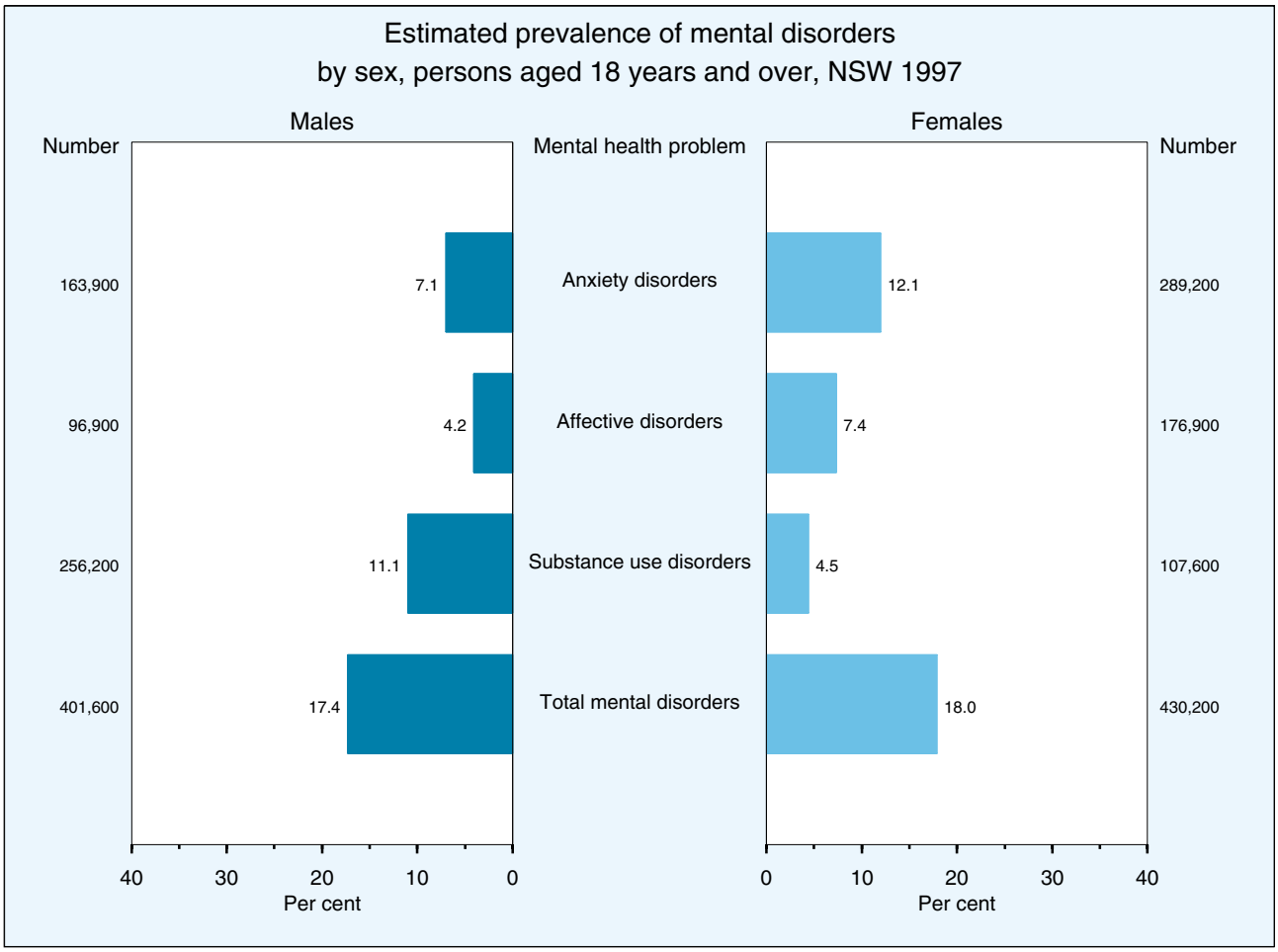
The Australian National Survey of Mental Health and Wellbeing (NSMHW) was carried out in 1997 and provides, for the first time, estimates of the prevalence of the most common mental health disorders (anxiety, affective disorders, and substance abuse disorders) in Australia. At present we still lack accurate estimates of the prevalence and incidence of mental disorders for children, but the Australian National Survey of Mental Health and Wellbeing of Children (4–17 years), which is currently underway, will help to address this.

In this chapter, prevalence estimates from the NSMHW have been used to calculate estimates of the numbers of NSW adult residents with mental health problems. Data from the 1997 and 1998 NSW Health Surveys reporting on a measure of psychological distress in the NSW population are presented, as is updated information on trends in suicide and attempted suicide.

For details of the methods used for the 1997 and 1998 NSW Health Surveys, and for analysing suicide death and hospital morbidity data, refer to the Methods section (page 265).

For more information, see: Australian Bureau of Statistics. *Mental health and wellbeing of adults, Australia 1997*. Catalogue no. 4360.0. Canberra: ABS, 1997.

NSW Health Department publications for mental health may be obtained from the Department's Web site at http://www.health.nsw.gov.au/pubs.



Note: Estimated prevalences of the more common mental disorders (anxiety disorders, affective disorders and substance use disorders) in adults (18 years and over in the non-institutionalised population) from the ABS National Survey of Mental Health and Wellbeing were applied to the NSW population for 1997. The percentage of the population with a mental disorder at some time during the 12 months prior to the survey is reported.

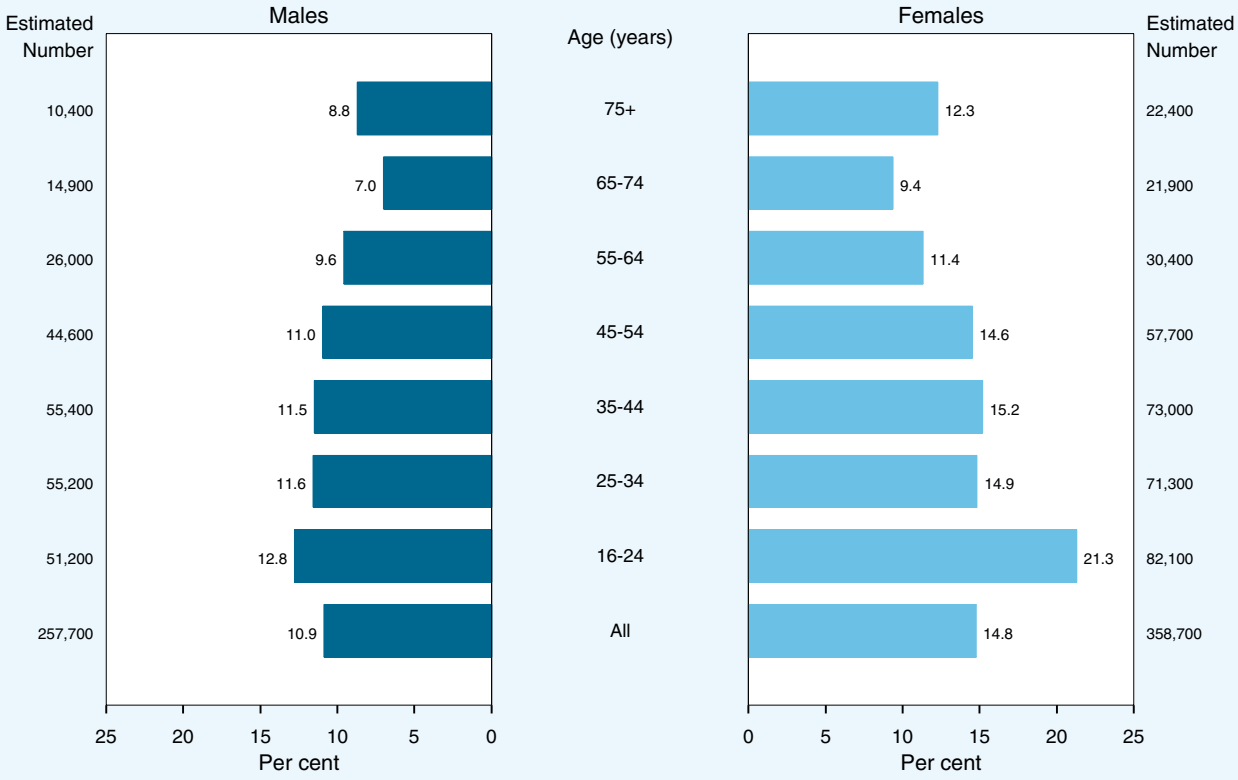
Source: ABS. *Mental health and wellbeing profile of adults, Australia 1997*. Catalogue no. 4360.0. Canberra: ABS, 1997.

- The ABS National Survey of Mental Health and Wellbeing of Adults found that almost one in five adults (18 per cent) had a major mental disorder (defined in this survey as including anxiety, affective and substance use disorders) at some time during the previous 12 months. This corresponds to more than 830,000 NSW adults.
- Mental disorders, as defined, included: anxiety disorders (9.7 per cent), affective disorders (5.8 per cent), depression (5.1 per cent) and substance use disorders (7.7 per cent; 6.5 per cent alcohol-related).
- The prevalence of mental disorders decreased with age, with young people (18–24 years) having the highest prevalence at 27 per cent. The prevalence tapered off with age, decreasing to six per cent for people aged 65 years and over.
- While the overall prevalence of mental disorders was similar for both sexes, men and women were affected by different disorders. Women tended to have higher rates of anxiety and depression, while men were twice as likely as women to have a substance use disorder.
- Higher levels of mental disorder were experienced by unemployed people and those who were separated or divorced.
- People with mental disorders were three times more likely not to be able to undertake normal activity including going to work.
- Very few people consulted health services for mental disorders. Only 38 per cent of people with a mental disorder consulted a health service and 29 per cent consulted a general practitioner in the 12 months prior to the survey.

For more information, see: Australian Bureau of Statistics. *Mental health and wellbeing of adults, Australia 1997*. Catalogue no. 4360.0. Canberra: ABS, 1997.

Australian Institute of Health and Welfare. *Australia's health 1998: the sixth biennial health report of the Australian Institute of Health and Welfare*. Canberra: AIHW, 1998.

Psychosocial distress: K10 score 60 or more,
persons aged 16 years and over, NSW 1997 and 1998



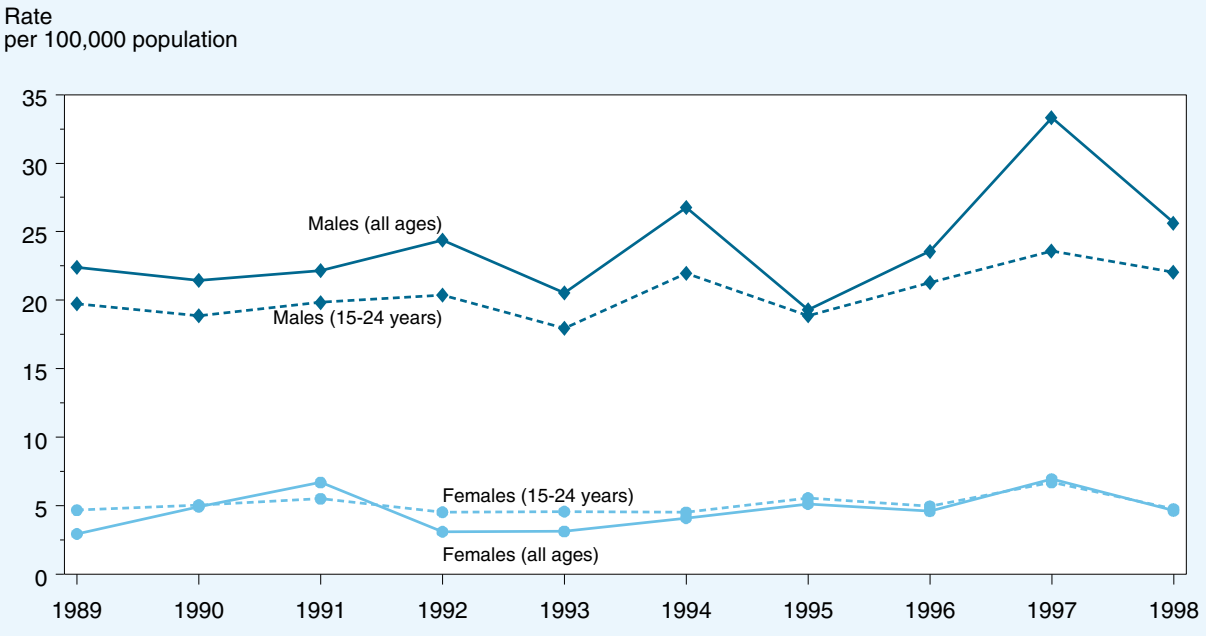
Note: Psychosocial distress was measured using the Kessler 10 (K10) questionnaire. Raw K10 scores were transformed so that the NSW mean was 50 and standard deviation was 10.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- The 1997 and 1998 NSW Health Surveys used a measure (the Kessler 10 or K10) of psychological distress in the NSW population. The K10 is a 10-item questionnaire intended to yield a global measure of 'psychosocial distress' based on questions about the level of anxiety and depressive symptoms in the most recent four-week period. For a more detailed description of the K10 measure, see the Methods Section (page 265).
- The figure shows the percentage of each age group and sex that had scores in a range similar to the proportion of people meeting diagnostic criteria for anxiety and depression in other population studies. The scale therefore considers levels of psychological distress that are about as rare as the anxiety and depressive disorders, but does not mean that the individuals have diagnostic levels of these symptoms.
- Females and young adults reported higher levels of psychological distress in the NSW surveys. This was consistent with the findings of the National Survey of Mental Health and Wellbeing.

For more information, see: NSW Health Survey 1997 electronic report at: http://www.health.nsw.gov.au/public-health/hs97.

Deaths from suicide and self-inflicted injury by sex, NSW 1989 to 1998



		Sex	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Deaths	15–24 years	Males	103	99	103	114	96	124	90	107	150	115
		Females	13	22	30	14	14	18	23	20	30	20
		Persons	116	121	133	128	110	142	113	127	180	135
	All ages	Males	561	538	575	599	533	655	572	651	729	689
		Females	138	151	165	140	143	143	175	160	217	155
		Persons	699	689	740	739	676	798	747	811	946	844
Rate per 100,000	15–24 years	Males	22.4	21.5	22.2	24.4	20.5	26.8	19.3	23.6	33.3	25.6
		Females	2.9	4.9	6.7	3.1	3.1	4.1	5.1	4.6	6.9	4.6
		Persons	12.9	13.4	14.6	13.9	12.0	15.6	12.3	14.2	20.3	15.3
	All ages	Males	19.7	18.9	19.8	20.4	18.0	22.0	18.9	21.3	23.6	22.0
		Females	4.7	5.0	5.5	4.5	4.6	4.5	5.6	5.0	6.7	4.8
		Persons	12.1	11.8	12.5	12.3	11.1	13.1	12.1	13.0	15.0	13.3

Note: Suicide and self-inflicted injury were classified according to the ICD-9-CM external cause codes E950–959. Death rates were age-adjusted using the standard Australian population as at 30 June 1991. Numbers for 1998 include an estimate of the small numbers of deaths which were registered in 1999, data for which were not available at the time of production.

Source: ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

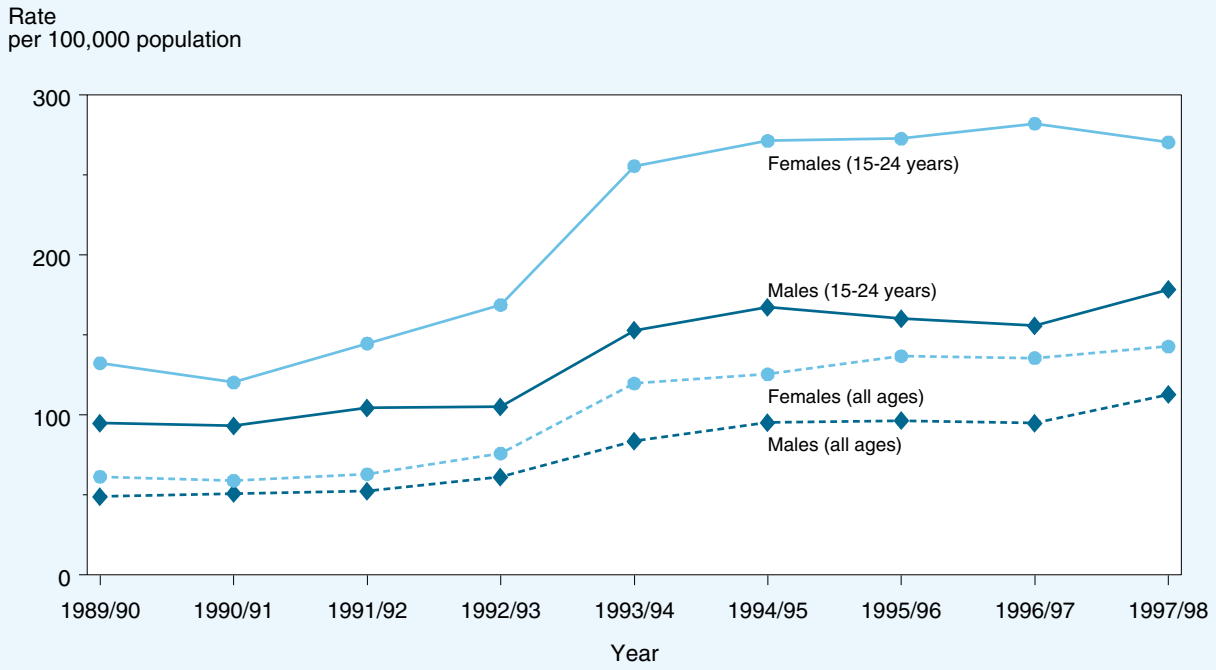
- Between 1989 and 1998, overall suicide rates remained fairly stable in NSW, but increased slightly among males aged 15–24 years, from 22.4 to 24.3 per 100,000.
- In 1998, of the estimated 2,412 deaths in NSW due to injury and poisoning, 844 (35 per cent) were due to suicide. Suicide replaced road vehicle accidents as the leading cause of injury death from 1991 onwards.
- Suicide death rates varied by age and sex. Suicide was about three times more common among males than females, both at young ages and overall. In 1998, males accounted for 82 per cent of all suicide deaths.
- In 1998, the leading methods of suicide death for males were hanging (50 per cent), poisoning by motor vehicle exhaust gas (18 per cent) and firearms (nine per cent). For females the most common methods were hanging (32 per cent) and poisoning by motor vehicle exhaust gas (11 per cent). The proportion of suicide deaths by firearms decreased from 18 per cent in 1989 to seven per cent in 1998.

For more information, see: NSW Health Department. *The NSW Whole of Government Suicide Prevention Strategy*. Sydney: NSW Department of Health, 1999.

NSW Health Department. *We Need to Know More: NSW Suicide Data Report*. Sydney: NSW Health Department, 1999.

Chipps J, Stewart G, and Sayer G. Suicide mortality in NSW: Clients of Mental Health Services. *NSW Public Health Bulletin* 1995; 6:75–81.

Hospital separations for attempted suicide and self-inflicted injury by sex, NSW 1989/90 to 1997/98



		Sex	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
Number	15–24 years	Males	437	433	487	489	709	774	732	703	800
		Females	595	539	645	747	1117	1187	1189	1223	1165
		Persons	1032	972	1132	1236	1826	1961	1921	1926	1965
	All ages	Males	1409	1478	1540	1813	2481	2840	2917	2891	3477
		Females	1758	1700	1831	2221	3498	3709	4097	4097	4347
		Persons	3167	3179	3371	4034	5979	6549	7014	6988	7824
Rate per 100,000	15–24 years	Males	94.8	93.1	104.4	105.0	152.8	167.2	160.0	155.8	178.3
		Females	132.3	120.2	144.5	168.6	255.4	271.2	272.5	281.9	270.3
		Persons	113.1	106.3	123.9	136.1	202.9	218.0	215.1	217.6	223.2
	All ages	Males	48.9	50.8	52.3	61.1	83.7	95.1	96.3	94.9	112.7
		Females	61.3	58.8	62.8	75.8	119.6	125.3	136.6	135.5	142.7
		Persons	54.8	54.5	57.4	68.3	101.2	109.9	116.1	114.8	127.4

Note: Attempted suicide and self-inflicted injury were classified according to the ICD-9-CM external cause codes E950–E959. NSW population estimates as at 31 December each year. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991. Records where sex was not stated were excluded.

Source: NSW Inpatients Statistics Collection and ABS population data (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- For every suicide death, between 30 and 40 people attempt suicide. Very little information is available on suicide attempts, except for those resulting in admission to hospital.
- In 1997/98, suicide attempts accounted for 7,824 episodes of inpatient care, with 56 per cent of these for females and 44 per cent for males. The rate of inpatient episodes in 1997/98 was 113 per 100,000 for men and 143 per 100,000 for women, representing an increase of about 230 per cent for both sexes over the last nine years. Prior to 1991/92, separation rates were stable. The reasons for this increase may include changes in admission policy, or in the determination of the patient's intent.
- In females in 1997/98, hospitalisation for attempted suicide peaked in the 15–30 year age group, while in males, the peak occurred in the 25–29 year age group.
- Of all hospitalised suicide attempts, 5,963 (76 per cent) were due to poisoning by medicinal agents, of which 43 per cent were with tranquillisers or other psychotropic agents. The next most common cause was by cutting or piercing oneself (10 per cent).

For more information, see: NSW Health Department. *The NSW Whole of Government Suicide Prevention Strategy*. Sydney: NSW Department of Health, 1999.

NSW Health Department. *We Need to Know More: NSW Suicide Data Report*. Sydney: NSW Health Department, 1999.

Chapter 4.7

Oral health

- In 1997 and 1998, 67 per cent of NSW kindergarten children had not experienced tooth decay. Kindergarten children had on average one decayed, missing or filled tooth.
- In the same years, 64 per cent of NSW children in year 6 had not experienced tooth decay. Year 6 children also had on average one decayed, missing or filled tooth.
- Hospitalisations for the removal or restoration of teeth among infants and children aged 0–4 years increased slightly between 1994/95 and 1997/98. The main reason for inpatient care in this age group is extensive dental caries, possibly caused by the prolonged daily use of nursing bottles.
- Hospitalisations for the removal or restoration of teeth among children aged 5–14 years also increased over this period. The main reason for inpatient dental care of children in this age category is extensive dental caries.
- Hospitalisations for the removal and restoration of teeth in persons aged 15 years and over increased by around 11 per cent over the period 1990/91 to 1997/98. Most admissions for people aged 15 years and over are for removal of impacted teeth (for example, wisdom teeth).

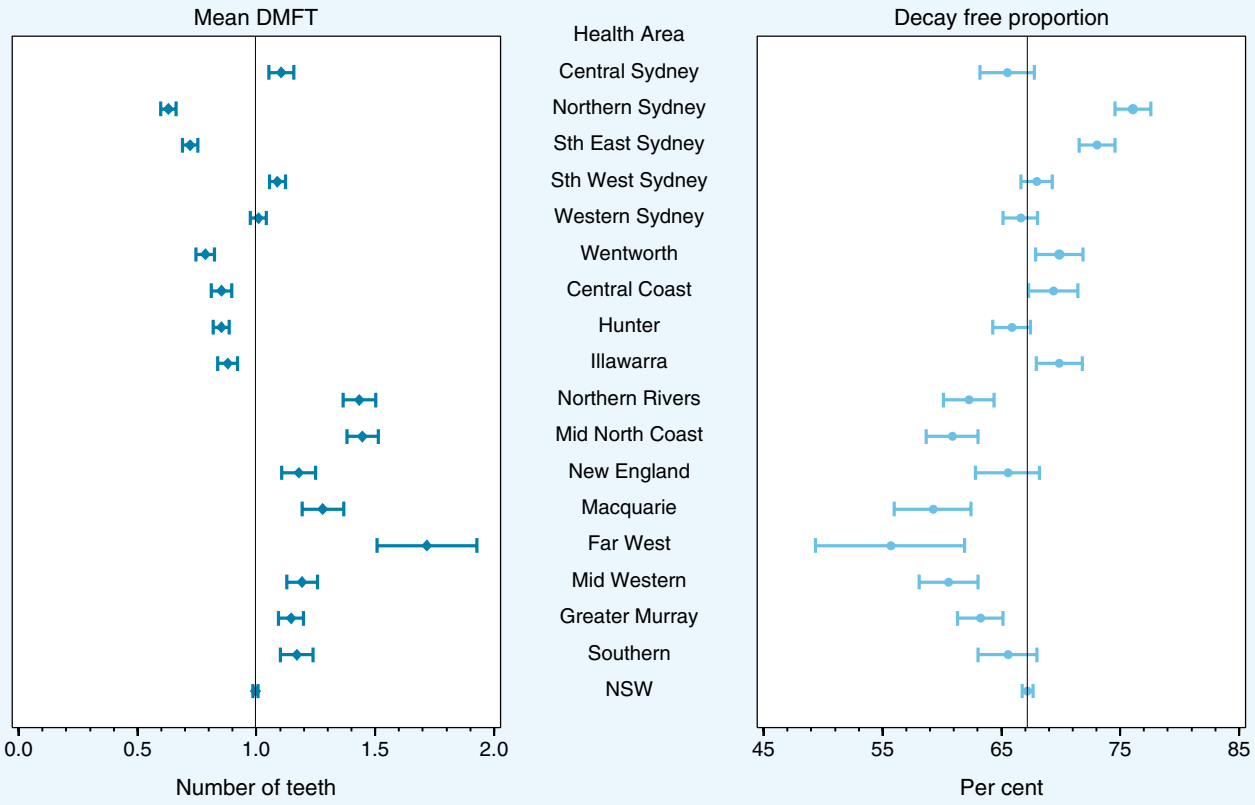
In this chapter

Introduction

Data presented in this chapter come from two main sources. Data on the oral health of children for 1997 and 1998 come from the Save Our Kids Smiles (SOKS) program, a schools-based risk assessment and managed care program for all NSW children in years K, 2, 4, 6 and 8. In 1997 and 1998, about 75 per cent of all kindergarten children and 60 per cent of all year 6 children in NSW were assessed under this program. Data on hospitalisations for the removal or restoration of teeth come from the NSW Inpatient Statistics Collection.

More information on the methods used for analysing data is given in the Methods section (page 265).

Mean DMFT and decay free proportion by Health Area, children in kindergarten, NSW 1997 and 1998



Note: Health Area refers to area of dental service. Upper and lower limits of 95% confidence interval for the point estimate are shown.

Source: NSW Save our Kids Smiles (SOKS) data and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Oral health of children is most commonly assessed by their dental caries (decay) experience. The score for decayed, missing or filled teeth (DMFT) is the sum of the number of teeth affected by decay, including teeth filled or missing because of decay. DMFT scores for kindergarten children reflect caries experience in primary and permanent teeth.
- The figures for 1997 and 1998 come from the Save Our Kids Smiles (SOKS) program, a schools-based risk assessment and managed care program for all NSW children in years K, 2, 4, 6 and 8. In 1997 and 1998, 141,119 kindergarten children were assessed, representing about three quarters of all NSW kindergarten children. The average age was five years six months.
- In 1997 and 1998, kindergarten children had an average of one tooth affected by caries.
- In those years, 67 per cent of kindergarten children assessed by the SOKS program had not experienced tooth decay. The proportion of children who were decay free varied from 56 per cent in the Far West Health Area to 76 per cent in Northern Sydney Health Area.

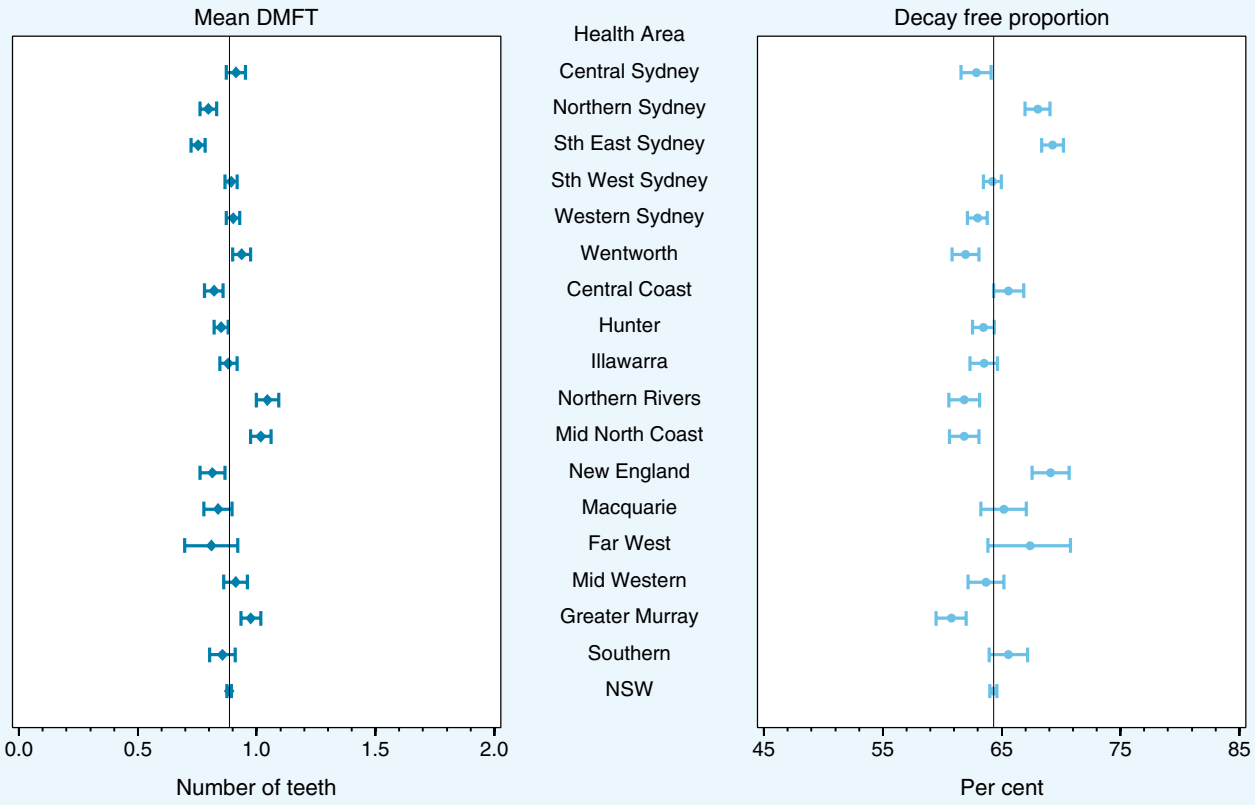
For more information, see: AIHW Dental Statistics and Research Unit. *Child dental health survey, New South Wales, 1996*. Adelaide: DSRU, 1999.

National Health Strategy. *Improving dental health in Australia, National health strategy—Background paper no 9.* Canberra: Commonwealth Department of Health, Housing and Community Services, 1992.

AIHW Dental Statistics and Research Unit at http://www.adelaide.edu.au/socprev-dent/dsru/.

Australian Dental Association Web site at http:// www.ada.org.au.

Mean DMFT and decay free proportion by Health Area, children in year 6, NSW 1997 and 1998



Note: Health Area refers to area of dental service. Upper and lower limits of 95% confidence interval for the point estimate are shown.

Source: NSW Save our Kids Smiles (SOKS) data and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Oral health of children is most commonly assessed by their dental caries (decay). The score for decayed, missing or filled teeth (DMFT) is the sum of the number of teeth affected by decay, including teeth filled or missing because of decay. DMFT scores for children in year 6 reflect caries experience in primary and permanent teeth.
- The figures for 1997 and 1998 come from the Save Our Kids Smiles (SOKS) program, a schools-based risk assessment and managed care program for all NSW children in years K, 2, 4, 6 and 8. Over this period, 112,495 year 6 students were assessed, representing about 60 per cent of all NSW year 6 students. Their average age was 11 years 6 months.
- Year 6 children in NSW in 1997 and 1998 had an average of 0.9 teeth affected by caries.
- In those years, 64 per cent of children in year 6 assessed by the SOKS program had not experienced tooth decay. The proportion of children who were decay-free varied from 61 per cent in the Greater Murray Health Area to 69 per cent in the South Eastern Sydney Health Area.

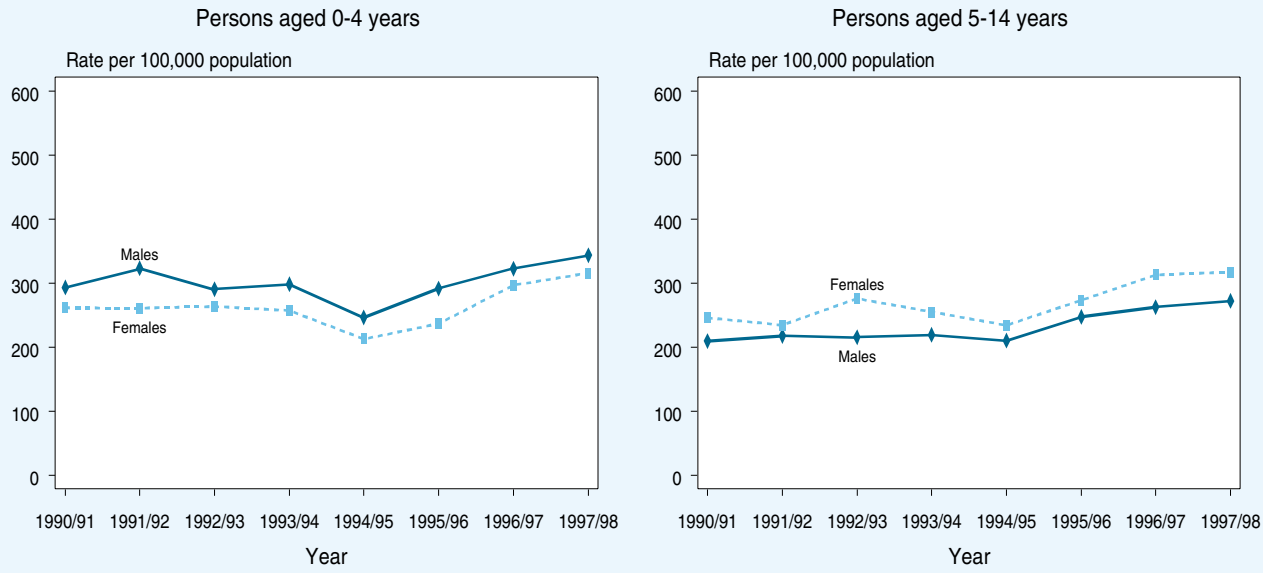
For more information, see: AIHW Dental Statistics and Research Unit. *Child dental health survey, New South Wales, 1996.* Adelaide: DSRU, 1999.

National Health Strategy. *Improving dental health in Australia, National health strategy—Background paper no 9.* Canberra: Commonwealth Department of Health, Housing and Community Services, 1992.

Short LM. Oral health care in Australia—a public health perspective. Editorial. *Aust J Public Health* 1995; 19(1): 5–6.

Australian Dental Association Web site at http://www.ada.org.au.

Hospital separations for removal or restoration of teeth, persons aged 0-4 and 5-14 years, NSW 1990/91 to 1997/98



		Sex	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
0–4 years	Number	Males	644	719	654	673	557	658	727	770
		Females	548	552	562	550	456	507	635	672
		Persons	1192	1271	1216	1223	1013	1165	1362	1442
	Rate per 100,000	Males	293.1	323.0	290.7	298.1	246.5	291.8	322.9	343.7
		Females	261.5	261.0	263.6	257.2	212.7	236.6	296.8	315.6
		Persons	277.7	292.8	277.5	278.2	230.0	264.9	310.2	330.0
5–14 years	Number	Males	900	941	937	955	923	1099	1175	1224
		Females	1004	963	1141	1061	982	1159	1338	1361
		Persons	1904	1905	2078	2016	1905	2258	2513	2585
	Rate per 100,000	Males	209.4	217.8	215.6	219.0	210.0	247.3	262.5	272.2
		Females	245.9	234.4	275.8	255.1	234.0	273.2	312.9	317.4
		Persons	227.2	225.8	244.9	236.6	221.7	260.0	287.2	294.3

Note: Removal or restoration of teeth was classified according to the ICD-9 primary procedure code 23. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Sources: NSW Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

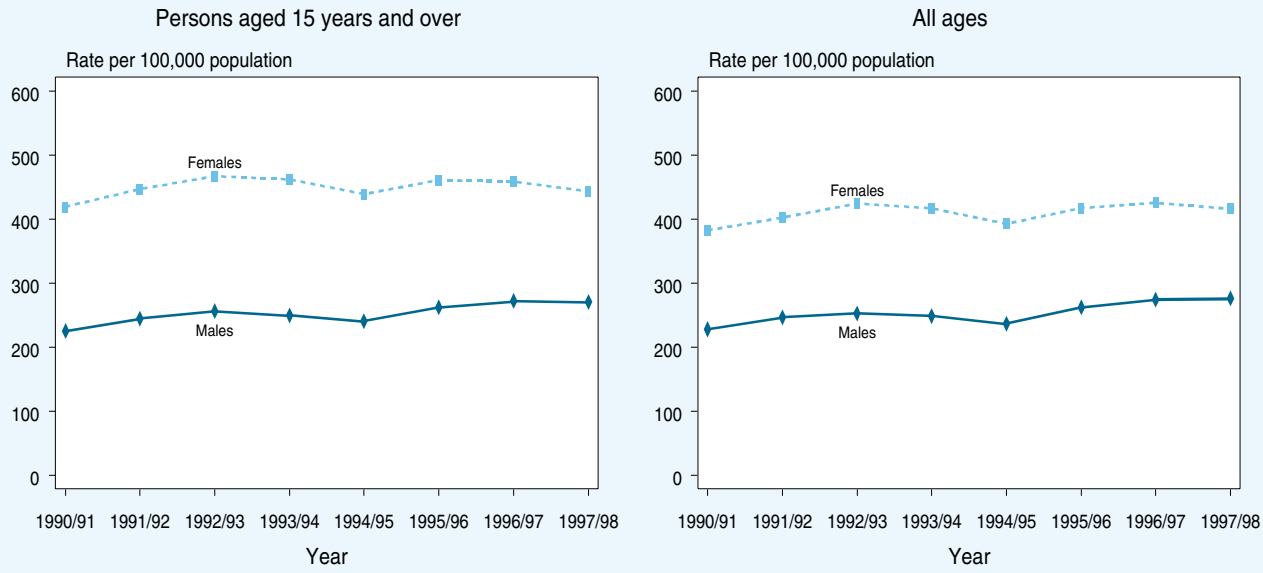
- About three in every thousand children aged 0–14 years are admitted to hospital each year for removal or restoration of teeth. In 1997/98, 57 per cent of these hospitalisations were for dental caries and 38 per cent were for removal of impacted teeth.
- The main reason for dental care of infants and young children is rampant dental caries possibly caused by the prolonged daily use of nursing bottles.
- The predominant reason for inpatient dental care of children aged 5–14 years is extensive dental caries. Among younger children (5–6 years) this is likely to be the result of prolonged nursing bottle use, while among older children, poor dietary and oral hygiene practices are major contributing factors. Some children may also be admitted to hospital because of behavioural problems.

For more information, see: National Health Strategy. *Improving dental health in Australia, National health strategy—background paper no 9.* Canberra: Commonwealth Department of Health, Housing and Community Services, 1992.

Australian Dental Association Web site at http://www.ada.org.au.

Queensland University of Technology—Oral health Web site at: www.hlth.qut.edu.au/ph/phlinks/useful.htm.

Hospital separations for removal or restoration of teeth, persons aged 15 years and over and persons of all ages, NSW 1990/91 to 1997/98



		Sex	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
15 years and over	Number	Males	5150	5615	5862	5691	5496	6011	6264	6293
		Females	9331	9975	10391	10237	9745	10253	10259	10009
		Persons	14482	15590	16253	15928	15241	16264	16523	16302
	Rate per 100,000	Males	225.2	244.8	256.1	249.6	240.6	262.3	272.0	270.5
		Females	419.3	447.1	467.2	462.2	439.2	461.2	458.8	443.8
		Persons	320.2	344.2	359.8	354.1	338.4	360.2	364.1	355.8
All ages	Number	Males	6694	7275	7453	7319	6976	7768	8166	8287
		Females	10883	11490	12094	11848	11183	11919	12232	12042
		Persons	17577	18766	19547	19167	18159	19687	20398	20329
	Rate per 100,000	Males	227.9	246.7	252.7	248.7	236.6	262.3	274.4	276.1
		Females	382.5	402.5	424.4	417.0	392.7	417.3	425.7	416.0
		Persons	303.5	323.2	337.1	331.4	313.4	338.6	348.9	345.0

Note: Removal or restoration of teeth was classified according to the ICD-9 primary procedure code 23. Hospital separation rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In 1997/98, among young adults aged 15–24 years, 86 per cent of hospital separations for removal or restoration of teeth were for removal of impacted teeth and three per cent were for dental caries.
- Among adults aged 25 years and over, 54 per cent of these hospital separations were for removal of impacted teeth and 22 per cent were for dental caries.
- The hospital separation rate for the removal or restoration of teeth in persons aged over 15 years increased by 11 per cent over the period 1990/91 to 1997/98.
- The hospital separation rate for females in this age group was consistently about one-and-a-half times the male rate.

For more information, see: National Health Strategy. *Improving dental health in Australia, National health strategy—background paper no 9.* Canberra: Commonwealth Department of Health, Housing and Community Services, 1992.

Australian Dental Association Web site at http://www.ada.org.au.

Chapter 4.8

Communicable diseases

- Hepatitis C was the condition most frequently reported in 1998 (7,700 cases), as it has been each year since it became notifiable in 1991.
- The notifiable conditions least frequently reported in 1998 were: botulism, chancroid, diphtheria, lymphogranuloma venereum (LGV), donovanosis, plague, polio, rabies, typhus, viral haemorrhagic fevers and yellow fever (0 cases).
- Measles notifications decreased from 273 in 1997 to 119 in 1998.
- Pertussis notifications almost halved in 1998 compared to the previous year, from 4,252 in 1997 to 2,315 in 1998.
- *Haemophilus influenzae* type b (Hib) notifications declined substantially, from 38 in 1994 to 11 in 1998, following the introduction of an effective vaccine.
- In 1997 and 1998, 59 per cent of men and 61 per cent of women aged 65 years and over reported that they had been immunised against influenza in the previous 12 months.
- Gonorrhoea notifications continued to increase, from 637 in 1997 to 1,050 in 1998. The increase was most marked among young inner-Sydney men.
- AIDS notifications continued to decline (to 149 in 1998), most likely due to the effectiveness of combined antiretroviral therapies. There was only a modest decline in reports of newly diagnosed HIV infections (to 371 in 1998).
- A steady decline occurred in reported hepatitis A during 1998, following a large outbreak among young inner-Sydney men in late 1997 and early 1998.
- Cryptosporidiosis notifications increased in late 1997–early 1998, as the result of a large outbreak linked to swimming in contaminated pools. However, no increase in cases was seen later that year following the identification of *Cryptosporidium* and *Giardia* parasites in treated drinking water—the 'Sydney water crisis'.
- Ross River virus notifications decreased dramatically, from 1,596 cases in 1997 to 580 in 1998.
- Salmonellosis notifications continued the gradual increase seen in recent years.

In this chapter

Introduction

In NSW, communicable diseases are monitored using data obtained through a notification process, as well as NSW Inpatient Statistics Collection data and Australian Bureau of Statistics mortality data. Under the Public Health Act 1991, laboratories, hospitals, medical practitioners, schools and child care centres must notify the Department or their local Public Health Unit of diagnoses of certain diseases. These procedures are described in Health Department Circular 98/94. For some diseases, a notification triggers a public health response by the Public Health Unit, such as prophylactic immunisation or treatment of contacts. Notifications also provide valuable information that is used for planning and evaluation of prevention programs. Summaries are published in the *NSW Public Health Bulletin* on a monthly and annual basis and may be obtained from the NSW Health Department's Web site at http://www.health.nsw.gov.au/public-health/phb/phb.html

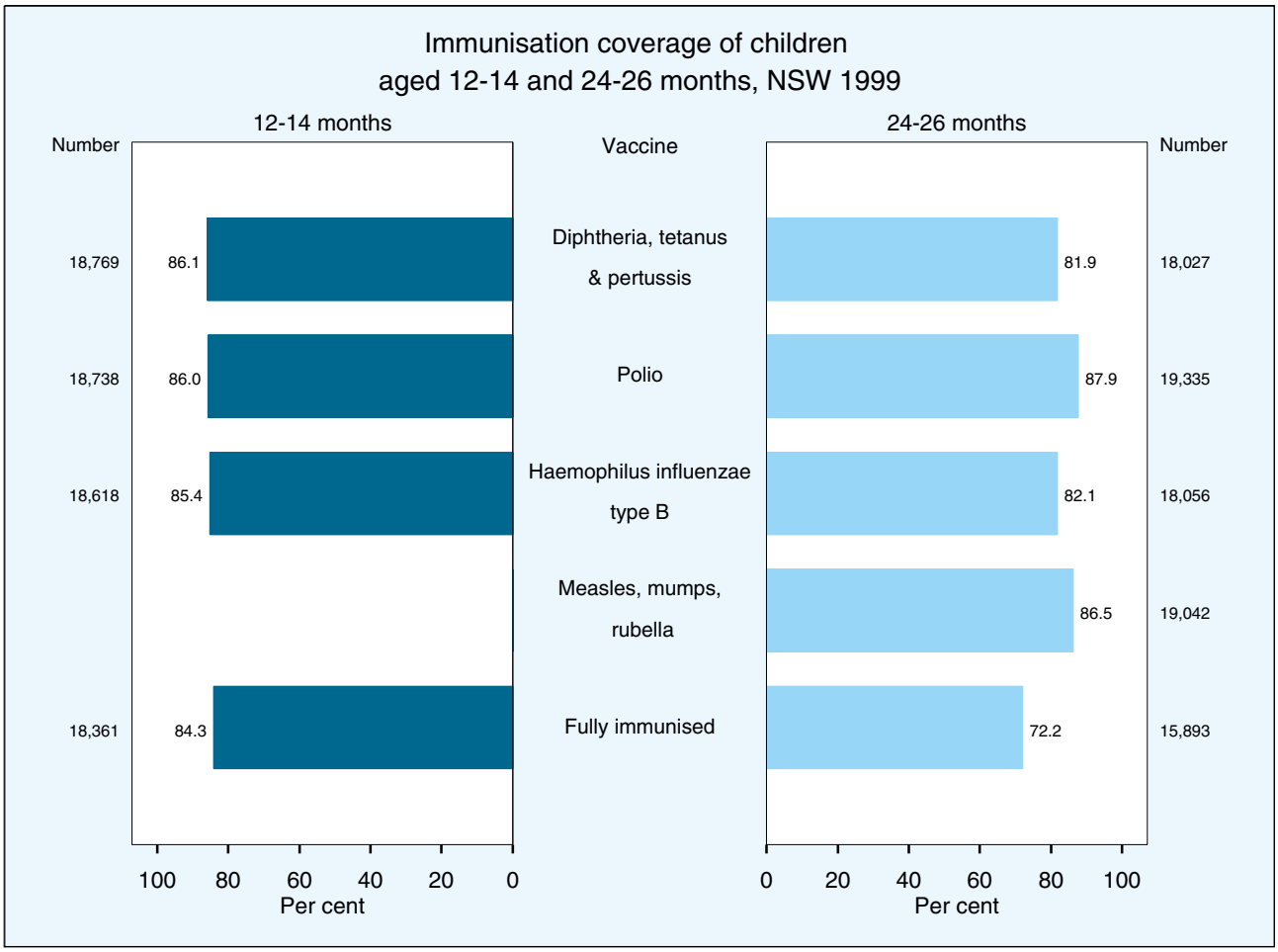
The number of notifications received is almost always an underestimate of the number of cases that actually occurred. For a condition to be notified, a patient must seek medical help, be diagnosed with the disease, in some cases must have the appropriate laboratory tests done, and then the diagnosis must be reported to the Department or Public Health Unit. Nonetheless, communicable disease notifications provide valuable information on disease patterns in NSW.

Notifications for infectious diseases, NSW 1994 to 1998

Disease/condition	Number					Rate per million population				
	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
Adverse event after immunisation	40	28	55	70	94	6.6	4.6	8.9	11.2	14.8
Arboviral infection	382	535	1227	1804	777	63.0	87.3	197.8	287.6	122.7
Brucellosis	4	2	1	3	3	0.7	0.3	0.2	0.5	0.5
Chlamydia	26	32	24	63	552	4.3	5.2	3.9	10.0	87.2
Cholera	0	1	3	1	1	0.0	0.2	0.5	0.2	0.2
Cryptosporidiosis	0	0	23	157	1126	0.0	0.0	3.8	26.2	186.9
Foodborne illness	213	270	211	255	201	35.1	44.1	34.0	40.7	31.7
Gastroenteritis (in an institution)	296	1359	554	939	739	48.8	221.8	89.3	149.7	116.7
Giardiasis	0	0	2	1	404	0.0	0.0	0.3	0.2	63.8
Gonorrhoea	355	427	523	636	1047	60.7	72.7	88.1	106.0	172.8
Hepatitis A	577	616	957	1428	926	97.8	103.3	159.8	234.4	152.4
Hepatitis B	4208	4282	3717	3353	3258	702.0	707.7	607.1	542.8	521.1
Hepatitis C	8127	7154	7312	7292	7614	1357.1	1184.1	1197.4	1187.3	1233.4
Hepatitis D	19	19	9	11	4	3.1	3.1	1.5	1.8	0.6
Hepatitis E	2	0	3	6	4	0.3	0.0	0.5	1.0	0.6
Hepatitis, viral (not specified)	1	2	3	1	2	0.2	0.3	0.5	0.2	0.3
Haemophilus influenzae type b	61	29	14	17	11	10.1	4.8	2.2	2.8	1.9
Hydatid disease	13	12	12	2	0	2.1	2.0	1.9	0.3	0.0
Legionnaires' disease	60	74	74	33	46	9.6	11.3	11.3	4.7	6.6
Leprosy	3	3	2	0	1	0.5	0.5	0.3	0.0	0.2
Leptospirosis	14	6	33	33	50	2.3	1.0	5.3	5.3	7.9
Listeriosis	10	14	22	23	28	1.7	2.3	3.5	3.7	4.4
Malaria	184	96	203	172	160	30.4	15.7	32.7	27.4	25.3
Measles	1485	596	191	273	119	254.9	101.7	32.0	46.4	20.1
Meningococcal disease	142	113	161	219	185	23.4	18.4	25.9	34.9	29.2
Mumps	11	14	27	29	39	1.8	2.3	4.4	4.6	6.2
Mycobacterial (atypical)	520	469	413	365	318	85.8	76.5	66.6	58.2	50.2
Mycobacterial tuberculosis	393	443	411	420	391	64.8	72.3	66.2	67.0	61.7
Whooping cough (pertussis)	1408	1370	1158	4252	2314	232.3	223.6	186.6	677.8	365.5
Q fever	265	201	287	258	235	44.7	32.7	46.9	41.4	37.2
Rubella	231	2316	632	153	78	40.0	401.8	108.5	26.0	13.1
Salmonella infection	1095	1361	1221	1694	1808	183.3	225.6	202.0	278.3	296.8
Syphilis	990	845	669	523	628	163.4	137.9	107.8	83.4	99.2
Tetanus	4	0	1	3	3	0.7	0.0	0.2	0.5	0.5
Typhoid and paratyphoid	35	39	45	33	27	5.8	6.4	7.3	5.3	4.3

Note: Data as at 8 December 1999. ABS population estimates as at 30 June each year. AIDS/HIV notifications are reported on p.254.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.



Age	Vaccine	No.	%	Age	Vaccine	No.	%
12–14 months	Diphtheria, tetanus & pertussis	18769	86.1	24–26 months	Diphtheria, tetanus & pertussis	18027	81.9
	Polio	18738	86.0		Polio	19335	87.9
	Haemophilus influenzae type B	18618	85.4		Haemophilus influenzae type B	18056	82.1
	Measles, mumps, rubella	n/a	n/a		Measles, mumps, rubella	19042	86.5
	Fully immunised	18361	84.3		Fully immunised	15893	72.2

Note: Measles, Mumps, Rubella vaccine is recommended at 12 months of age. To ensure that late vaccinations are included, coverage data are presented for children aged 24–26 months only. n/a=not applicable.

Source: Australian Childhood Immunisation Register (unpublished data).

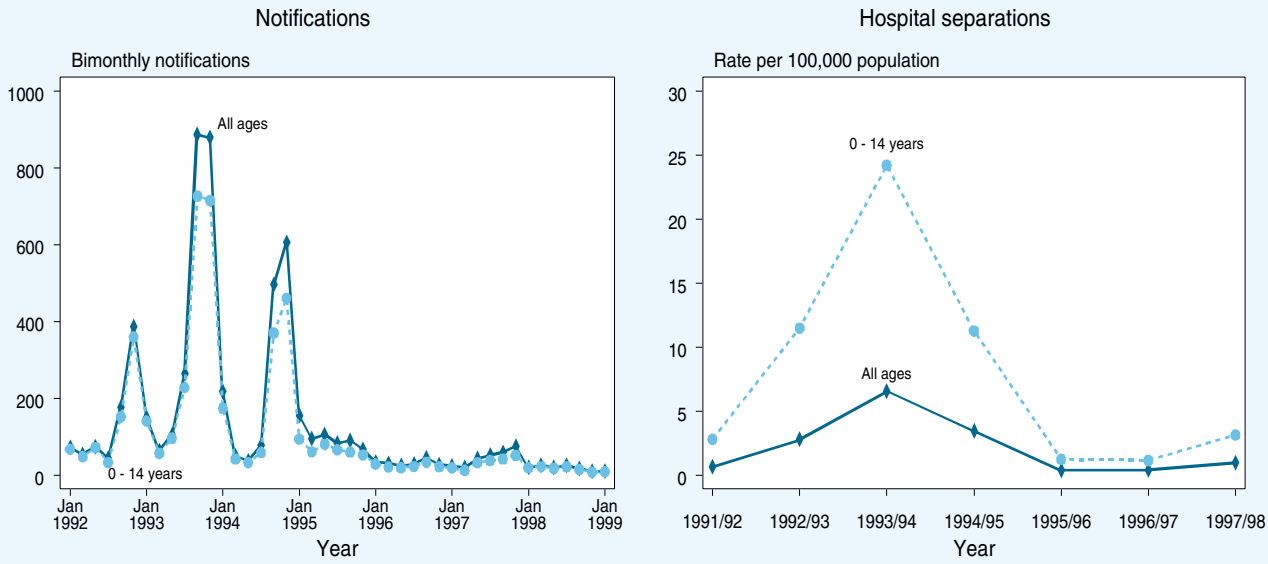
- Despite substantial progress in reducing the incidence of vaccine-preventable diseases in NSW, increases in immunisation levels are needed to further reduce and finally eliminate these causes of illness and death.
- Safe and effective vaccines are now freely available. However, the growing number of vaccines and the complexity of immunisation schedules make delivering appropriate immunisations on time increasingly difficult for service providers and parents.
- For these reasons, the Commonwealth Government established the Australian Childhood Immunisation Register (ACIR) in 1996. Data from the Register provide information on the immunisation status of all children under seven years of age. The Register also forms the basis for an optional reminder system to inform parents when the next immunisation is due.
- ACIR data for NSW indicate that 84.3 per cent of children aged 12–14 months and 72.2 per cent of children aged 24–26 months were fully immunised in 1999. This compares with national figures of 86.5 per cent and 75.9 per cent, respectively.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

The *NSW Public Health Bulletin* includes monthly reports of notifiable infectious diseases at http://www.health.nsw.gov.au/public-health/phb/phb.html.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm

Measles: notifications and hospital separations, NSW 1992 to 1998



Notifications		Sex	1994	1995	1996	1997	1998
Number	0–14	Males	566	202	77	106	64
		Females	569	212	71	89	41
		Persons	1139	415	148	196	105
	All ages	Males	730	328	93	136	68
		Females	751	267	98	136	51
		Persons	1485	596	191	273	119
Rate per million	0–14	Males	850.2	302.1	114.8	158.0	95.9
		Females	900.3	332.9	111.3	139.2	64.6
		Persons	877.8	317.9	113.1	149.6	80.6
	All ages	Males	244.7	110.4	30.6	45.1	22.4
		Females	263.9	92.4	33.4	47.3	17.7
		Persons	254.9	101.7	32.0	46.4	20.1

Separations		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Number	0–14	Males	165	81	11	8	21
		Females	149	66	5	7	20
		Persons	314	147	16	15	41
	All ages	Males	193	107	16	12	28
		Females	190	94	6	12	29
		Persons	383	201	22	24	57
Rate per 100,000	0–14	Males	24.8	12.1	1.6	1.2	3.1
		Females	23.6	10.4	0.8	1.1	3.1
		Persons	24.2	11.3	1.2	1.1	3.1
	All ages	Males	6.4	3.6	0.5	0.4	0.9
		Females	6.7	3.3	0.2	0.4	1.0
		Persons	6.6	3.4	0.4	0.4	1.0

Note: Data as at 8 December 1999, and included persons whose sex was not stated. Rates were age-adjusted using the Australian population as at 30 June 1991. Measles separations were classified according to the ICD-9 code 055.

Source: NSW Notifiable Diseases Database, NSW Inpatients Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

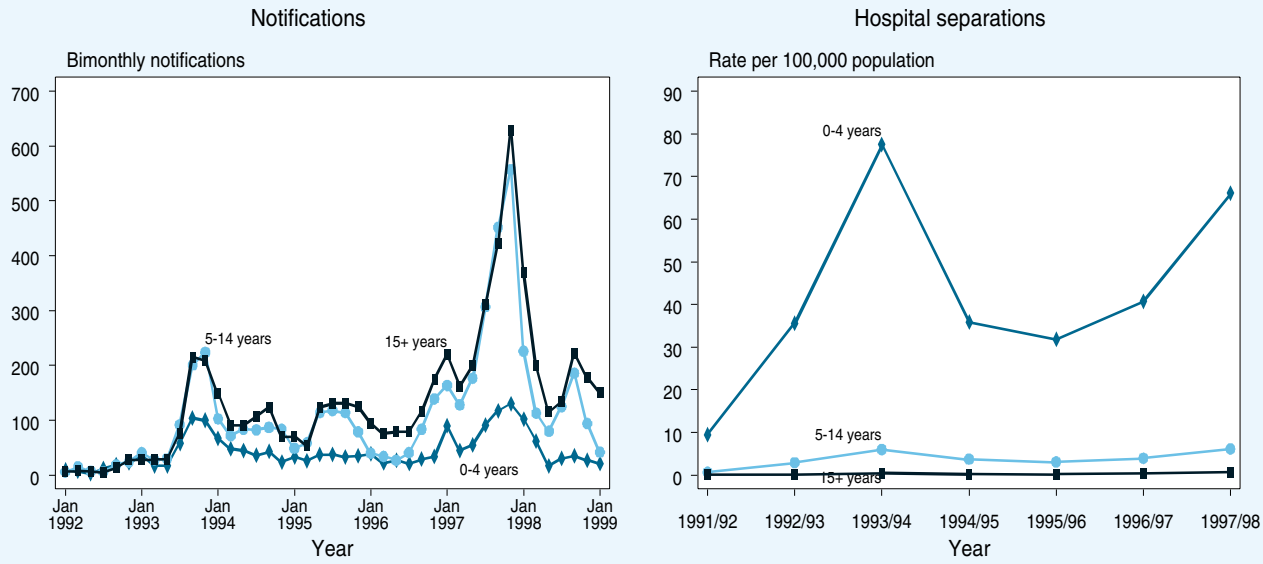
- Measles is an infectious disease characterised by fever, rash, runny nose, sore eyes and cough. Serious complications, including pneumonia, encephalitis and death, can follow infection.
- All doctors, laboratories, hospitals schools and child care centres are required by law to notify cases of measles to the NSW Health Department.
- NSW experienced its last major epidemic of measles in 1993–94. Case notifications in 1996 were substantially down on previous years, most likely because of high rates of either natural or induced immunity.
- Between 1989 and 1998, six deaths of NSW residents were attributed to measles and eight deaths to subacute sclerosing panencephalitis, a devastating long-term complication of measles.
- In 1998, as part of the National Measles Immunisation campaign, the recommended age for the second dose of measles vaccine was reduced from 12–16 to 4–5 years of age. As this change in policy may have led to some primary school children missing out on their second dose, all were offered measles immunisation. Immunisation clinics were run in 2,503 primary schools in NSW.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

The *NSW Public Health Bulletin* includes monthly reports of notifiable infectious diseases at http://www.health.nsw.gov.au/public-health/phb/phb.html.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm.

Pertussis: notifications and hospital separations, NSW 1992 to 1998



Notifications		Sex	1994	1995	1996	1997	1998
Number	0–4 years	Males	130	108	83	245	142
		Females	133	93	87	282	130
		Persons	263	202	172	529	273
	5–14 years	Males	261	249	163	864	399
		Females	252	284	201	918	422
		Persons	513	533	365	1784	824
	15+ years	Males	260	269	224	809	542
		Females	370	365	397	1122	673
		Persons	632	635	621	1939	1217
Rate per million	0–4 years	Males	57.5	47.8	36.8	109.0	63.7
		Females	62.1	43.4	40.7	132.0	61.3
		Persons	59.7	45.9	39.2	120.6	62.8
	5–14 years	Males	597.6	563.7	365.6	1924.5	885.1
		Females	605.0	675.2	472.3	2145.5	982.6
		Persons	601.2	618.1	418.8	2034.6	936.1
	15+ years	Males	111.4	112.7	92.3	332.8	218.4
		Females	156.0	152.6	162.2	459.9	268.9
		Persons	134.0	132.5	127.2	397.7	244.1

Separations		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Number	0–4 years	Males	164	84	59	88	150
		Females	177	74	81	91	139
		Persons	341	158	140	179	289
	5–14 years	Males	24	10	15	8	36
		Females	27	22	12	27	18
		Persons	51	32	27	35	54
	15+ years	Males	10	4	4	11	21
		Females	12	6	6	8	16
		Persons	22	10	10	19	37
Rate per 100,000	0–4 years	Males	72.6	37.2	26.2	39.1	67.0
		Females	82.8	34.5	37.8	42.5	65.3
		Persons	77.6	35.9	31.8	40.8	66.1
	5–14 years	Males	5.5	2.3	3.4	1.8	8.0
		Females	6.5	5.3	2.8	6.3	4.2
		Persons	6.0	3.7	3.1	4.0	6.2
	15+ years	Males	0.4	0.2	0.2	0.5	0.9
		Females	0.5	0.3	0.3	0.4	0.6
		Persons	0.5	0.2	0.2	0.4	0.7

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991. Pertussis separations were classified according to the ICD-9 code 033.

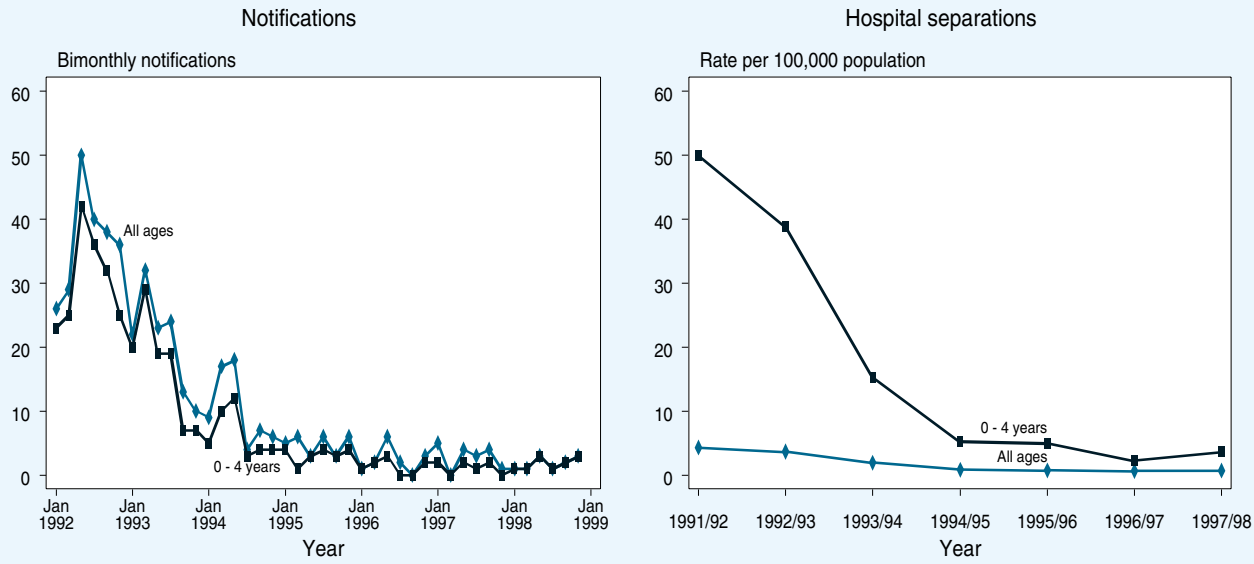
Source: NSW Notifiable Diseases Database, Inpatients Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Pertussis, or whooping cough, is caused by infection with *Bordetella pertussis*. Illness in children is characterised by fits of violent coughing, followed by a whooping sound as the child gasps for breath. The cough may last several weeks. The illness is particularly serious in young babies.
- NSW experienced a large outbreak of pertussis in 1997. In the last quarter of 1996 and first half of 1997, five NSW infants died of pertussis.
- A 1995 Australian Bureau of Statistics survey indicated that only 62 per cent of NSW children aged three months to six years were fully immunised against pertussis.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

The *NSW Public Health Bulletin* includes monthly reports of notifiable infectious diseases at http://www.health.nsw.gov.au/public-health/phb/phb.html.

Invasive Haemophilus influenzae infections: notifications and hospital separations, NSW 1992 to 1998



Notifications		Sex	1994	1995	1996	1997	1998
Number	0–4	Males	22	12	5	4	5
		Females	16	7	3	3	6
		Persons	38	19	8	7	11
	All ages	Males	34	16	7	9	5
		Females	27	13	7	8	6
		Persons	61	29	14	17	11
Rate per million	0–4	Males	97.3	53.2	22.2	17.8	22.4
		Females	74.7	32.6	14.0	14.0	28.3
		Persons	86.3	43.2	18.2	16.0	25.3
	All ages	Males	11.1	5.1	2.3	2.9	1.6
		Females	8.9	4.4	2.1	2.7	2.1
		Persons	10.1	4.8	2.2	2.8	1.9

Separations		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Number	0–4	Males	42	12	15	7	4
		Females	25	11	7	3	12
		Persons	67	23	22	10	16
	All ages	Males	68	28	25	25	14
		Females	49	24	21	15	29
		Persons	117	52	46	40	43
Rate per 100,000	0–4	Males	18.6	5.3	6.7	3.1	1.8
		Females	11.7	5.1	3.3	1.4	5.6
		Persons	15.2	5.2	5.0	2.3	3.7
	All ages	Males	2.3	1.0	0.8	0.8	0.5
		Females	1.6	0.8	0.7	0.5	1.0
		Persons	1.9	0.8	0.7	0.6	0.7

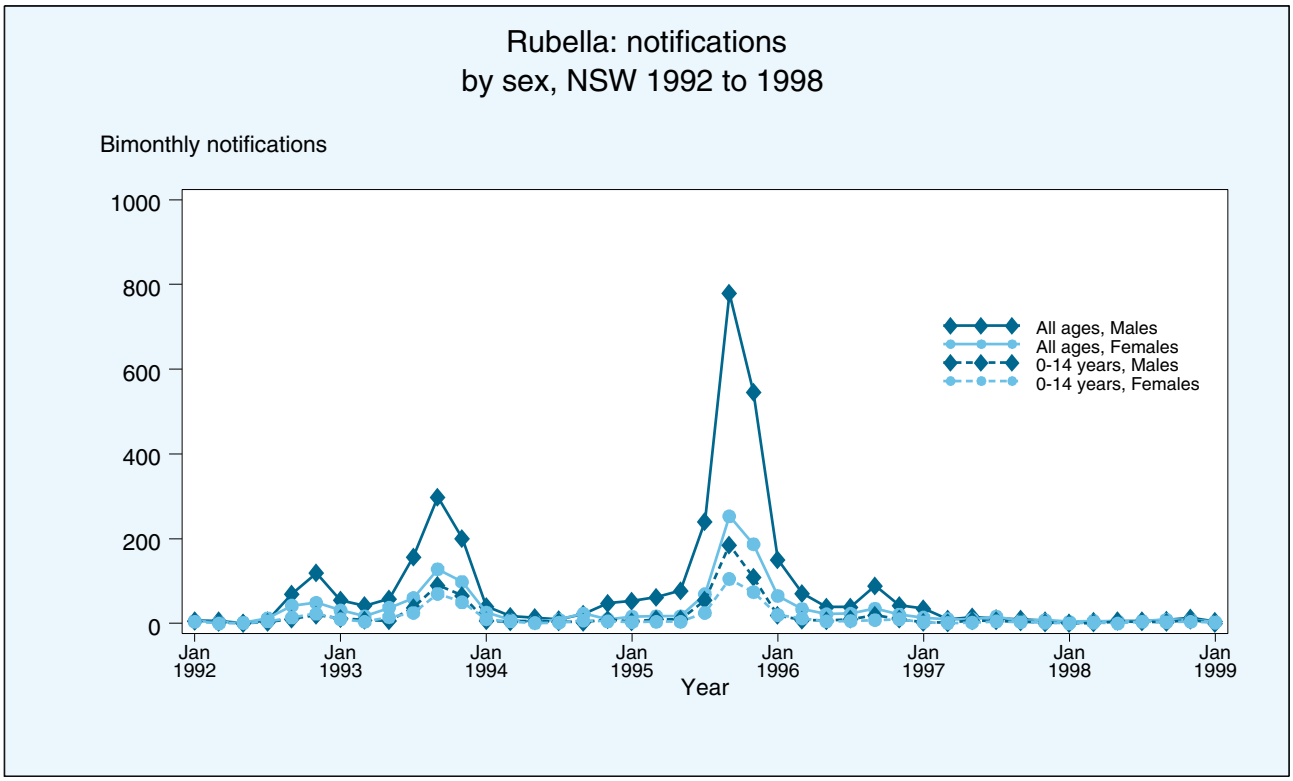
Note: Data as at 8 December 1999. *Haemophilus influenzae* separations were classified according to the ICD-9 codes 038.41,041.5, 320.0, 464.3 with 041.5, and 711.0 with 041.5. *Haemophilus influenzae* type b is not specified as an ICD-9 code. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Notifiable Diseases Database, Inpatient Statistics Collection and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- *Haemophilus influenzae* type b (Hib) is a serious disease in small children and, until the early 1990s, was the most common cause of bacterial meningitis in children under five years of age.
- Laboratories, hospitals, schools and child care centres are required by law to notify cases of Hib invasive disease to NSW Health.
- Notifications for Hib disease, particularly among children aged under five years, have declined substantially in NSW and throughout Australia since an effective vaccine was introduced in 1993.
- Hospitalisations due to *Haemophilus influenzae* (type unspecified) infection have also declined dramatically since 1993. Between 1989 and 1998, 15 deaths of NSW children were attributed to *Haemophilus influenzae* (type unspecified).
- Rates of disease can be further reduced through complete immunisation of small children. Immunisation is recommended for most children at ages two, four, six and 18 months of age, and for Aboriginal and Torres Strait Islander children (with the special PRP–OMP vaccine) at two, four and 12 months of age.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm



Notifications		Sex	1992	1993	1994	1995	1996	1997	1998
Number	0–14 years	Males	42	220	32	373	74	24	21
		Females	47	174	30	215	61	16	13
		Persons	89	394	62	588	135	40	34
	All ages	Males	210	811	150	1757	432	89	40
		Females	114	371	81	559	200	64	38
		Persons	324	1182	231	2316	632	153	78
Rate per million	0–14 years	Males	63.9	334.2	48.2	556.5	109.6	35.5	31.2
		Females	75.3	278.3	47.6	337.5	94.9	24.8	20.3
		Persons	69.4	307.0	47.9	449.7	102.4	30.3	25.9
	All ages	Males	71.8	277.0	51.6	605.9	148.1	30.3	13.5
		Females	39.5	128.4	28.0	190.4	67.6	21.5	12.8
		Persons	55.8	203.9	40.0	401.8	108.5	26.0	13.1

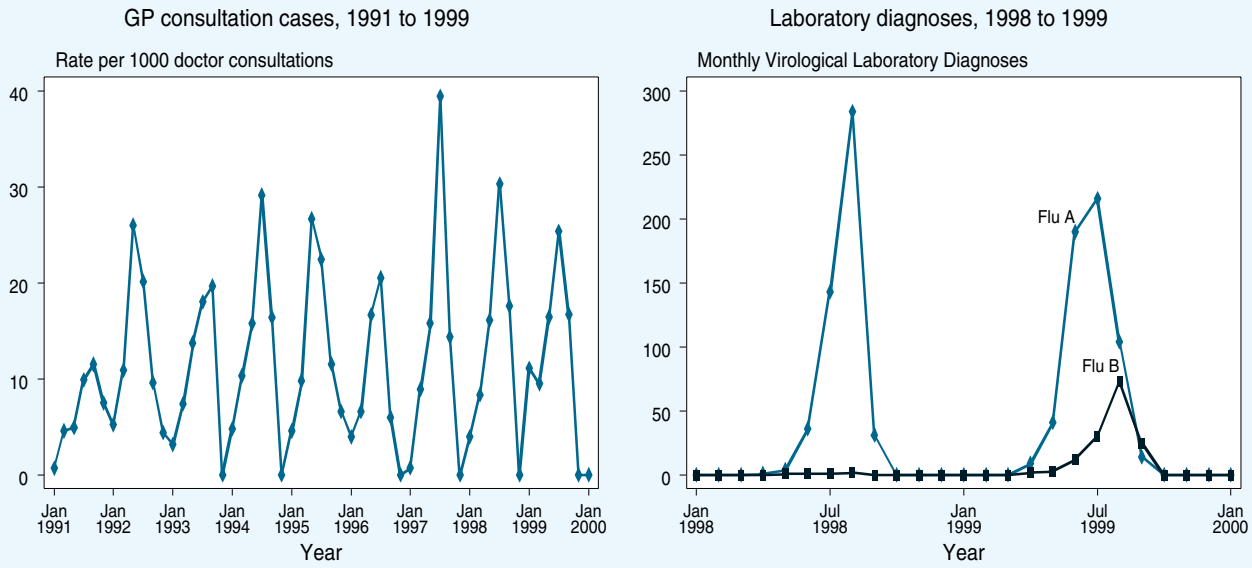
Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Rubella (also known as German measles) is an infectious disease caused by a virus. Rubella is generally a mild illness, characterised by a fever and rash. It is of major public health concern because fetal infection (resulting from infection in non-immune pregnant women) causes birth defects.
- Laboratories, schools and child care centres are required by law to notify cases of rubella to the NSW Health Department.
- Major epidemics of rubella occurred in NSW in 1993 and 1995. The 1995 outbreak was fuelled largely by infections among adolescent boys, many of whom had missed out on rubella immunisation as babies.
- In NSW, rubella vaccination has been routinely offered to teenage girls in early high school in a largely successful attempt to minimise the risk of fetal infections. Since 1989, rubella vaccine has been recommended for all children at age 12 months (as part of measles-mumps-rubella or MMR vaccine), and in 1994 to all high school children (as MMR).
- In 1998, as part of the National Measles Immunisation campaign, the recommended age for the second dose of MMR vaccine was reduced from 12–16 to 4–5 years of age. As this change in policy may have lead to some primary school children missing out on their second dose, all were offered immunisation. Immunisation clinics were run in 2,503 primary schools in NSW.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook.* 6th ed. Canberra: NHMRC, 1997.

Influenza: GP consultation cases and monthly virological diagnoses, NSW



Year	Cases	Consultations	Rate per 1,000 consultations
1991	671	86146	7.8
1992	4182	269069	15.5
1993	3740	327633	11.4
1994	7414	436381	17.0
1995	5927	394250	15.0
1996	2940	250959	11.7
1997	3656	172076	21.2
1998	1801	101977	17.7
1999	1544	84021	18.4

Year	Influenza type	Laboratory diagnoses
1998	A	499
	B	5
1999	A	574
	B	145

Source: NSW Sentinel GP Network and all major public health laboratories. Communicable Disease Surveillance and Control Unit, NSW Health Department.

- Influenza (or 'flu'), caused by influenza virus, is characterised by abrupt onset of fever, myalgia, headache, sore throat and acute cough, and can cause extreme malaise lasting several days. Secondary bacterial pneumonia frequently complicates influenza in individuals whose medical condition makes them vulnerable to pneumonia. Such persons are at high risk in epidemics and may die of pneumonia or cardiac failure.
- Influenza viruses cause major epidemics of respiratory disease. These occur when a virus undergoes a mutation so that people's existing immunity is not effective, or less effective, against the new strain.
- Influenza is not a notifiable condition. During the winter months (the 'influenza season') each year, data are collected from several sources for timely monitoring of epidemic activity. These include 50–100 'sentinel' general practitioners and all major public laboratories, who voluntarily provide data to the NSW Health Department.
- While each year in NSW the number of influenza cases increases during the winter months, these data show that there has been no large influenza epidemic this decade so far. Influenza A has been the predominant strain.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

The *NSW Public Health Bulletin* includes monthly reports of notifiable infectious diseases at http://www.health.nsw.gov.au/public-health/phb/phb.html.

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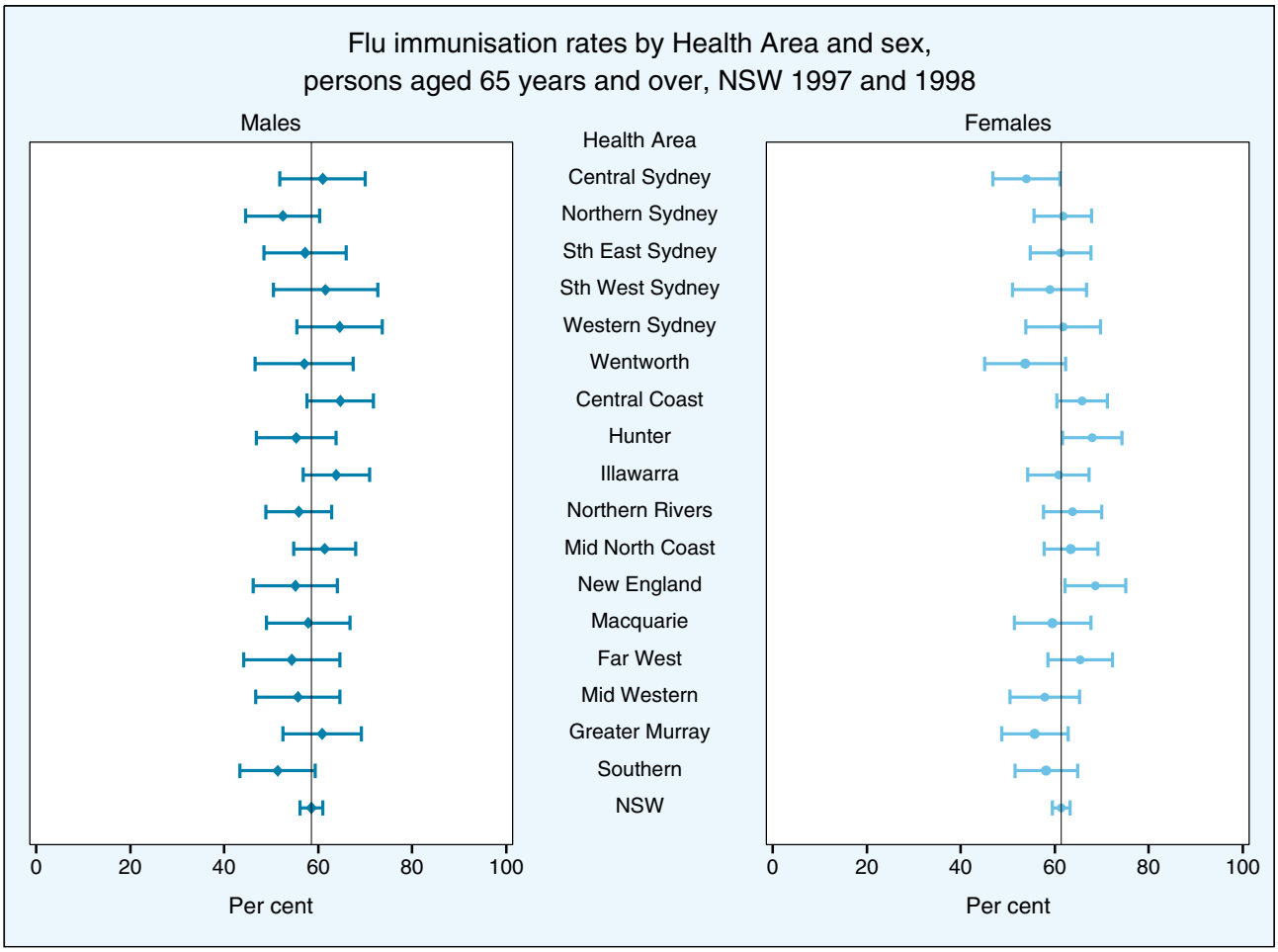

Note: Respondents were asked: 'Were you vaccinated or immunised against 'flu in the last 12 months?' Upper and lower limits of the 95 per cent confidence interval for the point estimates are shown.

Source: 1997 and 1998 NSW Health Surveys (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Influenza vaccination, for those at risk of serious complications, has been shown to be among the most cost-effective interventions in the older adult population.
- The NHMRC recommends yearly flu vaccination for all individuals over 65 years of age, Aboriginal and Torres Straight Islander people over 50 years of age, adults with chronic debilitating diseases, children with cyanotic congenital heart disease, adults and children receiving immunosuppressive therapy and residents of nursing homes and other long term care facilities. Annual vaccination should be considered for staff who care for immunocompromised patients and staff of nursing homes (National Health and Medical Research Council, 1997).
- The self-reported flu immunisation rate for those over 65 years of age increased from 56 per cent at the 1997 NSW Health Survey to 64 per cent at the 1998 NSW Health Survey. The combined 1997 and 1998 data presented above show that, although reported immunisation rates varied among Area Health Services, none was substantially different to the state average. Men and women reported similar immunisation rates (59 and 61 per cent, respectively).

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

Communicable Disease Network of Australia and New Zealand. *A framework for an Australian Influenza pandemic plan*. Canberra: CDI, 1999.

Halliday L, Roberts L, Hampson A. Annual report of the National Influenza Surveillance Scheme 1998. CDI 1999; 23: No. 7.

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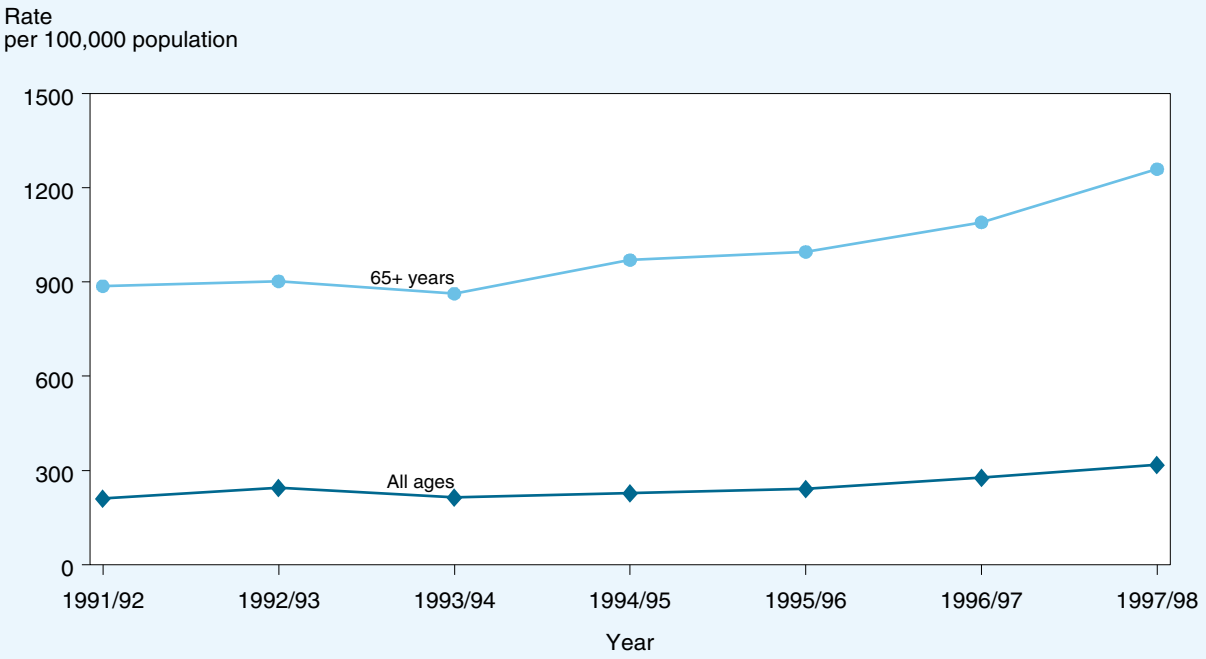
Pneumococcal disease and pneumonia: hospital separations
NSW 1991/92 to 1997/98



Deaths		Sex	1994	1995	1996	1997	1998
Number	65+	Males	182	204	179	654	658
		Females	254	222	238	877	815
		Persons	436	426	417	1531	1474
	All ages	Males	235	241	208	684	711
		Females	283	242	273	905	852
		Persons	518	483	481	1589	1563
Rate per 100,000	65+	Males	66.3	71.4	60.1	212.5	204.4
		Females	50.4	41.8	43.3	149.3	133.1
		Persons	56.5	52.7	49.4	173.0	160.5
	All ages	Males	9.2	9.2	7.7	24.9	24.7
		Females	6.6	5.3	6.0	17.7	16.2
		Persons	7.7	6.9	6.6	20.4	19.5

Separations		Sex	1993/94	1994/95	1995/96	1996/97	1997/98
Number	65+	Males	3523	4056	4313	4809	5512
		Females	2949	3441	3605	4123	5073
		Persons	6472	7497	7918	8932	10585
	All ages	Males	7500	7984	8666	9955	11340
		Females	5989	6689	7096	8456	10150
		Persons	13489	14673	15762	18411	21490
Rate per 100,000	65+	Males	1191.5	1339.1	1370.3	1470.2	1639.2
		Females	653.0	736.6	753.2	837.7	1010.4
		Persons	862.6	969.7	995.7	1089.6	1259.0
	All ages	Males	264.6	279.0	295.1	330.6	370.2
		Females	176.4	191.9	200.9	236.8	279.3
		Persons	214.0	227.9	240.7	276.7	317.5

Note: Data as at 8 December 1999. Pneumococcal infection deaths and separations were classified according to the ICD-9 codes 480–486. Rates were age-adjusted using the Australian population as at 30 December 1991.

Source: Inpatient Statistics Collection and ABS mortality data and population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- *Streptococcus pneumoniae* (pneumococcus), a normal bacterial inhabitant of the upper respiratory tract, is a major cause of pneumonia, meningitis and otitis media, particularly in young children and the elderly. Aboriginal and Torres Stait Islander people suffer much higher infection rates than the population overall. People with suppressed immune systems or chronic disease are most at risk of serious illness or death following infection.
- Pneumococcal disease is not notifiable in NSW, and is monitored through hospitalisation and mortality data. The causative organism is often not identified in patients with pneumonia. However, it is known that *S. pneumoniae* is the most common cause of bacterial pneumonia, so the data presented here are for pneumonia of any cause, plus pneumococcal meningitis and septicaemia.
- These data give an indication of the level of morbidity and mortality due to pneumococcal infection, but do not reliably reflect trends in the levels of infection over time. The increase in reported deaths in 1997 is due to a change in coding procedures, rather than a real increase in deaths.
- Immunisation against pneumococcal disease every five years is recommended for all individuals over 65 years of age, Aboriginal and Torres Straight Islander people over 50 years and people with compromised immune systems or chronic illness.

For more information, see: National Health and Medical Research Council. *The Australian Immunisation Handbook*. 6th ed. Canberra: NHMRC, 1997.

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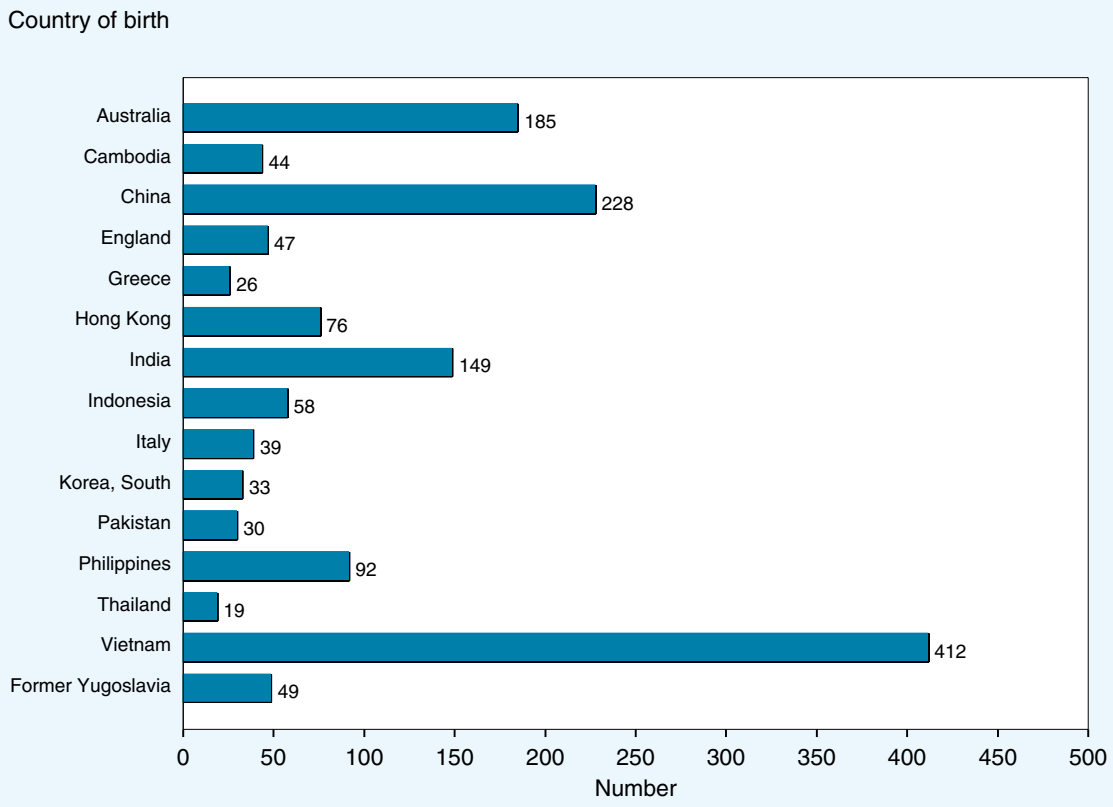
Tuberculosis: notifications,
by country of birth, NSW 1992 to 1998



Note: Data as at 8 December 1999.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Tuberculosis (TB) is caused primarily by the bacterial organism *Mycobacterium tuberculosis*. TB can present in a variety of ways, most commonly as pulmonary disease characterised by a chronic cough, weight loss, fevers, and night sweats.
- Before World War II, TB was a major cause of illness and death in the Australian community. The subsequent development of effective antibiotic treatment, chest x-ray screening, and preventive therapy have reduced the burden of disease in NSW to one of the lowest in the world. Case reports rapidly declined after the war, but have levelled out since the mid-1980s.
- All doctors, laboratories and hospitals are required by law to notify cases of TB to the NSW Health Department. In the period 1994–1998, 2,058 cases of tuberculosis were notified. Most of these occurred among people born in high-prevalence countries (particularly China, Vietnam, India and the Philippines) and people living in urban areas.
- A network of chest clinics exists throughout the state to provide directly supervised therapy for persons with disease, and to identify, screen and treat persons at risk of infection.

For more information, see: Mandell, Bennet, Dolin. *Principles and Practice of Infectious Diseases*. New York: Churchill Livingstone, 1995.

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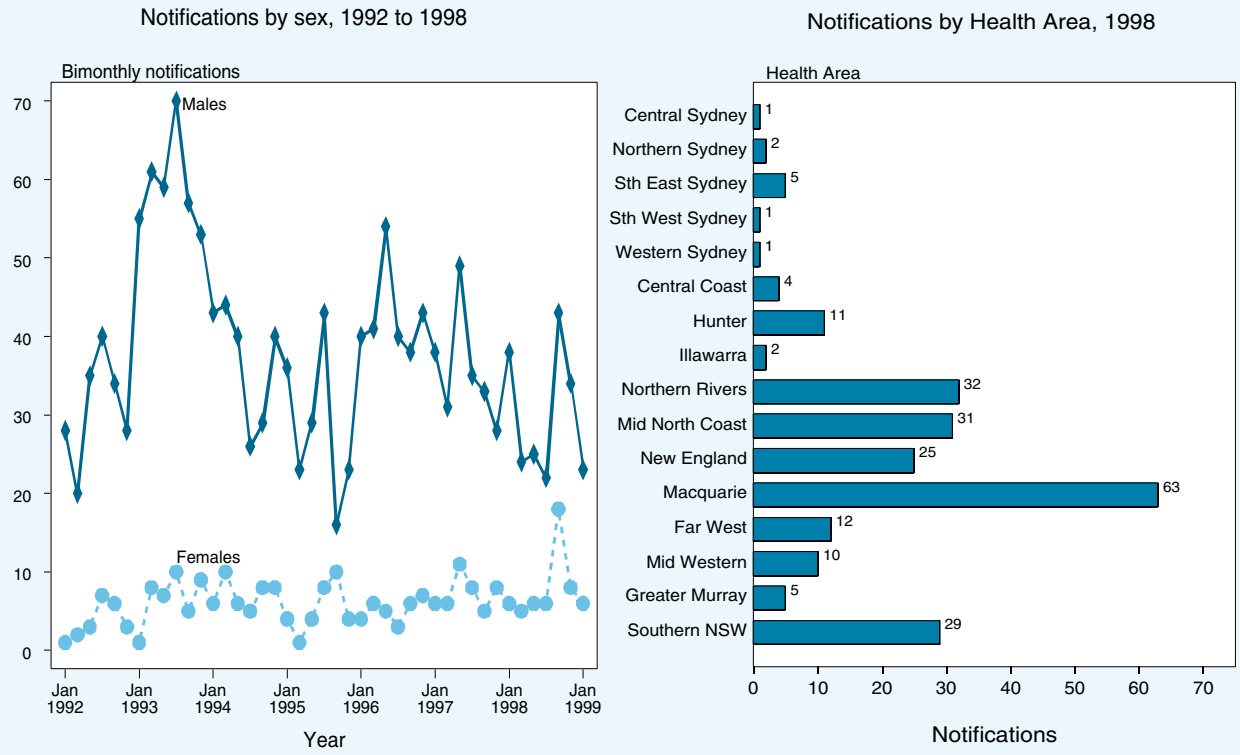
Tuberculosis: Notifications by country of birth and sex, NSW 1992 to 1998

Country of birth	Sex	1992	1993	1994	1995	1996	1997	1998
Australia	Males	1	2	0	11	9	47	39
	Females	0	3	2	5	9	21	36
	Persons	1	5	2	16	18	68	75
Cambodia	Males	3	2	1	1	2	3	5
	Females	1	3	2	4	4	8	5
	Persons	4	5	3	5	6	11	10
China	Males	20	13	18	21	19	23	13
	Females	8	16	14	16	17	14	16
	Persons	28	29	32	37	36	37	29
England	Males	4	3	11	4	2	8	2
	Females	1	2	2	0	3	4	1
	Persons	5	5	13	4	5	12	3
Greece	Males	2	3	2	1	4	2	0
	Females	0	0	4	2	2	2	1
	Persons	2	3	6	3	6	4	1
Hong Kong	Males	1	5	5	8	6	7	3
	Females	5	8	9	5	4	6	4
	Persons	6	13	14	13	10	13	7
India	Males	5	8	5	18	20	8	13
	Females	7	4	11	17	8	14	11
	Persons	12	12	16	35	28	22	24
Indonesia	Males	9	4	1	0	0	9	10
	Females	5	5	2	0	0	6	7
	Persons	14	9	3	0	0	15	17
Italy	Males	3	2	3	3	4	4	4
	Females	1	2	3	2	1	3	4
	Persons	4	4	6	5	5	7	8
South Korea	Males	0	0	1	0	1	5	11
	Females	0	0	0	1	2	6	6
	Persons	0	0	1	1	3	11	17
Pakistan	Males	4	3	1	6	1	3	3
	Females	3	2	0	1	0	1	2
	Persons	7	5	1	7	1	4	5
Philippines	Males	0	2	0	1	1	16	17
	Females	0	0	0	2	5	21	27
	Persons	0	2	0	3	6	37	44
Thailand	Males	0	0	0	0	0	2	7
	Females	0	0	0	1	0	6	3
	Persons	0	0	0	1	0	8	10
Vietnam	Males	26	20	35	26	35	23	22
	Females	31	31	26	32	41	34	31
	Persons	57	51	61	58	76	57	53
Former Yugoslavia	Males	3	6	5	3	3	4	1
	Females	5	7	1	2	1	5	3
	Persons	8	13	6	5	4	9	4

Note: Data as at 8 December 1999.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Q fever: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	185	355	222	170	256	214	186
	Females	22	40	43	31	31	44	49
	Persons	207	395	265	201	287	258	235
Rate per million	Males	62.5	120.4	74.6	55.0	83.6	68.9	58.9
	Females	7.4	13.4	14.3	10.0	9.7	13.8	15.5
	Persons	35.0	67.1	44.7	32.7	46.9	41.4	37.2

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Q fever is a zoonotic disease caused by infection with the rickettsial organism *Coxiella burnetti*. It is usually transmitted by inhalation of dust contaminated by birth products or faeces of certain animals (including sheep, cattle and goats), and is especially frequent among abattoir workers. Symptoms include sudden onset of chills, headache, weakness, malaise and sweats. Q fever may be complicated by endocarditis in a minority of patients.
- Laboratories are required by law to notify cases of Q fever to the NSW Health Department. In the period 1994–1998, 1,251 cases were notified. Most notifications came from rural areas, particularly the Northern Rivers, Mid North Coast, New England, Macquarie and Southern NSW Health Areas.
- Despite the availability of a highly effective vaccine, notification data indicate that cases of Q fever are still occurring unnecessarily among certain occupational groups including (mainly male) abattoir workers and farmers. Several abattoir-associated outbreaks were reported in rural areas of the state in the 1990s.
- Prevention of Q fever depends mainly on implementation of vaccination programs in at-risk workplaces such as abattoirs.

For more information, see: Mandell, Bennet and Dolin. *Principles and Practice of Infectious Diseases*. New York: Churchill Livingstone, 1995.

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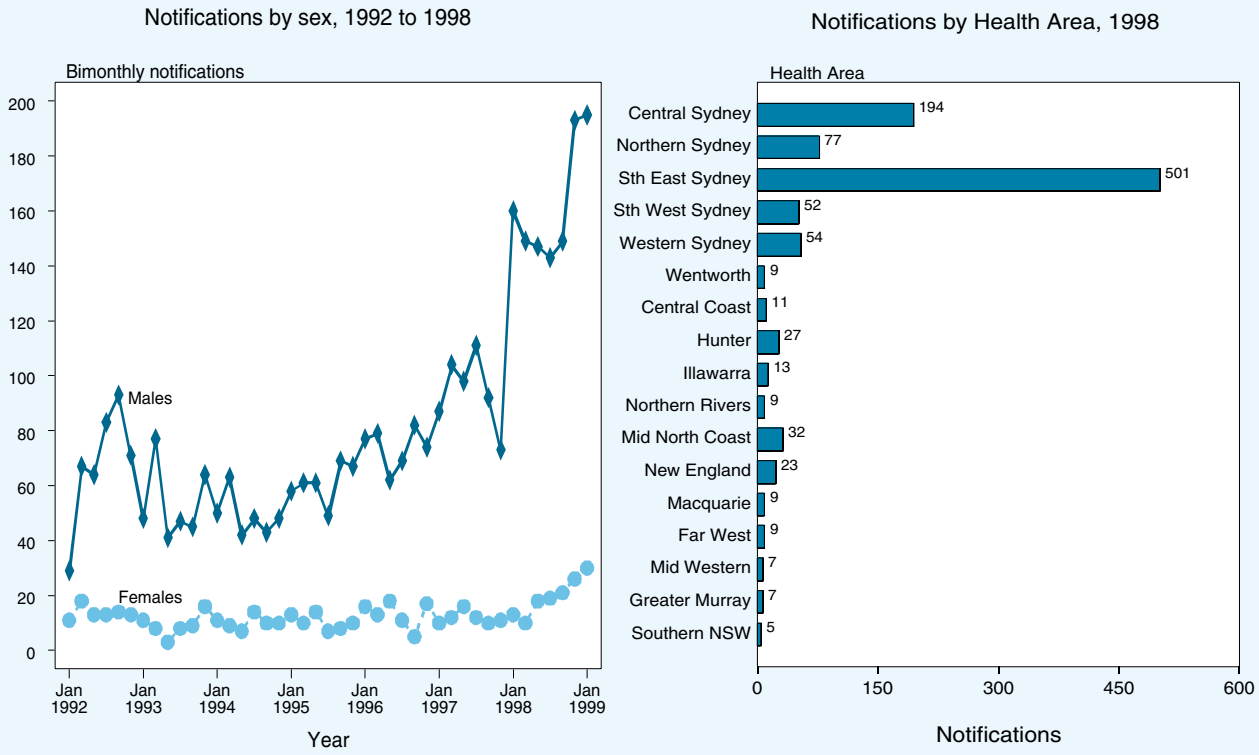
Gonorrhoea: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	407	322	294	365	443	565	940
	Females	82	55	61	62	80	71	107
	Persons	489	377	355	427	523	636	1047
Rate per million	Males	137.8	109.3	99.2	123.2	147.5	186.8	308.2
	Females	28.6	19.3	21.6	21.9	28.4	25.2	37.1
	Persons	83.7	64.7	60.7	72.7	88.1	106.0	172.8

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

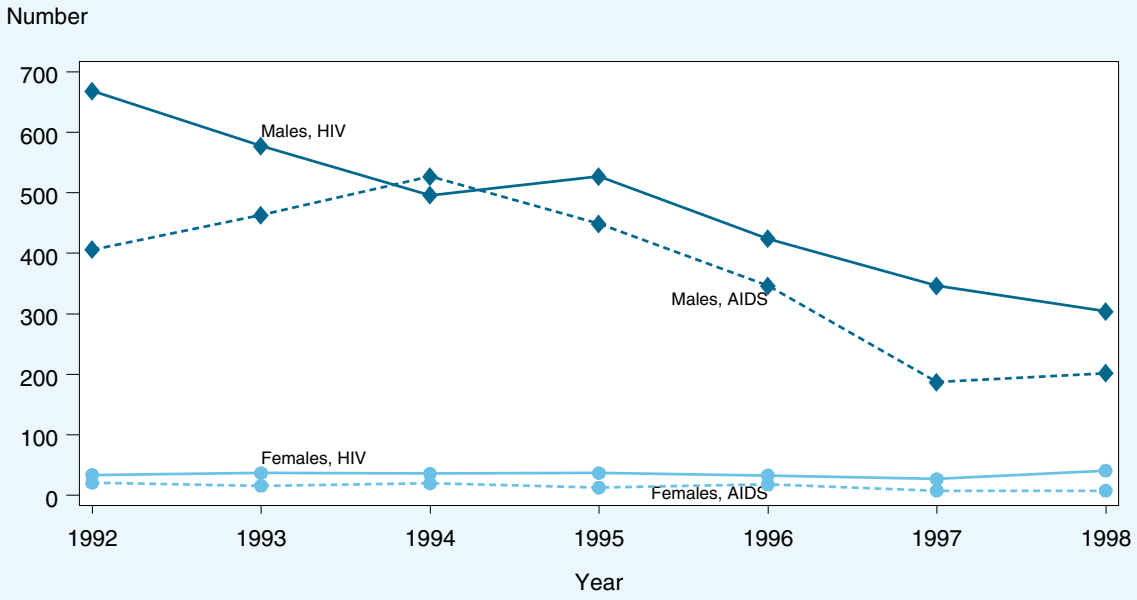
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Gonorrhoea is a sexually transmitted disease caused by an infection with the bacterium *Neisseria gonorrhoea*. Infection in males usually causes a purulent discharge, with difficulty urinating in males. In females, infection causes inflammation of the urethra or cervix, and later pelvic inflammatory disease and infertility. Pharyngeal and ano-rectal infections are also reported.
- Laboratories are required by law to notify cases of gonorrhoea to the NSW Health Department. In the period 1992–1998, 3,854 cases were notified. Most of these (87 per cent) were among males. In 1998, almost half of notified cases (48 per cent) came from South Eastern Sydney Health Area.
- Case reports of gonorrhoea rose steeply in the latter part of the 1990s, particularly among males. This suggests that risky sexual behaviour for this and other sexually transmitted diseases (including HIV infection) is increasing.
- Safe sex practices, early case identification and treatment and contact tracing are the most effective methods for controlling gonorrhoea.

For more information, see: National Centre in HIV Epidemiology and Clinical Research. *HIV/AIDS, hepatitis C and sexually transmissible infections in Australia, Annual Surveillance report 1999*. Sydney: National Centre in HIV Epidemiology and Clinical Research, 1999.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm.

HIV and AIDS: case numbers by sex, NSW 1992 to 1998



	Year	Males	Females	Persons
HIV infection	1992	668	34	702
	1993	577	37	614
	1994	496	36	532
	1995	527	37	564
	1996	424	33	457
	1997	346	27	373
	1998	304	41	345
AIDS diagnosis	1992	406	21	427
	1993	463	16	479
	1994	527	20	547
	1995	449	13	462
	1996	346	18	364
	1997	187	8	195
	1998	202	8	210

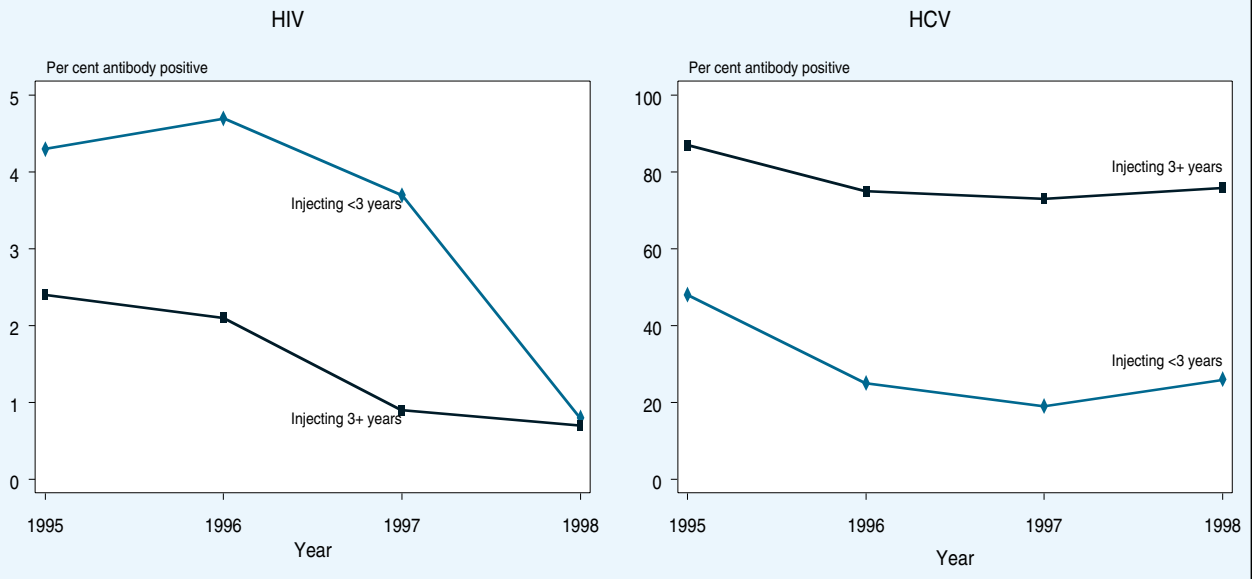
Note: AIDS diagnoses were adjusted for reporting delay. HIV diagnoses were adjusted for duplicate reporting. Totals include people whose sex was reported as transgender.

Source: National Centre in HIV Epidemiology and Clinical Research. *HIV/AIDS, Hepatitis C and sexually transmissible infections in Australia.* Annual surveillance report, 1999.

- Human immunodeficiency virus (HIV) was first identified as the cause of acquired immunodeficiency syndrome (AIDS) in 1984. Persons infected with HIV may develop a brief nonspecific illness that resembles glandular fever. Infection then becomes latent for some years. Eventually, a progressive immunodysfunction develops, predisposing infected people to communicable diseases, tumours and other conditions.
- Laboratories are required by law to notify cases of new diagnoses of HIV, and all doctors and hospitals are required to report cases of AIDS to the NSW Health Department. In the period 1992–1998, 3,587 new cases of HIV infection and 2,684 cases of AIDS were notified. Most (93 per cent of HIV diagnoses and 96 per cent of AIDS cases) were in males.
- HIV diagnoses have declined steadily in recent years, although the epidemic continues in males, through male-to-male sexual contact. The decline in AIDS cases since 1996 is attributed to improvements in combination drug therapy, and has also been seen overseas.
- Community education, safe sex practices, avoidance of contaminated blood and blood products, contact tracing, and increasingly, early case identification and treatment, all contribute to the control of HIV in the community.

For more information, see: National Centre in HIV Epidemiology and Clinical Research. *HIV/AIDS, hepatitis C and sexually transmissible infections in Australia, Annual Surveillance report 1999.* Sydney: National Centre in HIV Epidemiology and Clinical Research, 1999.

Positive antibodies to human immunodeficiency virus (HIV) and hepatitis C virus (HCV) by injecting history, clients of needle and syringe programs, NSW 1995 to 1998



		1995	1996	1997	1998
Per cent HCV +ve	Injecting <3 years	48 (23)	25 (44)	19 (54)	26 (124)
(number tested)	Injecting 3+ years	87 (381)	75 (430)	73 (567)	76 (771)
	Total	84 (412)	70 (474)	68 (641)	69 (918)
Per cent HIV +ve	Injecting <3 years	4.3 (23)	4.7 (43)	3.7 (54)	0.8 (124)
(number tested)	Injecting 3+ years	2.4 (381)	2.1 (435)	0.9 (565)	0.7 (769)
	Total	2.4 (412)	2.2 (496)	1.1 (639)	0.7 (916)

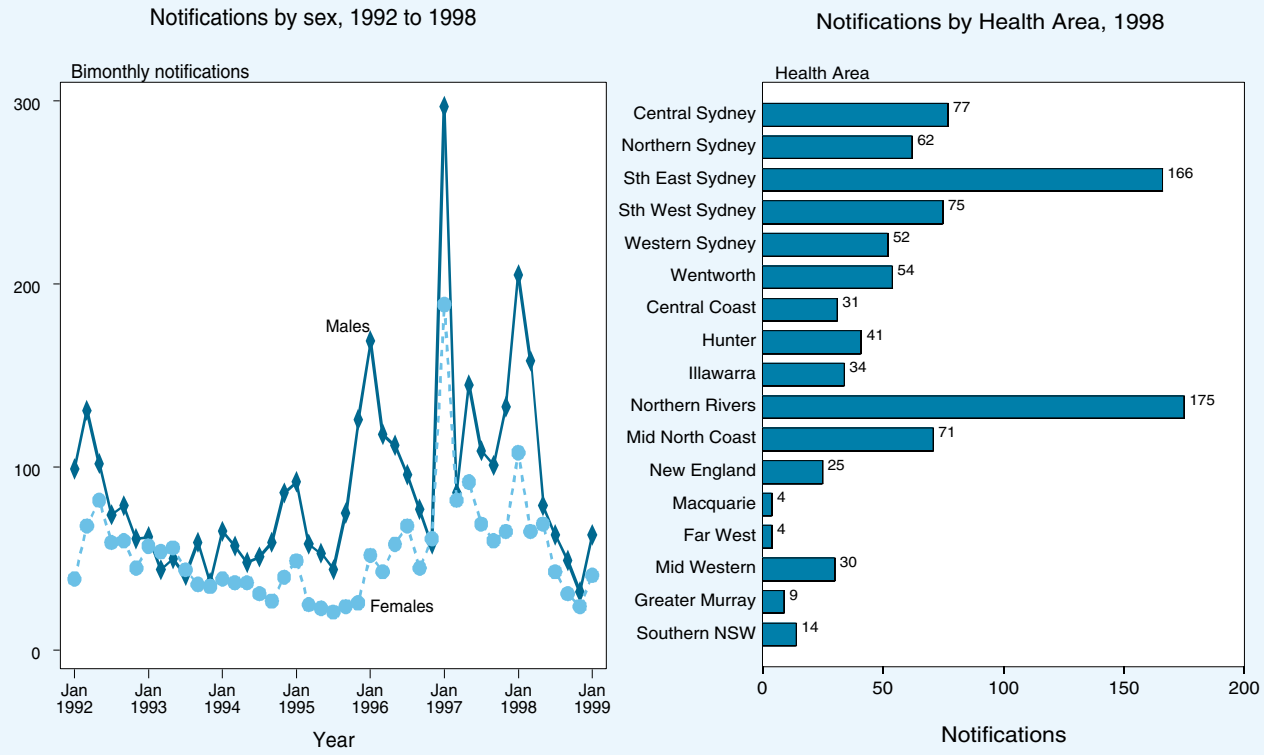
Note: Participating sites: Bourke Street, Drug Intervention Services Cabramatta (and street youth program), Kirketon Road Centre, K2, Northern Rivers, St George (Kogarah), Resource and Education Program for IDU (Canterbury and Redfern), Wentworth HIV and Sexual Health Services, Western Sydney AIDS Prevention (Parramatta and Blacktown). Totals include people who did not report duration of injecting drug use.

Source: National Centre in HIV Epidemiology and Clinical Research. University of New South Wales, Sydney (unpublished data).

- Injecting drug use is an important risk behaviour for viruses transmitted via body fluids, such as human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C (HCV) virus.
- All clients attending selected NSW needle and syringe exchanges during one week were asked to complete a questionnaire and provide a finger-prick blood sample (or saliva sample in 1994). Response rates ranged from 35–54 per cent.
- HIV prevalence among injecting drug users was low, except for men who also reported homosexual contact. Around one-quarter of homosexual male drug users were HIV positive in each test period.
- HIV prevalence did not differ significantly with duration of injecting drug use.
- HCV prevalence increased markedly with a longer history of injecting drug use. Around three-quarters of people who had been injecting for three or more years were HCV antibody-positive, compared with around one-quarter of new users.
- The proportion of people attending Australian needle and syringe programs who reported using a syringe after someone else in the last month declined steadily between 1995 and 1998, from 29 to 20 per cent (National Centre in HIV Epidemiology and Clinical Research, 1999).

For more information, see: National Centre in HIV Epidemiology and Clinical Research. *HIV/AIDS, hepatitis C & sexually transmissible infections in Australia, Annual Surveillance report 1999*. Sydney: National Centre in HIV Epidemiology and Clinical Research, 1999.

Hepatitis A: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	546	293	366	448	630	871	586
	Females	353	282	211	168	327	557	340
	Persons	899	575	577	616	957	1428	926
Rate per million	Males	183.9	97.9	122.8	149.3	209.0	283.9	191.4
	Females	121.9	96.4	72.4	56.4	110.4	184.4	113.3
	Persons	153.0	97.0	97.8	103.3	159.8	234.4	152.4

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

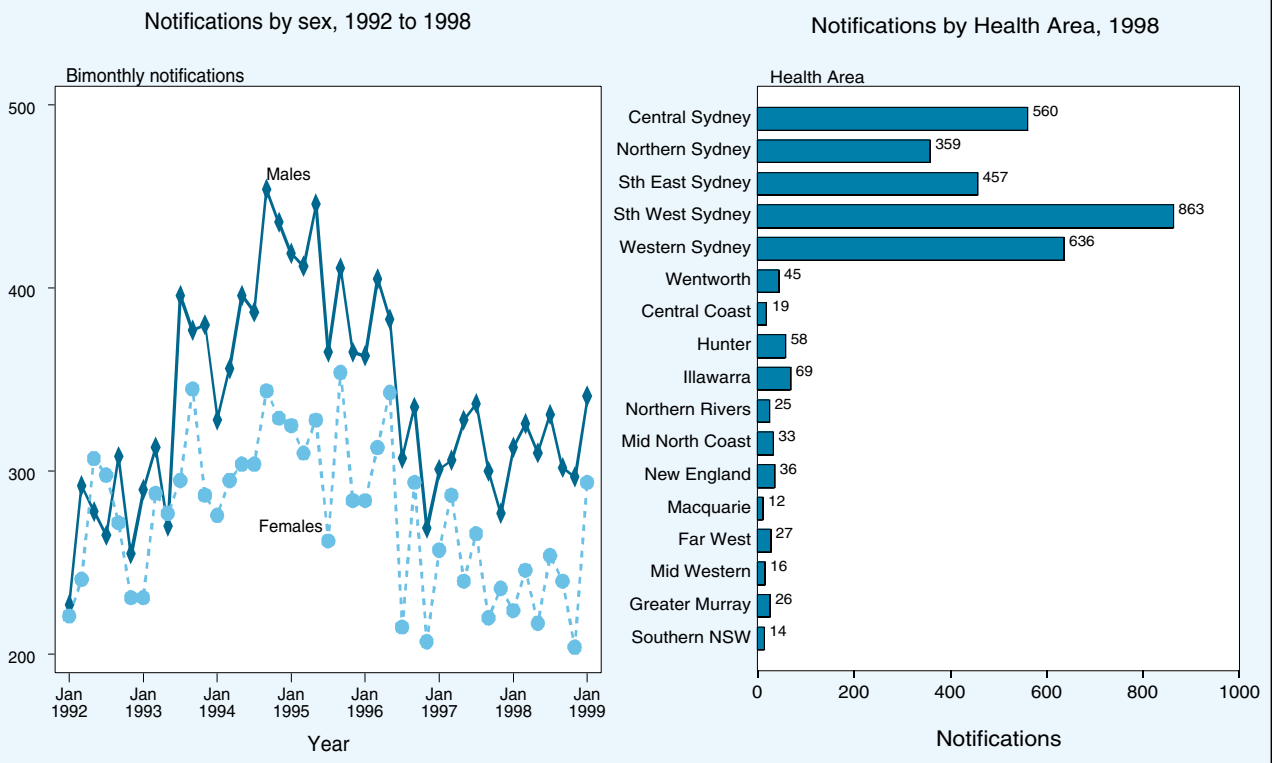
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Hepatitis A is caused by infection with the hepatitis A virus, and is transmitted by the faecal–oral route, most often from person to person or in food. The disease is characterised by general malaise, fever, abdominal discomfort, dark urine, pale stools and jaundice.
- Doctors, hospitals and laboratories are required by law to notify cases of hepatitis A to the NSW Health Department. In the period 1992–1998, 5,978 cases were notified, with almost two-thirds of these (63 per cent) among males.
- In 1996 and 1998, epidemics of hepatitis A occurred in Eastern Sydney, mainly among gay men. A large epidemic in 1997 was traced to eating contaminated oysters.
- Prevention of hepatitis A depends mainly on early reporting of cases, education about good hand washing and avoiding food handling among cases, and administration of immunoglobulin to close contacts.
- A hepatitis A vaccine was licensed in Australia in the early 1990s. It is recommended by the National Health and Medical Research Council for travellers to endemic countries, certain occupational groups, gay men, persons with chronic liver disease, blood product recipients and food handlers.

For more information, see: Hepatitis A outbreak traced to consumption of Wallis Lake oysters. Editorial. *NSW Public Health Bulletin* 1997; 8: 1–5.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm.

Hepatitis B: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	1625	2028	2357	2418	2062	1849	1877
	Females	1570	1724	1851	1864	1655	1504	1381
	Persons	3195	3752	4208	4282	3717	3353	3258
Rate per million	Males	545.4	676.2	779.1	793.5	668.1	594.2	597.9
	Females	537.1	586.2	626.5	623.1	547.2	492.1	444.9
	Persons	540.6	630.7	702.0	707.7	607.1	542.8	521.1

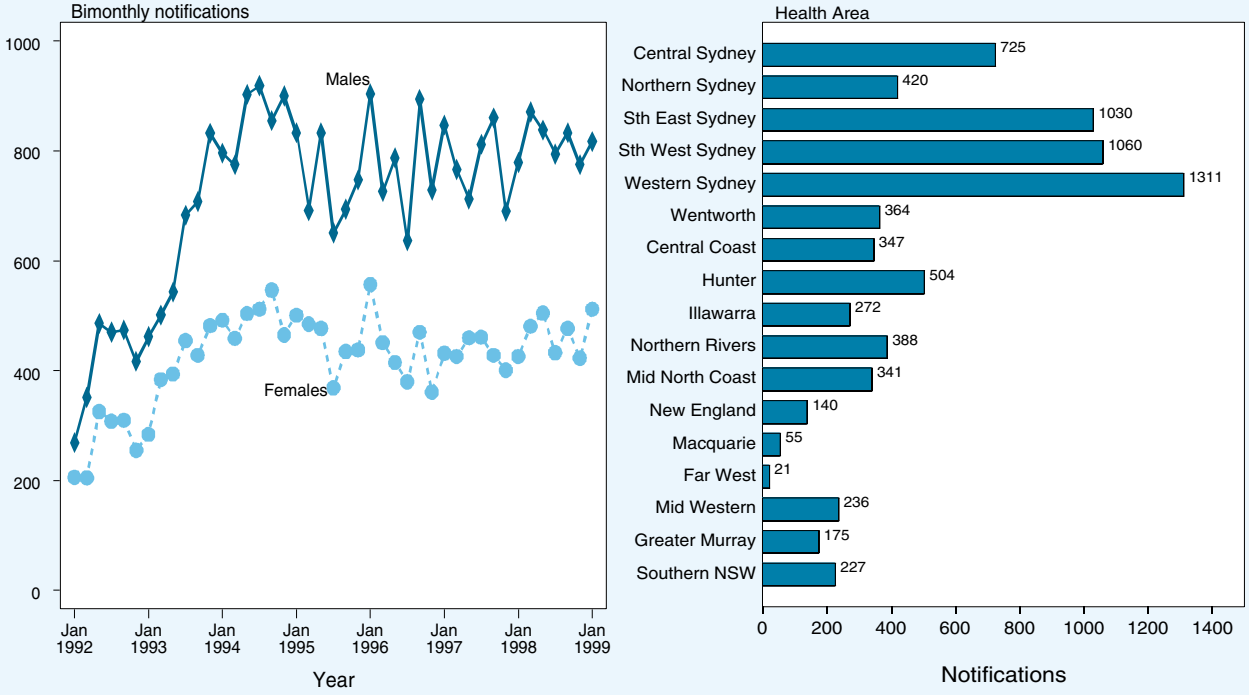
Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Hepatitis B is caused by infection with the hepatitis B virus, and is transmitted mainly by contact with an infected person's blood or sexual fluids, or from an infected woman to her baby. Many persons have no symptoms when first infected, but some experience anorexia, malaise, abdominal discomfort, and jaundice.
- Doctors, hospitals and laboratories are required by law to notify cases of hepatitis B to the NSW Health Department. The notification data do not distinguish between persons acutely infected with hepatitis B (incident cases) and persons who carry the virus and were infected some time in the past. In the period 1992–1998, 25,765 cases were notified, with 55 per cent of these among males. In 1998, most notified cases came from areas of Sydney.
- Prevention depends mainly on education of infectious persons (those who are surface-antigen positive) about modes of spread, avoidance of contact of their blood or sexual fluids with other persons, administration of vaccine to household contacts of persons who carry the virus and administration of hepatitis B immunoglobulin and vaccine to children born to infectious mothers.
- A hepatitis B vaccine has been available in Australia since the early 1980s. It is recommended for persons at increased risk for the disease, and from 1999, for pre-adolescent children.

For more information, see: National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm.

Hepatitis C: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	2469	3728	5148	4450	4678	4684	4875
	Females	1610	2428	2979	2704	2634	2608	2739
	Persons	4079	6156	8127	7154	7312	7292	7614
Rate per million	Males	831.2	1250.4	1716.3	1468.6	1531.0	1522.5	1576.1
	Females	546.5	820.4	998.5	900.6	864.7	852.1	892.3
	Persons	688.6	1035.4	1357.1	1184.1	1197.4	1187.3	1233.4

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

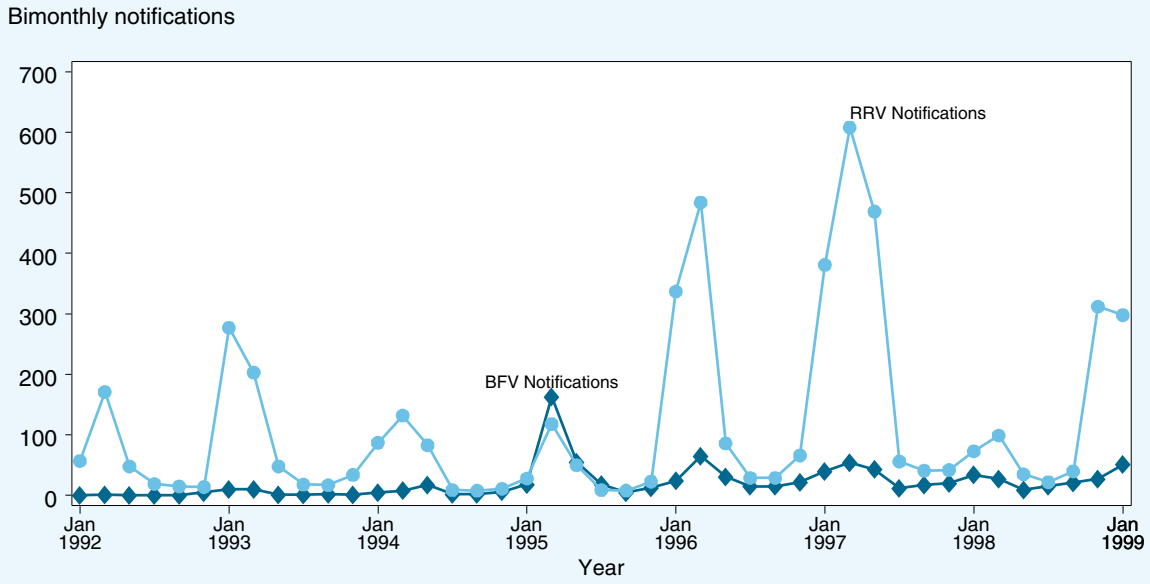
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Hepatitis C is caused by infection with the hepatitis C virus. The virus was first identified in 1989, and is transmitted mainly by contact with an infected person's blood. Until a screening test was introduced in 1990, many people were infected through blood transfusions. Today, most new infections are acquired through sharing contaminated needles and syringes. Most persons have no symptoms when first infected, but some experience anorexia, malaise, abdominal discomfort, and jaundice.
- Doctors, hospitals and laboratories are required by law to notify cases of hepatitis C to NSW Health. The notification data generally do not distinguish between persons acutely infected with hepatitis C and persons who carry the virus and were infected some time in the past.
- Hepatitis C is the most commonly reported infectious disease in NSW. In the period 1992–1998, 47,734 cases were notified, with 63 per cent of these among males.
- There is no vaccine for hepatitis C. Prevention depends on minimisation of the sharing of contaminated needles and syringes, primarily through education of injecting drug users, and provision of sterile needles through needle exchange programs.

For more information, see: Crofts N, Thompson S, Kaldor J. *Epidemiology of the hepatitis C virus*. Canberra: Communicable Diseases Intelligence, 1999.

National Centre in HIV Epidemiology and Clinical Research. *HIV/AIDS, hepatitis C and sexually transmissible infections in Australia, Annual Surveillance report 1999*. Sydney: National Centre in HIV Epidemiology and Clinical Research, 1999.

Notifications for Barmah Forest and Ross River Viruses, NSW 1992 to 1998



Notifications		Sex	1992	1993	1994	1995	1996	1997	1998
Number	Barmah Forest	Males	3	14	18	144	99	104	75
		Females	3	11	22	126	72	82	58
		Persons	6	25	40	272	172	186	133
	Ross River Fever	Males	174	273	152	139	514	768	281
		Females	148	307	177	97	515	821	296
		Persons	324	597	330	236	1031	1596	580
Rate per million	Barmah Forest	Males	1	5	6	46	31	32	23
		Females	1	4	7	41	22	25	18
		Persons	1	4	7	44	27	29	20
	Ross River Fever	Males	58	90	49	44	164	241	87
		Females	50	101	58	31	161	257	91
		Persons	54	99	54	38	163	250	89

Note: Data as at 8 December 1999. Rates were age-adjusted using Australian population as at 30 June 1991.

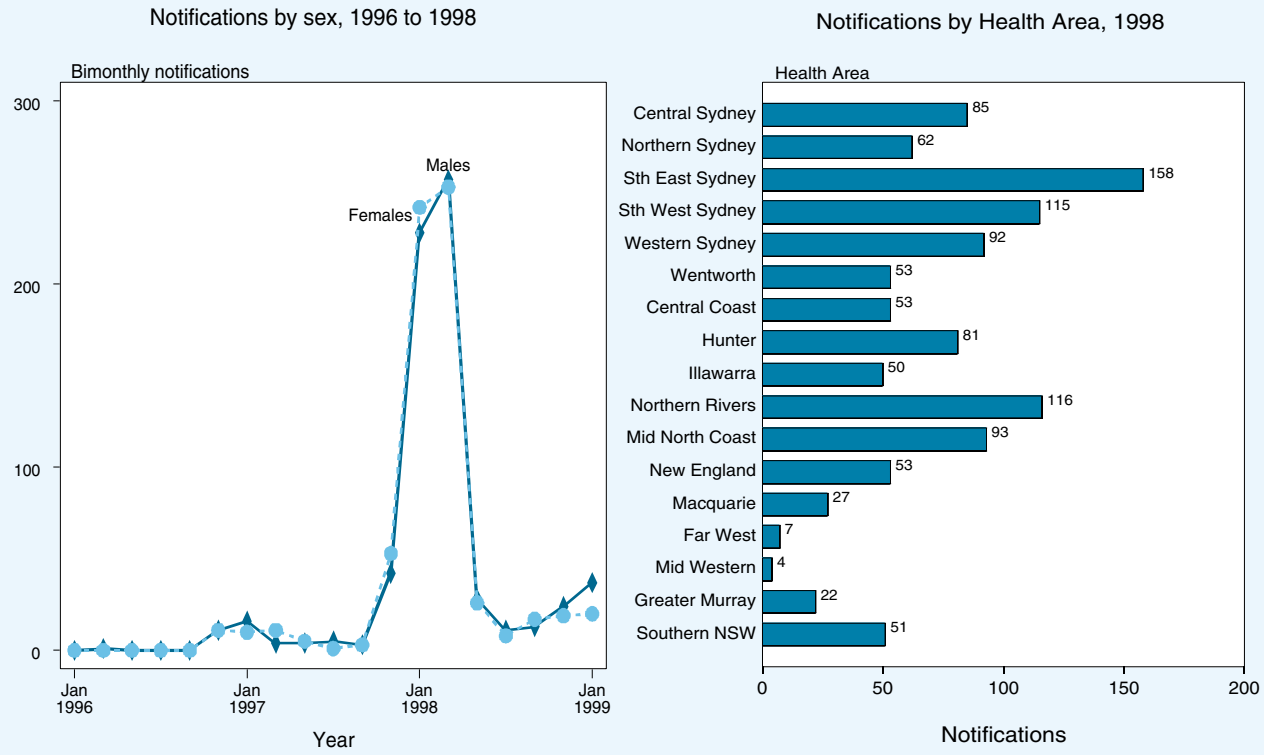
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- In NSW, the main arboviral infections of human concern are caused by Ross River virus (RRV) and Barmah Forest virus (BFV). Both are transmitted by mosquitos, and affect most areas of the state outside Sydney. Symptoms of infection can range from none to rash, fever, painful and swollen joints, and chronic fatigue. Some of these may last many weeks or months.
- Laboratories are required by law to notify cases of arbovirus infection to the NSW Health Department. In the period 1992–1998, 4,694 cases of RRV and 834 cases of BFV infection were notified.
- Arboviral illness notifications show a seasonal pattern, with outbreaks of Ross River fever during the summer months each year. The severity and geographic location of the outbreaks is affected by rainfall patterns and the consequent size of mosquito populations. Although Barmah Forest Virus infection is less common than RRV infection, it shows a similar seasonal pattern. The first documented outbreak of BFV occurred in 1995 on the NSW South Coast.
- No vaccine has been developed for RRV or BFV infections. Prevention depends on the reduction of exposure to mosquitos through environmental control and personal protection.

For more information, see: NSW Arbovirus Surveillance and Vector Monitoring Program Web site at http://www.arbovirus.health.nsw.gov.au.

Department of Medical Entomology, University of Sydney and Westmead Hospital Web site at http://medent.usyd.edu.au.

Cryptosporidiosis: notifications by sex and Health Area, NSW 1996 to 1998



Notifications	Sex	1996	1997	1998
Number	Males	12	74	561
	Females	11	83	565
	Persons	23	157	1126
Rate per million	Males	3.9	24.1	183.3
	Females	3.8	28.5	190.2
	Persons	3.8	26.2	186.9

Note: Data as at 8 December 1999. Rates were age-adjusted using the Australian population as at 30 June 1991.

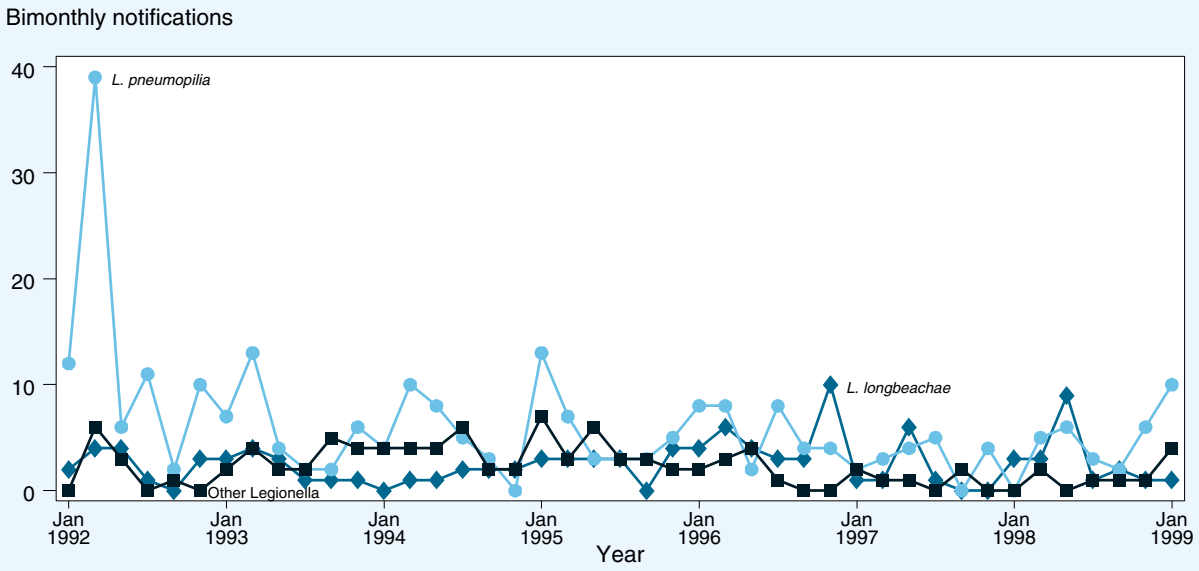
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- *Cryptosporidium parvum* is a parasite transmitted by ingesting oocysts from faecal material, either in contaminated water, food, or on contaminated hands or other objects. Infection causes a diarrhoeal disease. There is no effective treatment, but infection is usually self- limiting, lasting for up to 30 days. In people with AIDS or other immune deficiencies, infection can become chronic and life-threatening.
- In NSW, cryptosporidiosis has been notifiable by laboratories since December 1996. A large increase occurred in the summer of 1997–98, associated with swimming pools. This organism may not be killed by normal levels of chlorine in swimming pools. Regular maintenance of pools is required to keep contamination to a minimum.
- The large number of cases during that outbreak contrasts with the low number reported for the rest of 1998. Between June and September that year, *Cryptosporidium* and *Giardia lamblia* were detected in Sydney drinking water, sparking the 'Sydney Water Crisis'. Sydney residents were requested to boil all drinking water until the water tested negative for these parasites. No increase in either Cryptosporidiosis or Giardiasis attributable to drinking water occurred during this time. More information on *Cryptosporidium* in drinking water is given on page 30.

For more information, see: Cryptosporidiosis on the rise in NSW. Infectious diseases report. *NSW Public Health Bulletin* 1998; 9: 24.

The Sydney Water incident. Editorial. *NSW Public Health Bulletin* 1998; 9: 91–94.

Legionnaires' disease: notifications, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	75	42	39	59	45	22	38
	Females	29	24	21	15	29	11	8
	Persons	104	66	60	74	74	33	46
Rate per million	Males	25.6	14.2	12.9	19.2	14.7	7.0	11.3
	Females	9.0	7.3	6.6	4.4	8.5	2.8	2.3
	Persons	16.9	10.5	9.6	11.3	11.3	4.7	6.6

Note: NSW population as at 30 June each year. Rates were age-adjusted using the Australian population as at 30 June 1991.

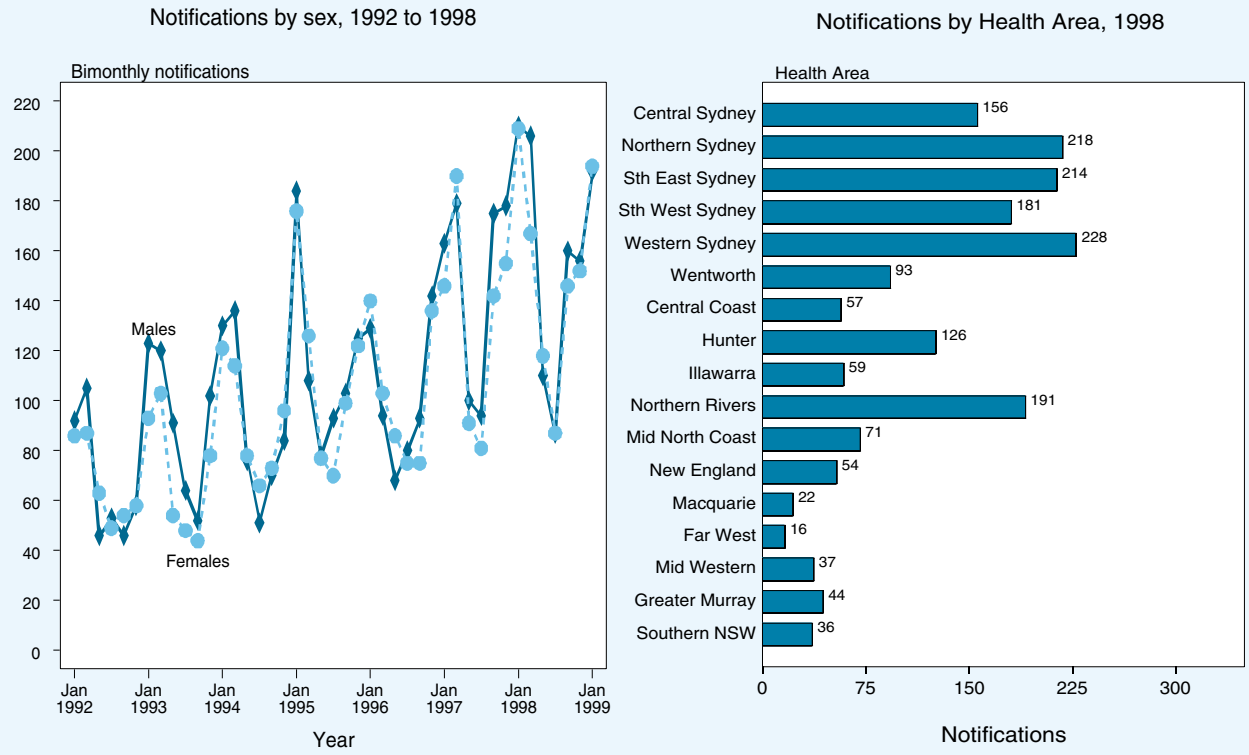
Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Legionnaires' disease is a form of pneumonia caused by one of several species of Legionella bacteria. Infection with *Legionella pneumophila* is usually associated with air conditioning cooling towers, while *Legionella longbeachae* is usually associated with potting mix.
- Up to 39 per cent of people admitted to hospital with Legionnaires' disease die, but deaths can be reduced by early detection and treatment. Elderly males are at higher risk of Legionnaires' disease, particularly if they are smokers. There is evidence that there may be many undiagnosed cases of *Legionella* infection in the community for each case of Legionnaires' disease diagnosed and notified.
- Notification numbers have been variable in recent years, and appear to represent mainly unrelated sporadic cases. However, the peak in notifications in 1992 reflects an outbreak linked to air conditioning in a supermarket complex in South Western Sydney, while the peak in 1995 was due to a small outbreak linked to air conditioning in a club in Western Sydney.
- By law, owners of buildings with air conditioning cooling towers are required to regularly inspect and clean the systems and ensure an adequate disinfection process is in operation.

For more information, see: Mandell, Bennet and Dolin. *Principles and Practice of Infectious Diseases*. New York: Churchill Livingstone, 1995.

National communicable disease data are published in *Communicable Disease Intelligence* at http://www.health.gov.au/pubhlth/cdi/cdihtml.htm.

Salmonellosis: notifications by sex and Health Area, NSW 1992 to 1998



Notifications	Sex	1992	1993	1994	1995	1996	1997	1998
Number	Males	400	552	547	691	606	889	929
	Females	397	420	548	670	615	805	879
	Persons	797	972	1095	1361	1221	1694	1808
Rate per million	Males	133.1	184.9	180.7	227.8	199.4	289.5	302.4
	Females	136.2	142.3	185.9	224.0	204.5	265.8	290.9
	Persons	134.8	163.5	183.3	225.6	202.0	278.3	296.8

Note: Data as at 8 December 1999.

Source: NSW Notifiable Diseases Database and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

- Numerous serotypes of Salmonella cause disease in both humans and animals. Salmonellosis is a foodborne disease with symptoms of abdominal pain, fever, headache, diarrhoea, nausea and sometimes vomiting. Infants and young children are the most vulnerable to salmonella infection. Typhoid and paratyphoid, more serious forms of salmonellosis, are uncommon in Australia and not included in these data.
- Notifications of salmonella infection more than doubled in NSW over the period 1992–1998, from 797 in 1992 to 1,808 in 1998. Notifications tended to peak in the summer months.
- Only a small proportion of cases of salmonella infection are clinically investigated and reported, so the true rate of infection is likely to be much higher than the data suggest.
- An apparent rise in incidence of salmonellosis has also been observed nationally and in many other industrialised nations. It may be explained in part by the changing patterns of food consumption, including the increasing popularity of takeaway and pre-prepared foods and the increasing variety and availability of new and unconventional food products.

For more information, see: Microbiological Diagnostic Unit. *National Enteric Pathogens Surveillance Scheme (NEPSS) Human Annual Report 1998*. Parkville: University of Melbourne, 1999.

Australian Salmonella Reference Centre. 1*998 Annual Report*. Adelaide: Institute of Medical and Veterinary Science, 1999.

Appendices

- Methods
- Glossary
- List of Local Government Areas by Health Areas
- Acknowledgements
- Index

Methods

Introduction

This report brings together data from a wide range of sources. It focuses on trends, and hence uses mainly data from routine collections rather than ad hoc studies and surveys. Where possible, it presents trends based on the most recent 10 years of data available. This chapter gives a brief description of the major data sources used and the statistical methods employed in their analysis and interpretation. SAS for Windows Version 6.12 (SAS, 1996) was used for all data analysis and for production of data tables and charts.

1. Data sets

1.1 Health Outcomes Statistical Toolkit (HOIST)

The Health Outcomes Information Statistical Toolkit (HOIST) is a SAS-based 'data warehouse' operated by the Epidemiology and Surveillance Branch of NSW Health. It brings together most of the data collections often used in population health surveillance in NSW, and contains all the available historical data for each collection. HOIST data is in one format—SAS datasets—and HOIST code values are, as far as possible, consistent across time and among datasets. HOIST provides a common data analysis environment across the NSW Public Health Network, enabling easier interchange of ideas, techniques and programs.

1.2 Population data

Age- and sex-specific estimated resident populations (ERPs) for NSW Statistical Local Areas (SLAs) at 30 June were obtained from the Australian Bureau of Statistics for use with calendar year data. A cubic spline interpolation between mid-year ERPs was used to derive 30 December age- and sex-specific population estimates for use with financial year data. NSW Area Health Service populations were derived by aggregating the appropriate SLA-level ERPs, except in the case of Central Sydney and South Eastern Sydney Area Health services, the border between which transects two SLAs. ERPs for these SLAs were apportioned according to the proportions derived from 1996 Census usual resident counts at the Collection District level.

The 1991 Australian mid-year ERP, shown below, was used as the standard population for age-adjustment (see Methods section 2.2).

Australian standard population (30 June 1991)

Age	Persons	Age	Persons
0–4 yrs	1,271,703	50–54 yrs	846,934
5–9 yrs	1,272,208	55–59 yrs	725,950
10–14 yrs	1,241,619	60–64 yrs	736,868
15–19 yrs	1,364,074	65–69 yrs	671,390
20–24 yrs	1,396,764	70–74 yrs	510,755
25–29 yrs	1,399,663	75–79 yrs	384,495
30–34 yrs	1,425,735	80–84 yrs	229,828
35–39 yrs	1,328,387	85+ yrs	154,247
40–44 yrs	1,294,271		
45–49 yrs	1,029,145	All ages	17,284,036

Source: ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

Country-of-birth (COB)-specific populations used in Chapter 3.1 (Overseas-born people) were derived from annual age-, sex- and COB-specific ERPs for all of Australia supplied by the Australian Bureau of Statistics. Equivalent populations for NSW were derived from these national populations by estimating the proportion of immigrants in each age, sex and COB strata who reside in NSW based on cubic splines

fitted to age-, sex-, COB- and State/Territory-specific counts from the 1981, 1986, 1991 and 1996 Censuses of Population and Housing (ABS), and then applying these proportions to the national age-, sex- and COB-specific ERPs for each year. This was done to ensure that the COB-specific populations for NSW were based on estimated residential populations and that the non-linear and often dramatic changes in immigrant populations in inter-Censal periods were accurately reflected in the NSW population estimates used.

1.3 Australian Bureau of Statistics Mortality Collection

Since Federation in 1900, all deaths for which a coronial inquiry is not required must be certified as to cause and date by a registered medical practitioner, and the certificate registered by the Registrar of Births, Deaths and Marriages in each State or Territory. Most deaths due to accidental causes, deaths occurring under suspicious circumstances (in which foul play cannot be excluded), deaths occurring shortly after anaesthesia or surgery, and deaths of persons who had not been seen by a medical practitioner in the year preceding their death, automatically become coronial cases and are registered by a coroner at the conclusion of an inquiry into the circumstances of the death. Most non-coronial deaths are registered with the relevant Registrar of Births, Deaths and Marriages within four weeks of the date of death. However, coronial inquiries can take months, and in some cases years, to conclude.

Deaths registered before 1999 have been classified by the Australian Bureau of Statistics (ABS) according to the 9th revision of the International Classification of Diseases (ICD-9, World Health Organization 1977). For deaths registered during or before 1996 a single code for the principal underlying cause of death (based on the information recorded on the death certificate by a medical practitioner or coroner) was selected for each death. For deaths registered in 1997 and 1998, ABS has used computer-assisted cause-of-death coding which yields up to 20 contributing causes of death in addition to the principal underlying cause of death. These contributing cause of death data have been used in the calculation of deaths due to diabetes mellitus and to provide additional information on deaths due to opiates.

Mortality data are supplied by the ABS by year of registration. Therefore, deaths occurring in the last few weeks of each calendar year (or the last few months for coronial cases) may not be registered until January in the subsequent year.

Important issues affecting the reliability and interpretation of mortality data include:

- the accuracy of the diagnosis recorded on the death certificate. If multiple conditions are present at the time of death, the decision about what the underlying cause of death was may be equivocal;
- misinterpretation of the guidelines for determining the underlying cause of death by the attending physician completing the death certificate (Weeramanthri and Beresford, 1992);
- errors in transcription and coding of death certificates.

ABS mortality data for deaths of NSW residents registered anywhere in Australia were accessed via the Health Outcomes Information and Statistical Toolkit (HOIST). Deaths are presented by year of death for calendar years 1988 to 1998. At the time of preparation of this report, the most recent mortality data available from ABS included only those deaths registered in 1998. The number of deaths due to a particular cause (or causes) which occurred in 1998 but which were registered in

1999, was estimated by taking the arithmetic mean over the previous three years of the number of deaths due to the cause in question in each age/sex strata, which were registered in the year after the year of death, and adding this number to the appropriate age/sex strata of the 1998 deaths. Where deaths were further categorised by geographical place of residence or country of birth, this imputation procedure was carried out separately for each category, thus accounting for the typically greater delays in registering deaths of people resident in rural areas.

1.4 NSW Inpatient Statistics Collection

The NSW Inpatient Statistics Collection (ISC) is maintained by the NSW Health Department's Information and Data Services Branch and consists of demographic and clinical information collected on separation (discharge, transfer or death) from all NSW public, private and Department of Veterans' Affairs hospitals, and public nursing homes. The reason for a hospital admission is coded according to the 9th revision of the International Classification of Diseases (ICD-9-CM). The principal diagnosis is the first ICD-9-CM coding variable reported on the hospital separation form and refers to the principal reason for admission. Up to 11 other diagnoses are recorded. In addition, up to two external cause codes (E-codes) are recorded for admissions for injury and poisoning (only one E-code was recorded prior to 1996/97). The ISC is a financial year collection.

Important issues affecting the reliability and interpretation of ISC data include:

- ambiguities in determining principal diagnosis and sequencing diagnoses (Connell, Blide and Hanken, 1984);
- completeness of the information supplied on the discharge summary;
- accuracy of coding.

The ISC was accessed via the Health Outcomes Information and Statistical Toolkit (HOIST). Hospitalisations are presented for the financial years from 1989/90 to 1997/98. Most conditions were classified on the basis of the principal diagnosis. For lower extremity amputations in persons with diabetes mellitus, the first five diagnoses were examined.

1.5 NSW Midwives Data Collection (MDC)

The New South Wales Midwives Data Collection (MDC) is a population-based surveillance system covering all births in NSW public and private hospitals, as well as home births. It does not receive notifications of interstate births where the mother is resident in NSW.

The data collection has operated continuously since mid-1986. It encompasses all live-births and still-births of at least 20 weeks gestation or at least 400 grams birth-weight. The MDC relies on the attending midwife to complete a notification form when a birth occurs. The form includes demographic items, and items on maternal health, the pregnancy, labour, delivery and perinatal outcomes, and has undergone three revisions over the years. Completed forms are sent to the Information Management and Clinical Systems Branch of NSW Health, where they are compiled into the MDC database. Since 1994, some hospitals have sent data in electronic form rather than on paper.

The MDC was accessed via the Health Outcomes Information and Statistical Toolkit (HOIST). Data are presented for calendar years from 1990–1998.

1.6 NSW Birth Defects Register

The NSW Birth Defects Register (BDR) was established in 1990, initially as part of the Midwives Data Collection but more recently as a separate register. Legislation to make the notification of birth defects recognised at up to one year of age mandatory, has been in effect since 1 January 1998. Prior to that, the BDR operated on a voluntary basis.

The BDR was accessed via the Health Outcomes Information and Statistics Toolkit (HOIST). Data are presented for calendar years from 1992–1997.

1.7 NSW Health Promotion Survey 1994

The NSW Health Promotion Survey 1994 (HPS) measured the prevalence of health behaviours and personal and environmental health risk factors in the NSW population. It used a geographically stratified random sample of approximately 16,000 NSW residents aged 18 years and over, and collected information via telephone interview (Graham-Clarke et al. 1995). HPS data were accessed via the Health Outcomes Information and Statistics Toolkit (HOIST). The Area Health Service boundaries used for presenting HPS data were those current in 1994.

1.8 NSW Health Surveys 1997 and 1998

In 1997 and 1998, the NSW Health Department, in conjunction with the 17 Area Health Services, conducted two large population health surveys using Computer Assisted Telephone Interviewing (CATI). The main aims of the surveys were to provide local and statewide information to inform service planning and policy development on self-reported health status, risk factors, and health service use and satisfaction. The survey questions focused on the six NSW health priority areas: cardiovascular disease, cancer, mental health, injury, diabetes and asthma. Question modules were also developed on health service use and satisfaction, and oral health.

The target sample for each year comprised 1,000 NSW residents aged 16 years and over from each of the 17 NSW Health Areas (total sample 17,000 people each year). A stratified two-stage cluster sample design was used, with simple random sampling of all potentially active telephone numbers within each NSW Health Area, and simple random sampling of household residents aged 16 years or more within each household contacted by telephone.

Interviews were conducted in six languages (English, Arabic, Chinese, Greek, Italian and Vietnamese). The total sample size was 35,027 respondents (17,531 in 1997; 17,496 in 1998). The overall response rate for both surveys was 70 per cent.

SAS version 6.12 was used to analyse survey data and calculate point estimates and 95 per cent confidence intervals. The survey sample was weighted to adjust for differences in the probabilities of selection among respondents, according to the number of eligible respondents in the household (1997 and 1998), and the number of residential telephone connections for the household (1998 only). Poststratification weights were also used to adjust for differences between the age and sex structure of the survey sample and the Australian Bureau of Statistics 1997 and 1998 mid-year population estimates (adjusted to exclude people resident in institutions for each Area Health Service).

Using the K10 to measure psychological distress.

The K10 (Kessler and Mroczec, 1992) was included in the 1997 and 1998 NSW Health Surveys as a relatively short measure of psychological distress that allowed comparison and validation against concurrent diagnostic data in the National Survey of Mental Health and Wellbeing.

The K10 measure is a 10-item questionnaire intended to yield a global measure of 'psychosocial distress' based on questions about the level of anxiety and depressive symptoms in the most recent four-week period. It contains low- through to high-threshold items. For each item, there is a five-level response scale based on the amount of time (from none through to all) during a four-week period when the person experienced the particular problem.

Scoring of the raw questionnaire assigns between one to five points to each symptom in the direction of increasing problem frequency. Thus the raw score range is from ten (all responses to all questions are 'none of the time') through to fifty (all responses to all questions are 'all of the time'). For presentation, these scores were converted to a 'T-score', calculated for respondents who answered nine or more questions by subtracting the mean score (for all respondents) from the individual total raw score, then dividing by the standard deviation, multiplying by 10 and finally adding 50. The T-score has a mean of 50 and a standard deviation of 10. Following standard conventions for instruments of this type, we chose a score of one standard deviation above the mean (that is, 60) as a useful level for further comparisons. This should not be regarded as a cutoff score for 'illness', since it is an arbitrary choice. The one chosen has the advantage that it classifies about the same proportion of males (11.2 per cent) and females (15.2 per cent) as having high levels of psychological distress as the percentages found to meet diagnostic criteria for anxiety and depression in other population studies.

Respondent numbers by country of birth, NSW Health Surveys 1997 and 1998

Country	Males	Females	Persons
Australia	11509	16320	27829
China	146	195	341
Former Yugoslav Republics	89	81	170
Germany	92	144	236
Greece	87	92	179
India	85	64	149
Italy	150	197	347
Lebanon	83	121	204
Netherlands	111	92	203
New Zealand	222	296	518
Philippines	65	153	218
United Kingdom & Ireland	1020	1211	2231
Vietnam	100	133	233
Other countries	1037	1132	2169
Total	14796	20231	35027

1.9 ABS National Health Survey (NHS) and National Nutrition Survey (NNS)

This series of five-yearly surveys, conducted by the Australian Bureau of Statistics, collects national information on illness and injury, health care use and health risk factors. Data from both the 1989/90 and 1995 National Health Surveys are presented in this report. Data were accessed via the Health Outcomes Information and Statistics Toolkit (HOIST), obtained as special tabulations from the ABS, or from published reports.

The National Nutrition Survey (NNS) was conducted by the ABS and the Commonwealth Department of Health and Family Services, in conjunction with the 1995 NHS. It collected data on food and beverage consumption, physical measurements and dietary habits and attitudes. The NNS data presented here were obtained from published reports.

1.10 School surveys

NSW Health has conducted surveys focusing on drug and alcohol use in NSW secondary schools on a three-yearly basis since 1993, and in NSW primary schools (Years 5 and 6) every three years since 1986. Data from these surveys were obtained from published reports (Cooney, Dobbinson and Flaherty, 1994; Bauman et al. 1994).

The most recent secondary school survey (1996) was conducted in conjunction with the NSW Cancer Council and the Anti-Cancer Council of Victoria. It collected information on a wide range of health issues, including sun protection, nutrition, physical activity, mental health and injuries. Data from this survey were obtained from published reports (Schofield et al. 1998).

1.11 NSW Central Cancer Registry data

The NSW Central Cancer Registry was established by the NSW Health Department in 1971 under the NSW Public Health Act. It has been administered by the NSW Cancer Council under contract since 1986. Notification of all newly diagnosed cases of and deaths due to malignant neoplasm by hospitals and the Registrar of Births, Deaths and Marriages was compulsory. In 1991 the Public Health Act was amended to make notification by pathology laboratories compulsory as well. Notification has traditionally been via a notification form, although electronic notification by hospitals (but not pathology laboratories) has been introduced in recent years.

A case of cancer is the occurrence of a malignant neoplasm in one organ of a particular person. Therefore, a case of malignant melanoma in a particular person counts as one case. If the same person subsequently develops leukaemia, the leukaemia counts as a second case. Incident cases and deaths registered before July 1999 were classified according to the 9th revision of the International Classification of Diseases (ICD-9, World Health Organization, 1977). Cases registered from July 1999 onwards have been classified according to the 2nd edition of the International Classification of Diseases for Oncology (ICD-O-2, World Health Organization, 1990). ICD-O-2 codes were translated back to ICD-9 codes for this report.

Cancer data were accessed via the Health Outcomes Information and Statistics Toolkit (HOIST). Cancer incidence data from the Registry are presented for the years 1992–1996 for all cancers except melanoma, breast and cervix, which are presented to 1998. The cancer mortality data presented are based on ABS mortality data.

1.12 National Survey of Mental Health and Wellbeing

The Australian Bureau of Statistics conducted the 1997 National Survey of Mental Health and Wellbeing of Adults from May to August 1997. It included a representative sample of persons living in private dwellings in all States and Territories of Australia. Approximately 10,600 people aged 18 years or over participated in the survey. The Survey was designed to provide information on the prevalence of a range of major mental disorders for Australian adults. These included anxiety disorders (panic disorder, agoraphobia, social phobia, generalised anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder), affective disorders (depression, dysthymia, mania, hypomania and bipolar affective disorder), alcohol use disorders (harmful use and dependence) and drug use disorders (harmful use and dependence). Other survey topics included: disability associated with mental disorders, health service use for a mental health problem and perceived need for health services for a mental health problem. Data from this survey were obtained from published reports (ABS, 1997).

1.13 Save Our Kids Smiles (SOKS) Survey data

The Save Our Kids Smiles (SOKS) program is a schools-based oral health risk assessment and managed care program for all NSW children in years K, 2, 4, 6 and 8. Dental therapists conduct a short assessment of children's oral health in schools and code participating children according to the urgency of their need for oral health care (code 1=require urgent care, code 2=routine or preventive care, code 3=do not require care at the moment). Caries status of all teeth (whether teeth are decayed, missing or filled) is also recorded. Data are entered into a database by Area Health Services and forwarded to the Oral Health Branch of NSW Health.

SOKS data have been collected annually since 1996. SOKS data were accessed via the Health Outcomes Information and Statistics Toolkit (HOIST). SOKS data are presented for the years 1997–1998.

1.14 NSW Notifiable Diseases Database (NDD)

The NSW Notifiable diseases database (NDD), formerly called the NSW Infectious Diseases Surveillance system (IDSS), is a networked database used by 17 Public Health Units (PHUs) located across NSW to register infectious disease notifications. Under authority of the Public Health Act 1991, the NSW Health Department receives notifications of infectious disease via PHUs from general practitioners, hospitals and pathology laboratories. Data are transferred weekly from PHUs to the Department, for compilation of statewide data. The Department, in turn, transfers a limited dataset to the Communicable Diseases Network of Australia and New Zealand (maintained by the Commonwealth Department of Human Services and Health).

The NDD collection was accessed via the Health Outcomes Information and Statistics Toolkit (HOIST). NDD data are presented for the years 1992–1998. NDD is a 'living' collection which is updated daily and so the date of analysis is included in table footnotes.

1.15 Australian Central Immunisation Register (ACIR)

The Australian Childhood Immunisation Register (ACIR) which is managed by the Health Insurance Commission (HIC) and commenced operation on 1 January 1996, is a register of the immunisation status of all children less than seven years of age. A Commonwealth/State cost-shared payment is made to service providers for data. Broadly the functions of the ACIR are:

- to collect immunisation information from immunisation providers and to administer a payments system to providers for reporting information;
- to provide immunisation status information to parents and providers and to administer a national recall/reminder service to parents;
- to provide immunisation coverage data.

ACIR supplies NSW Health with monthly coverage data that identifies children 'overdue' for immunisation, which are forwarded to Public Health Units for follow up, and quarterly coverage data by local government area. These latter data form the basis for the information presented in this report.

2. Statistical methods

2.1 Crude death rates

The crude death rate is an estimate of the proportion of a population that dies in a specified period. It is calculated by dividing the number of deaths in a specified period by the number at risk during that period (typically per year). It does not take into account the age structure of the population studied, and can be misleading when long-term trends are examined—or geographic areas are compared—because age structures of populations may vary over time or among areas.

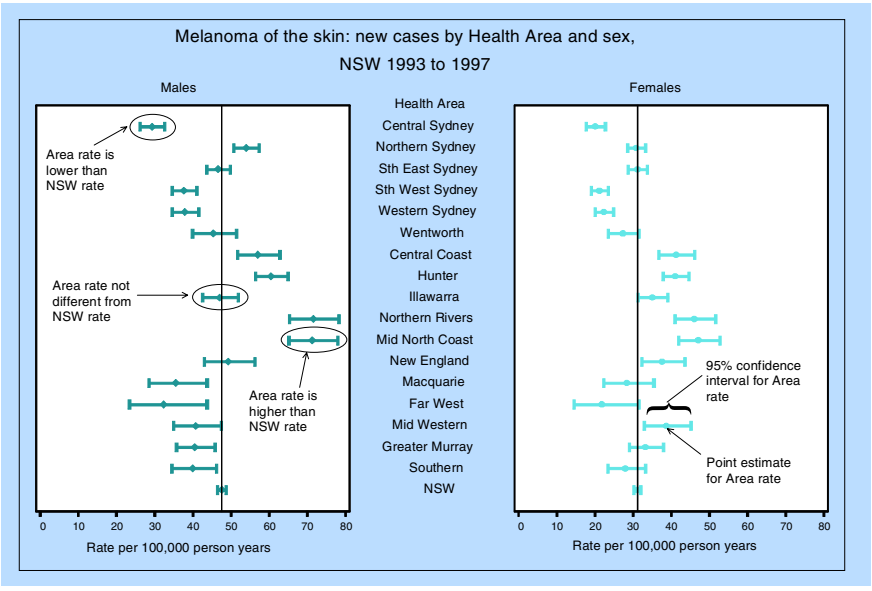
Crude death rates presented in this report used ABS estimated resident populations (ERPs) as at 30 June each year, and are expressed per 100,000 population per year.

2.2 Age-adjusted rates

Age-adjustment of rates used direct age-standardisation. This method adjusts for effects of differences in the age composition of populations across time or geographic regions. The directly age-standardised rate is the weighted sum of age-specific (five year age group) rates, where the weighting factor is the corresponding age-specific standard population. For this report, the Australian estimated residential population (persons) as at 30 June 1991 was used as the standard population (this is given in Methods section 1.2). The same population was used for males and females to allow valid comparison of age-standardised rates between the sexes.

Ninety-nine per cent confidence limits around the directly standardised rates were calculated using the method described by Dobson et al. (1991). This method gives more accurate confidence limits than the usual normal approximation for rarer conditions. Where the number of events is larger, the limits are equivalent to those calculated in the conventional fashion (Armitage and Berry, 1994).

The graph below shows age-adjusted incidence for melanoma for the years 1993–1997 for each of the NSW Health Areas. The standardised rate for NSW as a whole is indicated by the vertical reference line. The standardised rate, with its 95 per cent confidence limits, for each Health Area, is shown as a horizontal line, with a central box indicating the point estimate.



2.3 Life expectancy at birth

Life expectancy at birth is an estimate of the average length of time (in years) a person can expect to live, assuming that the currently prevailing rates of death for each age group will remain the same for the lifetime of that person. In fact, death rates will almost certainly change over the lifetime of a person born now, owing to changes in social and economic conditions, changes in lifestyle, advances in health care and possibly the emergence of new diseases. However, because no-one knows what the death rates for each age group and sex will be in the future, the usual practice is to use the current rates of death to calculate life expectancy.

For this report, life expectancy was calculated using abridged current life tables based on five-year age groups and 1994 death rates. The adjustment for mortality in the first year of life was used (Greville, 1943).

2.4 Life expectancy at age 65

The average number of additional years a person who has reached the age of 65 would expect to live if current mortality trends continue to apply is based on the age-specific death rates for a given year. This measure assumes that death rates will remain constant for the next 20 to 30 years, a much more conservative assumption than the one used to calculate life expectancy at birth.

For this report, life expectancy was calculated using abridged current life tables based on 5-year age groups and 1994 death rates. The adjustment for mortality in the first year of life was used (Greville, 1943).

2.5 Deaths and hospitalisations attributable to use of drugs and alcohol

Estimates of the numbers and rates of deaths and hospitalisations attributable to the use of tobacco, alcohol and illicit drugs were based on methods developed by English and Holman et al. (1995). They used meta-analysis of published scientific literature on the adverse health effects (and in a small number of instances, protective effects) of these substances to estimate the proportions of cases of specific diseases and injuries that could be attributed to each substance (aetiologic fractions).

For this report, an electronic file of the aetiologic fractions developed by English and Holman et al. was obtained from the Australian Institute of Health and Welfare, and these were applied to ABS Mortality data for NSW for the period 1989–1998, and NSW Inpatient Statistics data for the period 1989/90 to 1997/98.

2.6 Methods used for Chapter 3.5 *Socioeconomic groups*

The analyses in this chapter used a composite measure of socioeconomic status (SES), the index of relative socioeconomic disadvantage (IRSD, Australian Bureau of Statistics 1993) based on data from the 1996 ABS population census. The IRSD is a single score available for any configuration of geographical census areas. It is derived from multiple weighted variables relating to education, occupation, non-English-speaking background, indigenous origin, and the economic resources of households. Lower scores indicate lower SES. The score for Australia is set to 1,000 and the relative score for NSW overall is 1,006.

Analyses were ecological, using the local government area (LGA) as the unit of analysis for deaths data and postcode as the unit of analysis for NSW Health Survey data. The analysis included 177 NSW LGAs. The LGAs of Sydney and South Sydney were treated as a single unit because of multiple boundary changes over recent years. Individuals were classified into quintiles of IRSD for the postcode or LGA of their usual residence. Rates for each quintile were calculated for various health indicators. For deaths data, rates were directly age-standardised to the NSW population for 1991, using five-year age groups.

3. Quality assurance process

The preparation of a report such as this involves a great deal of complex data processing and manipulation, offering many opportunities for mistakes to be made. Although we cannot guarantee that the report is entirely free of errors, the following steps have been taken to avoid or detect as many errors as possible:

- all analyses use a single, shared set of datasets (contained on the HOIST system). The datasets on HOIST are carefully checked against the original source data to ensure their fidelity;
- all graphs and tables are produced using SAS programs that can be audited, rather than using interactive data manipulation facilities such as spreadsheets which are much more difficult to check;
- the SAS programs directly create the Web pages for the online version of the report as well as tables and graphs which were directly imported into Adobe PageMaker for typesetting the printed version. This minimises the possibility of transcription and typographical errors;
- every SAS program used in the production of this report was checked by someone other than the person who originally wrote it. Items such as the correct specification of ICD-9 and ICD-9-CM codes and correct selection of numerator and denominator data were systematically checked as part of this audit process;
- complex parts of the SAS programs were abstracted as a common, shared set of SAS 'macros' (callable subroutines). These macros, which were employed for operations such as imputation, direct standardisation and production of custom graph formats, were subject to rigorous testing before they were used;
- all results were checked against other, comparable sources wherever possible.

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Glossary

Admission	The formal process, using registration procedures, under which a person is accepted by a hospital or an Area or District Health Service facility as an inpatient using registration procedures.
Aetiologic fraction	A measure of the amount of disease associated with an exposure within a population. In a situation in which exposure to a given factor is believed to be a cause of a given disease, the population attributable fraction (or population aetiologic fraction) is the proportion of the disease in the total population that can be attributed to exposure to the factor.
Age-adjusted rate	Rate adjusted to take account of differences in age composition when rates for different populations are compared.
Age-specific rate	Rate for a specified age group. Both numerator and denominator refer to the same age group.
Contact	A person who has been in association with an infected person or a contaminated environment that may provide an opportunity to acquire the infection.
Confidence interval	The computed interval with a given probability (eg. 95 per cent) that the true value of a variable such as a rate, mean or proportion, is contained within the interval.
Crude death rate	An estimate of the proportion of a population that dies in a specified period. It is calculated by dividing the number of deaths in a specified period by the number at risk during that period (typically per year).
Day-only admission	A person who is admitted to hospital and leaves on the same calendar day.
Employed persons	All civilians aged 15 years and over who worked for pay or profit or worked without pay in a family business or farm.
Fertility rate	Number of live births in an area during a year divided by the mid-year female population aged 15–44 in the same area in the same year.
Fetal death	Delivery of a child who did not, at any time after delivery, breathe or show any other evidence of life, such as a heartbeat. Includes only foetuses weighing at least 400 grams or, where birth-weight was unknown, of at least 20 weeks gestation.
Hospital separation	see SEPARATION
Illicit drugs	The following drugs used for non-medicinal purposes: speed, cocaine, sleeping pills/tranquilisers, marijuana, analgesics, heroin, petrol sniffing, other inhalants, hallucinogens, designer drugs, and injecting of any illegal drug.
Incidence	The rate at which new cases of a disorder occur in the population: that is, the number of new cases in a specified period, divided by the population at risk of the disorder in that period.
Infant death	The death of a child before its first birthday.
Labour force	All persons aged 15 years and over who are employed and unemployed.
Participation rate	The labour force expressed as a percentage of the civilian population aged 15 years and over.
Life expectancy	The average number of years of life remaining to a person at a particular age.
Live birth	The birth of a child who after delivery, breathes or shows any other evidence of life, such as heartbeat. For calculation of perinatal death rates, includes only infants weighing at least 400 grams at birth or, where birth-weight is unknown, of at least 20 weeks gestation.

Neonatal death	Death within 28 days of birth of any child who after delivery, breathed or showed any other evidence of life, such as a heartbeat. Includes only infants weighing at least 400 grams at birth or, where birth-weight is unknown, of at least 20 weeks gestation.
Perinatal death	A fetal or neonatal death.
Prevalence	The number of people with a disease at a given time (point prevalence) or in a specified period (period prevalence), divided by the number of people at risk from that disease.
Principal diagnosis	The first ICD-9-CM coding variable reported on the hospital separation form. It means the final diagnosis that best accounts for inpatient care.
Rate ratio	The ratio of two rates: for example, the rate of disease in one population group divided by the rate in another population group.
Scheduled medical condition	Medical conditions to be notified under the provisions of the Public Health Act 1991.
Separation	The formal process whereby an inpatient leaves a hospital or other Area Health Service facility after completing an episode of care. For example, a discharge to home, discharge to another hospital or nursing home, or death.
Standardised rate	see AGE-ADJUSTED RATE
Unemployed	Persons aged 15 years and over who were not employed and who were actively seeking work, or waiting to be called back to a job from which they had been stood down.
Unemployment rate	The number unemployed expressed as a percentage of the labour force (that is, employed and unemployed).

Health Area	LGA
Central Sydney	Ashfield
Central Sydney	Burwood
Central Sydney	Canterbury
Central Sydney	Concord
Central Sydney	Drummoyne
Central Sydney	Leichhardt
Central Sydney	Marrickville
Central Sydney	South Sydney
Central Sydney	Strathfield
Central Sydney	Sydney
Northern Sydney	Hornsby
Northern Sydney	Hunters Hill
Northern Sydney	Ku-ring-gai
Northern Sydney	Lane Cove
Northern Sydney	Manly
Northern Sydney	Mosman
Northern Sydney	North Sydney
Northern Sydney	Pittwater
Northern Sydney	Ryde
Northern Sydney	Warringah
Northern Sydney	Willoughby
Western Sydney	Auburn
Western Sydney	Baulkham Hills
Western Sydney	Blacktown
Western Sydney	Holroyd
Western Sydney	Parramatta
Wentworth	Blue Mountains
Wentworth	Hawkesbury
Wentworth	Penrith
South Western Sydney	Bankstown
South Western Sydney	Camden
South Western Sydney	Campbelltown
South Western Sydney	Fairfield
South Western Sydney	Liverpool
South Western Sydney	Wingecarribee
South Western Sydney	Wollondilly
Central Coast	Gosford
Central Coast	Wyong
Hunter	Cessnock
Hunter	Dungog
Hunter	Lake Macquarie
Hunter	Maitland
Hunter	Merriwa
Hunter	Murrurundi
Hunter	Muswellbrook
Hunter	Newcastle
Hunter	Port Stephens
Hunter	Scone
Hunter	Singleton
Illawarra	Kiama
Illawarra	Shellharbour
Illawarra	Shoalhaven
Illawarra	Wollongong
South Eastern Sydney	Botany
South Eastern Sydney	Hurstville
South Eastern Sydney	Kogarah
South Eastern Sydney	Randwick
South Eastern Sydney	Rockdale
South Eastern Sydney	South Sydney
South Eastern Sydney	Sutherland
South Eastern Sydney	Sydney
South Eastern Sydney	Waverley
South Eastern Sydney	Woollahra
South Eastern Sydney	Lord Howe Island
Northern Rivers	Ballina
Northern Rivers	Byron
Northern Rivers	Casino
Northern Rivers	Copmanhurst
Northern Rivers	Grafton
Northern Rivers	Kyogle
Northern Rivers	Lismore
Northern Rivers	Maclean
Northern Rivers	Nymboida
Northern Rivers	Richmond River
Northern Rivers	Tweed
Northern Rivers	Ulmarra
Mid North Coast	Bellingen
Mid North Coast	Coffs Harbour
Mid North Coast	Gloucester
Mid North Coast	Greater Taree
Mid North Coast	Great Lakes
Mid North Coast	Hastings
Mid North Coast	Kempsey
Mid North Coast	Nambucca
New England	Armidale
New England	Barraba
New England	Bingara
New England	Dumaresq
New England	Glen Innes
New England	Gunnedah
New England	Guyra
New England	Inverell
New England	Manilla
New England	Moree Plains
New England	Narrabri
New England	Nundle
New England	Parry
New England	Quirindi
New England	Severn
New England	Tamworth
New England	Tenterfield
New England	Uralla
New England	Walcha
New England	Yallaroi
Macquarie	Bogan
Macquarie	Cobar
Macquarie	Coolah
Macquarie	Coonabarabran
Macquarie	Coonamble
Macquarie	Dubbo
Macquarie	Gilgandra
Macquarie	Mudgee
Macquarie	Narromine
Macquarie	Warren
Macquarie	Wellington
Mid Western	Bathurst
Mid Western	Blayney
Mid Western	Cabonne
Mid Western	Cowra
Mid Western	Evans
Mid Western	Forbes
Mid Western	Greater Lithgow
Mid Western	Lachlan
Mid Western	Oberon
Mid Western	Orange
Mid Western	Parkes
Mid Western	Rylstone
Mid Western	Weddin
Far West	Balranald
Far West	Bourke
Far West	Brewarrina
Far West	Broken Hill
Far West	Central Darling
Far West	Walgett
Far West	Wentworth
Far West	Unicorp Far West
Greater Murray	Albury
Greater Murray	Berrigan
Greater Murray	Bland
Greater Murray	Carrathool
Greater Murray	Conargo
Greater Murray	Coolamon
Greater Murray	Cootamundra
Greater Murray	Corowa
Greater Murray	Culcairn
Greater Murray	Deniliquin
Greater Murray	Griffith
Greater Murray	Gundagai
Greater Murray	Hay
Greater Murray	Holbrook
Greater Murray	Hume
Greater Murray	Jerilderie
Greater Murray	Junee
Greater Murray	Leeton
Greater Murray	Lockhart
Greater Murray	Murray
Greater Murray	Murrumbidgee
Greater Murray	Narrandera
Greater Murray	Temora
Greater Murray	Tumbarumba
Greater Murray	Tumut
Greater Murray	Urana
Greater Murray	Wagga Wagga
Greater Murray	Wakool
Greater Murray	Windouran
Southern	Bega Valley
Southern	Bombala
Southern	Boorowa
Southern	Cooma-Monaro
Southern	Crookwell
Southern	Eurobodalla
Southern	Goulburn
Southern	Gunning
Southern	Harden
Southern	Mulwaree
Southern	Queanbeyan
Southern	Snowy River
Southern	Tallaganda
Southern	Yarrowlumla
Southern	Yass
Southern	Young

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Angela Todd
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INDEX

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

U

V

W