



The Health of Queenslanders 2006

Report of the Chief Health Officer Queensland





Hepatitis B

Haemophilus influenzae type B

Measles, mumps, rubella

Varicella (chickenpox)

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Foreword

The Health of Queenslanders 2006 is the first in a series of two-yearly reports from the Chief Health Officer to inform Queenslanders about the health status of the population, as described in the Queensland Health Action Plan 2005. Queensland Health has a basic responsibility to monitor and report on the health of Queenslanders. This report identifies outstanding and emerging health issues confronting the population. Information from this series of reports will inform service planning in Queensland Health, with the goal to continue to improve health outcomes for Queenslanders.

Good health is one of Queensland's greatest assets. By objective standards and by international and national comparisons, the health of the people of Queensland is very good overall and continues to improve. However, there is still room for improvement. For some diseases and risk factors, Queensland has higher rates than other states and countries. In addition, rates of some conditions and health risk factors are increasing. Thus by actions to address these conditions and risk factors, better health for all Queenslanders is achievable. Specifically, the inequalities in health and the poor health of Aboriginal and Torres Strait Islander peoples require attention.

Health protection and promotion is integral to the good health of Queenslanders. The health status of the population is the result of a complex interaction of a broad range of individual, family, community and societal factors. Thus achieving significant improvements in health and reduction in health inequalities requires a whole of government and whole of community approach. That is, some improvements are achievable through action of the health system, particularly population health, preventive care, early intervention and disease management. However, significant responsibility also exists in other sectors at all levels of government, as well as individuals, communities, and business.

In order for us to address these issues, Queensland Health, other health service providers and other sectors whose work impacts on the health and well-being of the population, need to focus on the areas that will have the greatest gains for all Queenslanders. Information is critical to enable us to make decisions about where to focus and invest our efforts.

The reporting of health status in *The Health of Queenslanders 2006* is an important contribution to this information base.

Dr Jeannette Young
Chief Health Officer
Queensland Health
December 2006

About this report

This is the first publication of *The Health of Queenslanders*. These reports from the Chief Health Officer Queensland will be released every two years from 2006. The report includes selected population health indicators, which are standardised to monitor trends over time. The report also demonstrates the health differentials between Queenslanders.

Several sources of data were used to develop these indicators. The latest available data are presented, including a range of unpublished data from recent Queensland Health surveys and analysis of the Queensland burden of disease. These sources of data are cited and statistical methods are summarised in the Appendix. Unless otherwise indicated, all data refer to the total population.

The indicators in this report build upon previous Queensland Health reports, particularly *Health Determinants Queensland 2004*,³³ *The State of Health of the Queensland Population 2004*³⁴ and *Health Indicators for Queensland 2001*.^{35,36,37} All these reports are available on the Queensland Health website.

This report is available in printed form and on the Queensland Health website, www.health.qld.gov.au

Content

This report has four sections:

Section one, *A profile of Queensland's population*, includes the age, sex and geographic distribution of the population and population growth. It also includes the demographic information on the principal population groups in Queensland whose health status differs from the total population, namely socioeconomically disadvantaged people and Aboriginal and Torres Strait Islander peoples.

Section two, *Wellness and illness, the health status of Queenslanders*, includes quality of life and self reported health, burden of disease and injury, life expectancy and mortality, and avoidable deaths and hospitalisations. Information on these indicators is provided for all Queenslanders as well as sub-populations where possible, including males and females, age groups, populations of different socioeconomic advantage or disadvantage, areas of different accessibility/remoteness and Aboriginal and Torres Strait Islander peoples.

Section three, *Health behaviours of Queenslanders*, includes both risk and protective behaviours. Risk behaviours include smoking, inadequate fruit and vegetable consumption, physical inactivity, risky alcohol consumption, illicit drug use and unsafe sex. The risk factors of high blood pressure, high blood cholesterol and overweight and obesity are also included. The protective health behaviours include breastfeeding, sun safety, water fluoridation, cancer screening and immunisation. As for section two, information on these indicators is provided for all Queenslanders as well as sub-populations where possible.

Section four, *Health outcomes in Queensland*, principally reports on the Queensland information for the national health priorities, including deaths and hospitalisations. The report includes information on cancer, cardiovascular disease, diabetes, respiratory diseases, musculoskeletal diseases, injury and communicable diseases. As for the other sections, information on these indicators is provided for all Queenslanders as well as sub-populations where possible.

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Executive summary

The health of the people of Queensland depends on a variety of factors that surround individuals, families and communities. Wellness and illness are determined by the interaction of human biology, and lifestyle, environmental, political, social and environmental factors, modified by health care. All of these factors are amenable to change.

By objective international standards, the health of Queenslanders is generally very good. Compared with OECD countries, life expectancy in Australia is very high; ranked fourth after Japan, Switzerland and Iceland, with a difference of 1.8 years between Australia and Japan. Queensland is ranked just below Australia and higher than 24 OECD countries, including New Zealand, UK and USA. The difference in life expectancy between Queensland and the highest ranked OECD country is two years and between Queensland and the lowest ranked OECD country is 11.2 years.

Similarly, Queensland has very low all cause death rates, compared with the OECD countries. Australia is ranked third lowest, behind Japan and Iceland. Queensland follows Switzerland; the fourth ranked country.

Infant mortality in Queensland is marginally higher than the Australian rate, but the Australian rate is twice the rate of the best performing OECD country. Thus there is considerable potential for improvement in this important population health indicator.

The difference in life expectancy between the best performing OECD country and Australia and Queensland, is due to excess infant death and other causes of premature mortality. Coronary heart disease, suicide, transport related injury, lung and colorectal cancer and melanoma are the main causes of the excess premature death in both Queensland as compared with Australia, and Australia as compared with the best performing countries.

The vast majority of Queenslanders believe their health and quality of life to be excellent, very good or good, which is a good predictor of actual health.

Although Queenslanders are generally healthy and there have been major improvements in recent decades, there is still potential for better health across the state. For instance, we know that healthier environments, which support the entire population, can prevent 17 per cent of all deaths.⁹ In addition, significant gains in health status and life expectancy in Queensland could be achieved if the health of those who were most disadvantaged was improved. Such improvement is of critical importance for Aboriginal and Torres Strait Islander peoples.

Improvements in health will require an increased focus on all five key areas:³⁹

- Building healthy public policy across government and non-government sectors, eg foods sold at school tuck shops, 'walkability' criteria for residential development approvals.
- Creating supportive environments, eg public walkways, breast feeding facilities in shopping centres.
- Strengthening community action, eg 'walking' school bus, community gardens.
- Developing personal skills, including better lifestyle choices, eg knowledge of health, food choices.
- Increasing access to appropriate health services for prevention, early detection and disease treatment and management, eg cancer screening services, brief interventions for diet and physical activity.

"It makes little sense to expect individuals to behave differently from their peers; it is more appropriate to seek general change in behavioural norms and in the circumstances which facilitate their adoption."³⁸

The Future

Population growth and ageing will have a significant impact on the health needs of Queensland over the coming decades. The Queensland population is estimated to increase by about 3 million people over the next 45 years to reach 7.1 million in 2051. One in four people in 2051 will be aged 65 years or older, compared with one in eight in 2006.

Over the next 15 years, the number of hospitalisations in Queensland is projected to double as a result of changes in the population (growth and ageing) and the increasing burden of (potentially avoidable) chronic disease.

Type 2 diabetes is projected to become the largest cause of disease burden in 2023, principally due to substantial increases in the prevalence of overweight and obesity. Coronary heart disease is projected to remain a major cause of disease burden in Queensland despite continuing declines in mortality rates, as the effect of an ageing population becomes evident. Ageing will increase the disability burden due to dementia, adult onset hearing loss and osteoarthritis, with each projected to double over the next 20 years.

Health inequalities

Within the Queensland population there are substantial differences in health status and life expectancy. The greatest burden of death and ill health is borne by the most disadvantaged populations, particularly Aboriginal and Torres Strait Islander peoples from both urban and rural/remote parts of Queensland.

About one fifth of the total death and disability burden is due to socioeconomic inequality. If everyone experienced the same death rates as those in most advantaged areas about 1530 deaths of people aged less than 75 years could be avoided. Sociodemographic differences are seen in death rates from cancer and specifically lung cancer, coronary heart disease, diabetes, chronic obstructive pulmonary disease and asthma, and transport injury. People in areas of socioeconomic disadvantage have about 50 per cent higher rates of avoidable deaths and hospitalisations.

Aboriginal and Torres Strait Islander men die 22.5 years earlier and women 24.6 years earlier than other Queenslanders. The Aboriginal and Torres Strait Islander infant mortality rate is double that of other infants.

Avoidable death and hospital burden

Two thirds of all premature deaths of Queenslanders are potentially avoidable. This is around four per cent higher than nationally. These deaths are due to diseases and injuries that are either preventable or treatable. Significant improvements in the health of Queenslanders could be made through targeted efforts to reduce levels of overweight and obesity, smoking and risky alcohol use, and increase physical activity and improve diets. Modifying the health behaviours of men, women and children will result in improved outcomes.

The rates of avoidable death are about 50 per cent higher in areas of socioeconomic disadvantage than areas of advantage in Queensland. Around 1100 premature deaths each year could have been avoided if the rates were the same as those in advantaged areas.

Similarly, rates of avoidable death are at least 40 per cent higher in remote and very remote areas than in cities. If rates of avoidable death were the same as those in the cities about 560 deaths each year could have been avoided.

A substantial number of hospitalisations are potentially avoidable. In Queensland, similar to nationally, nine per cent of all public and private hospitalisations are avoidable through additional preventive care and early disease management in the ambulatory setting such as primary health care. If the preventability of other major preventable illnesses - such as coronary heart disease, stroke and lung cancer, and intentional and unintentional injury - is included, the real figure of avoidable hospitalisations would be much higher.

Burden of disease

Burden of disease studies are an approach used to measure the gap between the current health of the population and the ideal, where everyone lives into old age free of disease and disability. The burden of disease is a specific measure to capture the full impact of ill health in a population.

In Queensland, premature death accounts for 50.2 per cent of the burden of disease and injury in males and 43.1 per cent in females. The remainder of the burden is due to disability associated with ill-health. On average, Queenslanders lose 12.9 per cent of total life years either through premature mortality or disability. The total burden of disease in Queensland is similar to the Australian rate.

For Queensland:

- Cancers cause the largest disease burden, followed by cardiovascular disease and mental disorders.
- Mental disorders are the largest cause of years of life lost due to disability.
- For males, coronary heart disease is the largest specific cause of disease burden followed by diabetes, and anxiety and depression. For females, anxiety and depression is the largest cause, followed by coronary heart disease and stroke.
- While the total burden of disease in Queensland and Australia is similar, there are some notable differences; the injury burden for Queensland males is 12 per cent higher than Australian males while the mental disorders burden for Queensland females is 11 per cent lower than Australian females.
- Chronic diseases account for 87.6 per cent of the total burden of disease. The chronic diseases targeted in the Queensland Strategy for Chronic Disease 2005-2015 caused 26.4 per cent of the burden. These diseases were coronary heart disease, stroke, heart failure, Type 2 diabetes, renal disease, asthma and chronic obstructive pulmonary disease.
- Fourteen risk factors together explain about one third of the total burden of disease in Australia. Two thirds of the burden of cardiovascular disease is due to specific risk factors, including over 80 per cent of coronary heart disease. Risk factors cause three quarters of the burden due to Type 2 diabetes, one third due to cancer and injury, and one quarter of mental health burden.
- Overweight caused 8.5 per cent of the burden, the risk factor causing the largest burden. For males, tobacco smoking, followed by overweight, physical inactivity, high blood cholesterol and high blood pressure are the risk factors that cause the greatest disease burden. For females, overweight, followed by physical inactivity, high blood cholesterol, tobacco and high blood pressure are the major risk factors. At 16 per cent, the burden of disease due to poor diet is about twice that of smoking.
- The most socioeconomically disadvantaged Queenslanders have about 34 per cent higher rates of total burden than the more advantaged. Considering socioeconomic excess in the whole population, about 20 per cent of the burden of disease and injury in Queensland can be regarded as being due to socioeconomic disadvantage.
- Rates of burden of disease are higher in remote areas than metropolitan areas (about 20 per cent higher) and in regional areas than in metropolitan areas (about 10 per cent higher).
- The disability burden is projected to increase by 18 per cent per person and the premature mortality burden decrease by 12 per cent per person between 2003 and 2023 resulting in a small net increase in the total burden of disease (four per cent increase).
- Type 2 diabetes is projected to become the largest cause of disease burden in Australia in 2023, displacing coronary heart disease and anxiety and depression, which were leading causes in 2003. The burden due to Type 2 diabetes is projected to triple between 2003 and 2023, largely due to the effect of substantial increases in obesity prevalence on the disability component. For coronary heart disease, the premature mortality burden is projected to decrease with a small increase in the disability burden. The burden of anxiety and depression is projected to increase by about 13 per cent over this period. Ageing will increase the disability burden due to dementia, adult onset hearing loss and osteoarthritis, with each projected to double over the next 20 years.

Specific conditions

Cancer:

Death rates for all cancers have decreased since the mid-1990s. Death rates for breast cancer and cervical cancer are falling. Colorectal cancer death rates have also fallen, while the rate of new cases has risen.

Rates of new cases and death rates for lung cancer in females are rising. Queensland has the highest rates of melanoma incidence and death of any Australian state, with Australian rates among the highest in the world. At least one third of all cancers could be prevented with a healthy diet, sufficient physical activity, being smoke free, alcohol consumption within guidelines and being sun safe.

Coronary heart disease:

Rates in Queensland are about ten per cent higher than national rates and within the OECD, Australia is a middle ranking country for coronary heart disease. In Queensland, about 27 per cent of premature death, or about 350 deaths per year can be regarded as being due to socioeconomic disadvantage. While death rates due to coronary heart disease have fallen greatly, it remains the condition with the greatest potential for health gain for Queenslanders. Queensland, like Australia, has high levels of the risk factors for coronary heart disease; overweight, physical inactivity and smoking.

Mental health:

About one in eight people (13 per cent) report a long term mental or behavioural problem: one in seven (15 per cent) report high levels of psychological distress. Both figures are higher than national levels. Levels of psychological distress have risen since 1997. Suicide remains a problem, with about 500 suicides each year, of which 81 per cent were male. The Queensland male rate is about 20 per cent higher than the national rate. Australia is a middle ranking country in OECD rankings for suicide.

Chronic respiratory disease:

Asthma is the leading cause of disease burden in Queensland children. One in eight (14 per cent) Australian children has asthma, and rates are high by international standards. Chronic obstructive pulmonary disease death rates are decreasing, with halving of the male rate over the last two decades. Smoking is a major risk factor associated with these deaths.

Injury:

In the past decade in Queensland there have been major reductions in the death rates due to several types of injury. Many more deaths can be prevented. There are about 370 deaths per year due to transport related injuries in Queensland. Fall-related injury in older people could become an epidemic, due to population ageing.

Diabetes:

Prevalence of diabetes is increasing. In 2003, about 156,000 Queenslanders were estimated to have Type 2 diabetes with about 17,000 new cases diagnosed each year or about 50 new cases per day. Risk factors which make a large contribution to the rate of onset of diabetes and its complications are amenable to change.

Communicable disease:

While many communicable diseases have been declining, rates of sexually transmissible infections including chlamydia, gonorrhoea and HIV have increased in Queensland.

Health behaviours

Reductions in illness and premature death are achievable through interventions to reduce risk factors before and after they reach high levels. Small changes in population health behaviours, eg eating one more serve of vegetables per day, can make a difference in risk of developing a disease. This is particularly the case for coronary heart disease, diabetes, stroke and some cancers.

Tobacco smoking:

In Queensland, 22 per cent of males and 18 per cent of females report smoking daily: rates for both are about 14 per cent higher than national rates. About 12 per cent of teenagers smoke daily, higher than 11 per cent nationally.

Overweight:

There is an epidemic of overweight and obesity in children and adults. One quarter of children aged 7-16 years are overweight or obese. For boys the rate of increase in overweight is speeding up, while for girls the rate of increase is steady or slowing. For adults, 58 per cent of men and 42 per cent of women report being overweight or obese. Since 1998 there has been about a 60 per cent increase in obesity in men and 25 per cent in women.

Fruit and vegetables:

Only 15-25 per cent of children, nine per cent of men and 15 per cent of women eat sufficient vegetables each day. About half (53 per cent) of adults and 12-18 per cent of children eat sufficient fruit each day.

Physical activity:

Less than half the adult population (48 per cent) do enough physical activity to achieve a health

benefit; levels of inactivity in Queensland are about 15 per cent higher than national levels. Activity levels have increased in recent years but are still lower than in 1997.

Alcohol

About 12 per cent of males and 10 per cent of females, drink potentially harmful amounts of alcohol.

Breastfeeding:

At six months of age, 57 per cent of infants are breastfed, well below the national target of 80 per cent.

Immunisation:

Infant vaccination rates in Queensland are high but have not reached the target of 95 per cent coverage. Improvement in four year old and school aged children vaccination rates is also required.

Water fluoridation:

Five per cent of Queenslanders live in areas with satisfactory water fluoridation levels, compared with 69 per cent of Australians. Queensland children have about 30 per cent more decayed permanent and deciduous teeth than Australian children.

Better health for Queenslanders can be achieved because:

- Lower rates of disease in some Australian states and OECD countries demonstrate potential for improvement in Queensland.
- For some diseases, large and rapid improvements have occurred and are expected to continue, for example cancer and coronary heart disease.
- Prevention is becoming a focus: this includes increased awareness of the biological, behavioural, social, economic and environmental factors that increase the risk of ill health. Reductions in the high levels of some of the modifiable risk factors in some populations are a priority.
- There is clear scope to improve the relatively poor health of Queenslanders at socioeconomic disadvantage, most notably Aboriginal and Torres Strait Islander peoples.
- There is growing recognition of the contribution of morbidity as well as mortality to the burden of disease, and the identification of major sources of morbidity such as anxiety and depression.
- Continuing advances in health research and technology can lead to earlier detection, better diagnosis and improved treatment.

Introduction

Queenslanders enjoy a quality of life and health that is similar to, or even better than that found almost anywhere in the world using objective standards.³³ The health of Queenslanders generally continues to improve.

Despite this overall high standard, good health is not enjoyed by all Queenslanders, with differences in health outcomes across population groups – some of these differences are quite dramatic. It is important that good health is experienced by all groups and that improvements in health status are equal to or better than national or international levels.

The Health of Queenslanders 2006 reports on the health status and burden of disease of Queenslanders; it compares their health status with that of other states and territories, and places Queensland in international rankings for key health outcomes. While health status of the Queensland population partly reflects the performance of the health system at the broadest level, population health is principally influenced by other factors.

Health has several important aspects. In 1946 the World Health Organization (WHO) defined health as ‘*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*’.⁴⁰ While this definition can also be seen as a goal, it helps convey that:

- health is an important part of well-being, of how people feel and function, and also how they contribute to social and economic well-being;
- health is not simply the absence of illness or injury, and there are degrees of good health as well as bad health; and
- health should be seen in a broad social context.⁴¹

Many factors determine and influence health. Wellness and illness are determined by the interaction of human biology, and lifestyle, political, social and environmental factors, modified by health care.⁴¹ These factors are changeable and can favour health or be harmful to it.³⁹ The range of determinants of health and the differences in health between Queenslanders need to continue to be addressed to meet the challenges for health in the future.³³

Access to health services, the ability to act on health advice, and the capacity to modify health risk factors are all changed by the circumstances in which people live and work.⁴²

Social and economic differences are one of the major public health challenges confronting Queensland.⁴³ In Queensland, like the rest of the world, disadvantaged populations generally have the poorest health, which is a big challenge for health systems everywhere.⁶

Disadvantage takes many forms and may be absolute or relative. It can include fewer assets, having a poorer education during adolescence, having insecure employment, living in poor housing, trying to bring up a family in difficult circumstances, or living on an inadequate income.⁶

People living in poorer socioeconomic circumstances have a shorter life expectancy and most diseases are more common.^{6,44} The effects are not confined to the poor: the social gradient in health runs right across society. Socioeconomic differences in health are found at every stage throughout life for both females and males. Socioeconomic inequalities in health have been extensively reported for Queensland.³³

Wellness and illness are the result of the interaction of human biology, and lifestyle, environmental, social and economic factors, modified by health care.


Social, economic and health disadvantages tend to concentrate among the same people, and their effects on health accumulate during life.⁶ Often the factors that lead to the development of disease or a disorder have had their beginnings years earlier. This will be through a complex chain of events and interactions among the individual, the environment, and broader social and economic factors.⁴⁵

Some factors have an immediate impact on health, while other events or exposures in early life, or throughout life, may result in ill-health later in life. For example, the longer people live in stressful economic and social conditions, the greater the physiological wear and tear, and so the less likely they are to enjoy a healthy old age.⁶ Poor maternal nutrition can impact on growth and development of a baby before birth, and lead to organ damage and chronic disease later in life.⁴⁶

Valid and reliable health information is fundamental to developing effective health policies and programs, and for general health-system development.⁴⁷

Information on health must try to take into account the many factors that improve or reduce health and well-being, the process and features of disease and health determinants and the management of illness and disability.⁴¹

Looking at specific causes of death, disease or risk factor burden and comparing them across Queensland, across Australia and internationally, can help identify where we are doing well and where there is potential for improvement.



Social and economic differences are one of the major public health challenges for Queensland

1 A profile of Queensland's population

In this chapter

- Age and sex distribution
- Population growth
- Geographic distribution

Queensland's population was estimated to be 4,035,707 in March 2006, or 19.6 per cent of Australia's estimated population of around 20.55 million.⁴⁸ Based on estimates, in 2006 there were 139,527 Aboriginal or Torres Strait Islanders or both (Indigenous peoples) living in Queensland (3.5 per cent of the Queensland population).⁴⁹ About 603,800 Queenslanders were born overseas and about 40 per cent of these spoke a language other than English at home, and about five per cent did not speak English at all or did not speak it very well.⁵⁰

Two demographic factors will have a big impact on the health needs of Queensland over the coming decades. Firstly, sustained population growth is evident in Queensland, particularly in the south-east and coastal areas. Secondly, the state's population is ageing, similar to other states and many developed countries.

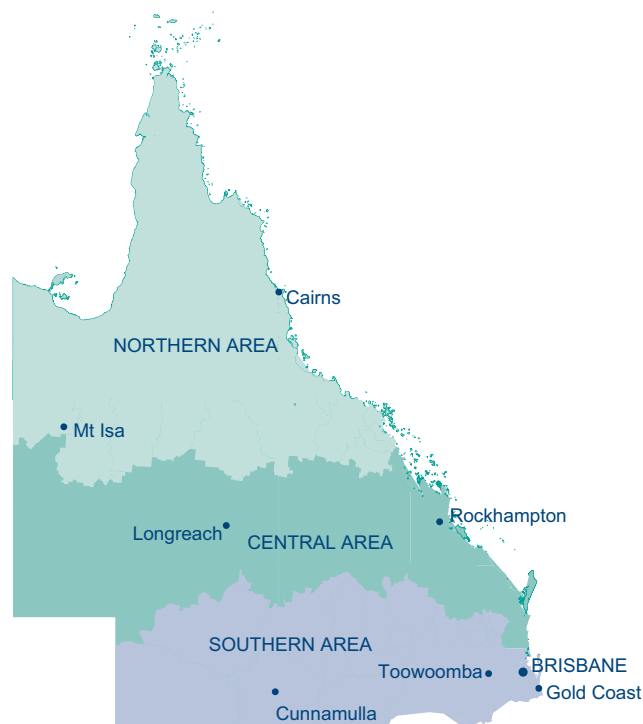
■ Socioeconomic disadvantage

■ Aboriginal and Torres Strait Islander peoples

There are health inequalities in Queensland with those at greatest risk being socioeconomically disadvantaged people, Indigenous peoples, and those with poorer access to health care. Health needs of other specific populations also need to be considered, including those of diverse cultural and linguistic backgrounds.

Key demographic indicators associated with health status and health inequalities are critical when considering health outcomes and future health needs of Queenslanders. These demographic indicators were used to profile areas within Queensland in 2004³³ and are used in this section to describe the Queensland population in 2006.

Figure 1: Area Health Services in Queensland



1.1 Age and sex distribution

The age structure of Queensland's population is similar to that of Australia and other developed countries. It reflects relatively low fertility rates, low infant mortality rates and generally low premature mortality (Figure 2). Like many developed countries, Queensland has an ageing population. In the 20-year period between 1985 and 2005, the median age of Queenslanders increased by six years from 29.9 years to 35.9 years.⁵¹ A similar change was seen in other states and nationally, although Queenslanders are slightly younger than residents of other states, but not the territories.

Ageing in Queensland is also shown in the projected increase in the proportion of people aged 65 years and older; from 12.4 per cent in 2006 to 26.2 per cent in 2051. The proportion of older people in the population

is projected to exceed the proportion of children by 2021 (Figure 3).

The Indigenous population of Queensland has higher fertility rates and higher levels of premature death across the life course from infancy, than the non-Indigenous population. This results in a markedly different population structure (Figure 2). The Indigenous population is substantially younger than the non-Indigenous population. In 2001, about 50 per cent of the Indigenous population was aged less than 20 years, compared with 28 per cent of the non-Indigenous population. At the same time four per cent of the Indigenous population was aged 60 years or older compared with 16 per cent of the non-Indigenous population.

Figure 2: Age and sex profile, Queensland 2001⁵²

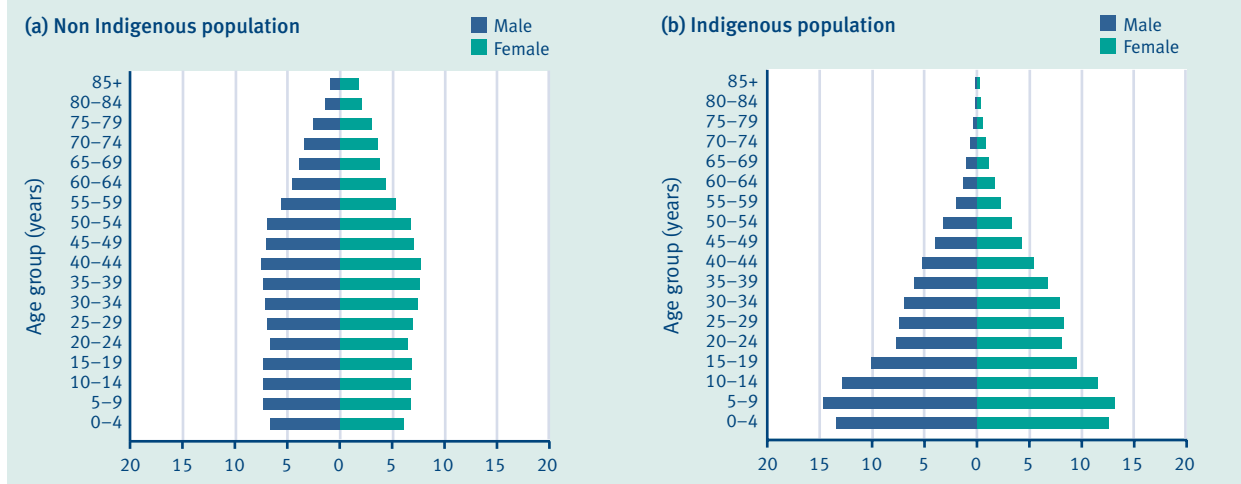
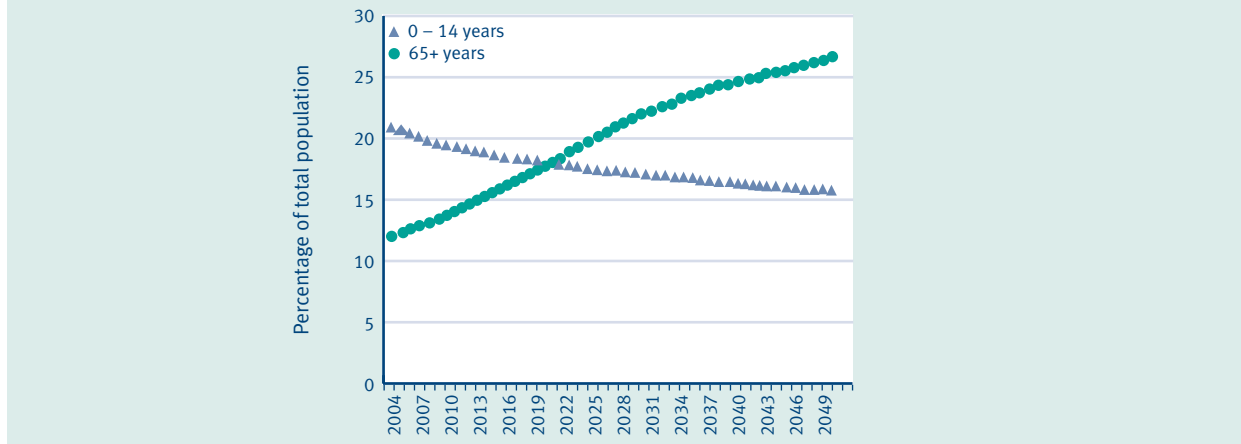


Figure 3: Projected change in proportion of children and older people, Queensland 2001 to 2051⁵³



1.2 Population growth

Queensland is a rapidly growing state, with annual growth of 2.2 per cent per year from 2000 to 2005.⁵⁴ Since 1860, Queensland has generally attracted an increasing share of the Australian population, with relatively higher growth than other states evident over the past 20 to 30 years (Figure 4).⁵⁵ Queensland's population is projected to increase by 3.2 million people in the 47 year period from 2004, resulting in a population of about 7.1 million in Queensland in 2051.⁵³

While the greatest increase will occur in the age group 60-79 years, population growth is expected in both males and females of all age groups (Figure 5). Most

of the growth in Queensland is expected to be in the south east of the state, with moderate growth generally along the coast and stable or declining population in the western areas.⁵³

Health in Queensland must be considered against the backdrop of a rapidly growing population, an ageing population and a dispersed population.

Figure 4: Queensland population as a percentage of Australia's population, 1860 to 2005⁵⁵

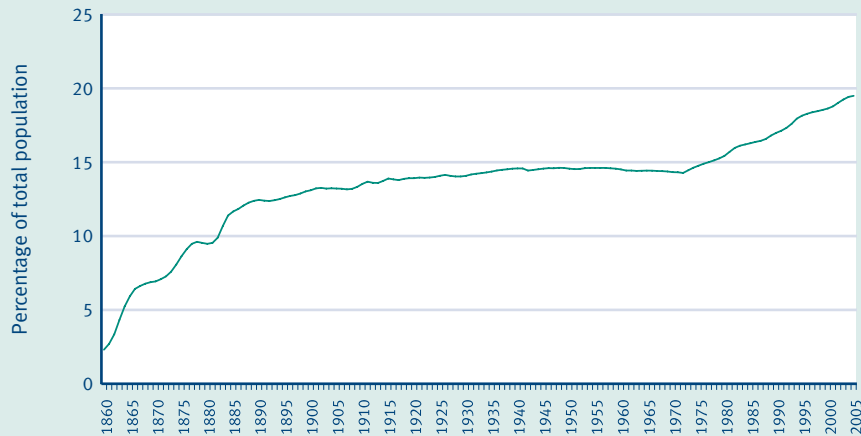
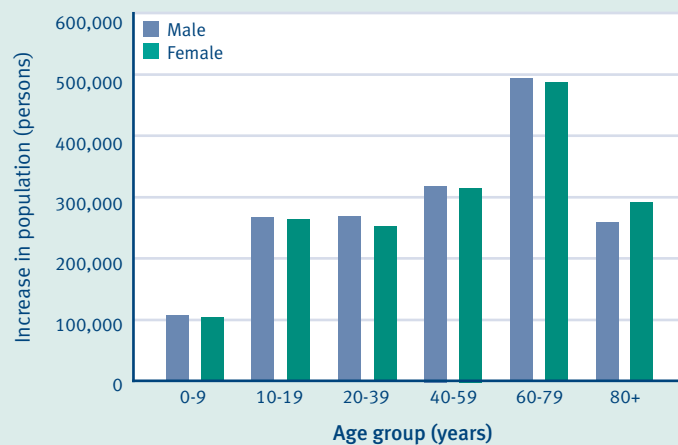


Figure 5: Projected population increase, Queensland 2004 to 2051⁵³



1.3 Geographic distribution

Compared with most other states, the Queensland population is more decentralized. More than half of the state's households were located outside Brisbane in 2001 (second only to Tasmania in the proportion of households outside the capital city).⁵⁶ Queensland has about 700,000 people living in outer regional areas⁵⁷ and 150,000 people living in remote and very remote areas;⁵⁷ in both cases this is a higher number than the other states and territories (Figure 6).⁵⁸

For a population that is widely dispersed, delivery of health services is a challenge. Similarly, for the

individual, access to prevention programs and services, and acute and non acute care services is very important for improved health outcomes.

While Indigenous peoples are less urbanised than non-Indigenous people, in 2001 about 50,000 Indigenous Queenslanders (45 per cent) lived in major cities and inner regional areas (Figure 7).⁵² A further 33,000 or 29 per cent lived in outer regional areas.

Figure 6: Population living in selected areas, interstate comparisons 2004⁵⁸

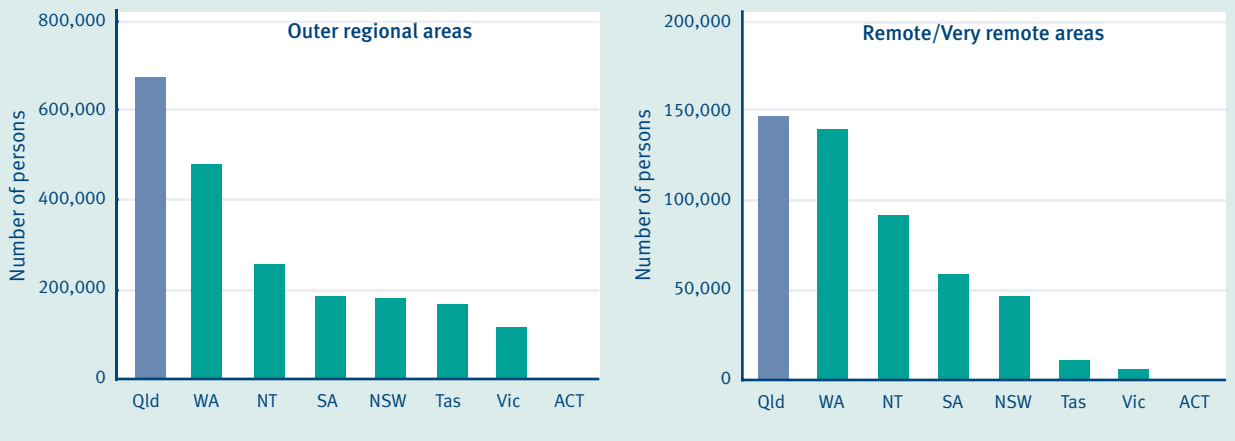
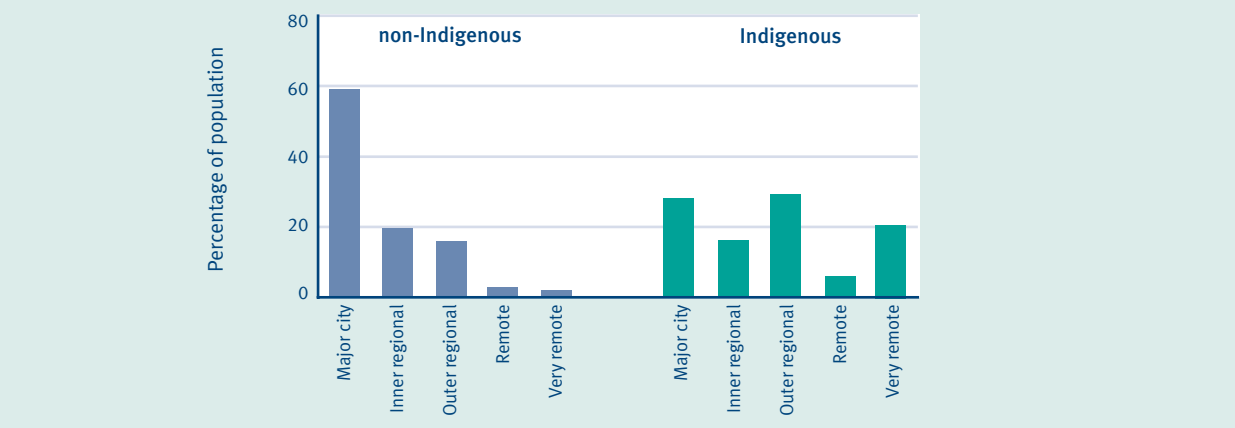


Figure 7: Population distribution, Queensland 2001⁵²



1.4 Inequalities in health

Health inequalities are systematic differences in health status between different groups in the population. The level of good health varies across Queensland, with health differentials found between:

- males and females;
- people living in areas of socioeconomic advantage and disadvantage;
- Indigenous peoples and the non-Indigenous population; and
- areas of accessibility and remoteness.

Sometimes health differentials in these groupings overlap and combine. For example, Indigenous peoples are more likely to live in areas of greater socioeconomic disadvantage; many also live in remote and very remote areas. All of these factors contribute to poorer health outcomes for Indigenous peoples.

Socioeconomic disadvantage

Socioeconomic inequalities in health are clear and well documented for Queensland^{17,33} and worldwide.⁵⁹ Socioeconomic disadvantage is associated with lower incomes, unemployment, poorer education, housing disadvantage and language barriers.⁶⁰ The definition of socioeconomic disadvantage used in this report, and how it is estimated is described in the Methodology (Appendix). In this report, the term 'area of greatest socioeconomic disadvantage/advantage' refers to the relevant quintile of the Index of Relative Socioeconomic Advantage/Disadvantage, an area based measure.⁶¹

There are differences in health between socioeconomic levels across a wide range of outcomes and conditions including life expectancy (Figure 21), burden of disease (Figure 12), avoidable deaths (Figure 30) and

hospitalisations (Figure 35), coronary heart disease (Figure 61), diabetes (Figure 63), suicide (Figure 66), and chronic respiratory conditions (Figure 67). Similarly, differences in health risk behaviours across areas of socioeconomic difference are reported in Section three of this report.

Pockets of extreme socioeconomic disadvantage are found across Queensland including outer Brisbane metropolitan areas, coastal areas, rural areas and northern remote areas.³³ Overall, higher proportions of disadvantage (quintile of greatest disadvantage) are seen in inner regional areas (34 per cent of the population are disadvantaged) compared with major cities (11 per cent) and remote areas (five per cent) (Figure 8).

Indigenous peoples are likely to be disadvantaged irrespective of where they live (Figure 8). In Queensland in 2001, 84 per cent of Indigenous peoples in major cities lived in areas of greatest socioeconomic disadvantage, compared with 11 per cent of the non-Indigenous population. More than 99 per cent of Indigenous peoples living outside major cities were in areas of greatest disadvantage. Socioeconomic disadvantage among Indigenous peoples is evident in a range of indicators across the lifecourse including child protection orders, educational achievements, court appearances and employment (Figure 9) with rates among Indigenous peoples up to 20 times higher than rates among non-Indigenous people for some indicators.

Poverty, deprivation and social exclusion have a major impact on health and premature death. Some groups experience a high load of poverty and so suffer poor health outcomes.⁶

Figure 8: Socioeconomic disadvantage in Queensland: percentage of population living in area of greatest disadvantage, 2001⁶²

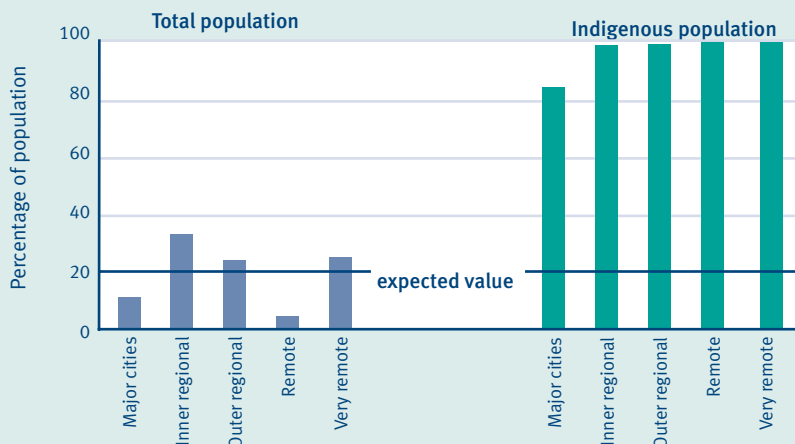
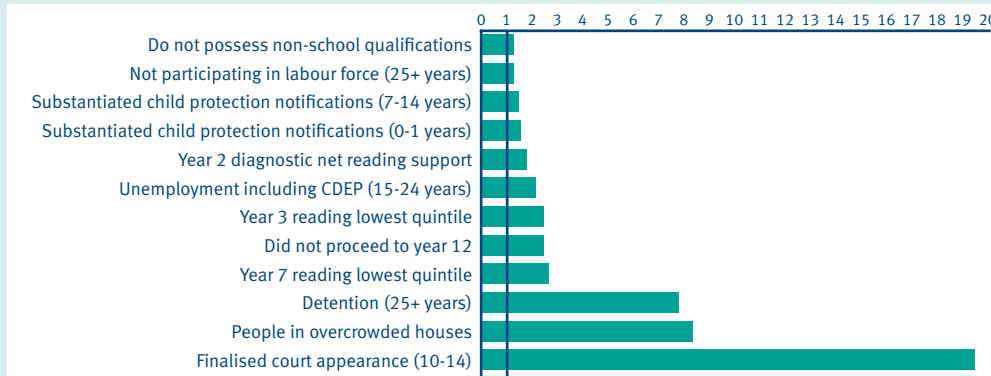


Figure 9: Selected indicators of disadvantage among Indigenous peoples, Queensland*⁶³

If Indigenous rate is same as non Indigenous the rate ratio equals 1

Rate ratio



* Data were derived different years and sources from 2001 onwards CDEP: Community Development Employment Program

Aboriginal and Torres Strait Islander peoples

In 2001, based on the census count there were 112,772 people who identified as Aboriginal or Torres Strait Islanders or both (Indigenous peoples) living in Queensland.⁶⁴ The census is considered to underestimate the number of Indigenous people. When this undercount is adjusted for and estimates of population growth included (low series estimates), in 2006 there were 139,527 Indigenous people in Queensland; 27.5 per cent of the Indigenous population of Australia.⁴⁹ About 3.5 per cent of the Queensland population is Indigenous, compared with 2.5 per cent of the Australian population.

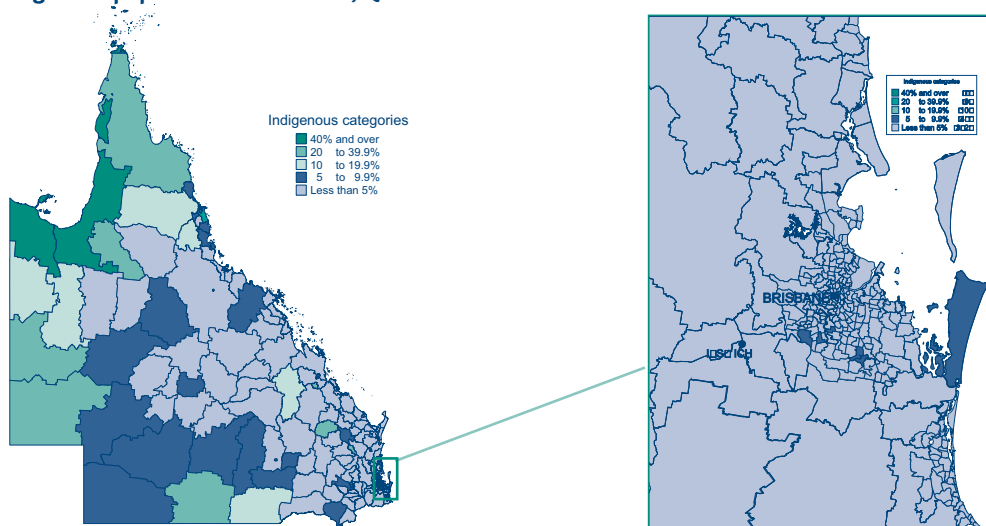
The health disadvantage among Indigenous peoples is well reported. In recent years the overall improvement of Indigenous health is mixed.⁶⁵ While there have been a few small gains in some areas, there has been a weakening in others. The bottom line is that there is

still a great absolute difference in overall health status between Indigenous and non-Indigenous peoples.

There is a common misconception that the health disadvantage of Indigenous peoples is associated with living in remote locations. However, reports in Queensland show that Indigenous peoples living in urban areas also have poorer health than non-Indigenous people.³³ The poorer health of Indigenous peoples is partly due to socioeconomic disadvantage (Figure 8).

Death and hospital statistics for Indigenous Queenslanders are of variable quality because of differences in the identification of Indigenous peoples within the data collections. Proxy health outcomes for Indigenous Queenslanders are reported by five categories representing the proportion of the population self-identified as Indigenous (Figure 10).

Figure 10: Indigenous population distribution, Queensland 2001⁵²



2 Wellness and illness, the health status of Queenslanders

In this chapter

- Self reported health
- Quality of life
- Burden of disease
- Life expectancy
- Infant mortality
- All cause deaths
- Avoidable deaths
- All cause hospital separations and projections
- Avoidable hospital separations

Health is defined by the World Health Organization as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.⁶⁶ Yet most health statistics relate to ‘ill’ health rather than ‘positive’ health, mainly because ill health is much easier to target and measure.

An accurate, objective picture of the health of Queenslanders requires that both their well-being and ill health are considered. This section outlines ill health indicators such as burden of disease and infant mortality, as well as well-being indicators such as quality of life.

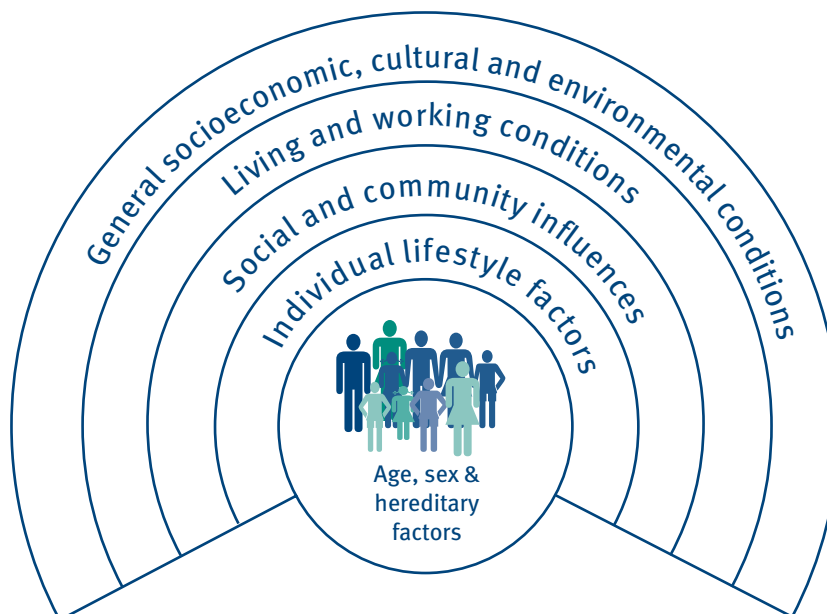
Improvements in health will require an increased focus on all five key areas:³⁹

- Building healthy public policy across government and non-government sectors, eg foods sold

at school tuck shops, ‘walkability’ criteria for residential development approvals.

- Creating supportive environments, eg public walkways, breast feeding facilities in shopping centres.
- Strengthening community action, eg ‘walking’ school bus, community gardens.
- Developing personal skills, including better lifestyle choices, eg knowledge of health, food choices.
- Increasing access to appropriate health services for prevention, early detection and disease treatment and management, eg cancer screening services, brief interventions for diet and physical activity.

The determinants of health⁶⁷



2.1 Self reported health and quality of life

How people perceive their health is a powerful, independent predictor of their actual health and likelihood of survival.^{41,68,69} This association between 'self rated' health and 'actual' health applies to many populations regardless of their age, sex, illnesses and disabilities, personality and social supports.

Most adults in Queensland in 2005 were very positive about their health and quality of life. Around 83 per cent described their health as 'good', 'very good' or 'excellent'. As men and women age, an increasing proportion described their health as 'fair' or 'poor' (Table 1). Fewer people described their health as good

in areas of greatest socioeconomic disadvantage compared with those living in areas of advantage. Self ratings of health for Queenslanders in 2004/05⁷⁰ were not significantly different from those reported nationally.⁷¹

Similarly in 2005, most adults in Queensland (90 per cent) rated their quality of life as very good or good (Table 1). Young people and those living in areas of socioeconomic advantage generally rated their quality of life higher.

Table 1: Self reported health and quality of life, percentage (95%CI), Queensland 2005⁷²

| | | Self reported health | Quality of life |
|---|---------------------------|-------------------------------------|-----------------------------------|
| | | Excellent, very good or good health | Very good or good quality of life |
| Persons | 18+ years | 83.1 (80.9-85.0) | 90.0 (88.2-91.5) |
| Male | 18+ years | 81.4 (78.0-84.4) | 88.2 (85.3-90.7) |
| Female | 18+ years | 84.7 (81.9-87.0) | 91.7 (89.5-93.4) |
| Male | 18-29 years | 91.8 (83.6-96.1) | 93.5 (84.7-97.4) |
| | 30-39 years | 85.1 (77.0-90.7) | 90.9 (84.2-94.9) |
| | 49-49 years | 87.7 (80.7-92.5) | 87.5 (80.0-92.4) |
| | 50-59 years | 75.6 (66.6-82.8) | 86.9 (79.5-91.9) |
| | 60-69 years | 68.2 (56.3-78.1) | 79.6 (68.0-87.7) |
| | 70+ years | 62.5 (51.7-72.2) | 84.2 (75.2-90.3) |
| Female | 18-29 years | 89.0 (80.7-93.9) | 93.6 (86.3-97.2) |
| | 30-39 years | 91.7 (85.9-95.3) | 95.7 (91.0-98.0) |
| | 49-49 years | 90.4 (84.2-94.3) | 91.8 (86.3-95.1) |
| | 50-59 years | 80.4 (73.5-85.9) | 87.4 (81.2-91.7) |
| | 60-69 years | 80.7 (72.8-86.7) | 91.2 (85.1-94.9) |
| | 70+ years | 67.1 (58.3-74.9) | 88.3 (81.7-92.8) |
| Socioeconomic advantage/ disadvantage (persons 14+ years) | Quintile 1 (disadvantage) | 80.4 (75.0-84.8) | 86.3 (81.5-90.1) |
| | Quintile 2 | 82.6 (77.9-86.4) | 88.9 (84.9-91.9) |
| | Quintile 3 | 81.1 (76.0-85.3) | 90.6 (86.6-93.6) |
| | Quintile 4 | 84.7 (80.1-88.4) | 91.9 (88.4-94.4) |
| | Quintile 5 (advantage) | 88.1 (82.5-92.0) | 92.9 (86.7-96.3) |
| Accessibility (18+ years) | Major cities | 82.8 (79.7-85.5) | 91.7 (89.3-93.6) |
| | Inner regional | 82.9 (78.9-86.4) | 87.3 (83.5-90.3) |
| | Outer regional | 83.0 (77.6-87.4) | 88.9 (84.2-92.4) |
| | Remote | 90.7 (73.1-97.2) | 97.5 (83.9-99.7) |
| | Very remote | 87.8 (61.2-97.0) | 87.8 (61.2-97.0) |

2.2 Burden of disease

The Burden of Disease is an approach to measure the gap between the current health situation and the ideal. It is an important measure of population health as it gives a richer picture than that provided by traditional mortality and hospital statistics.

More specifically, burden of disease measures the gap between the current health status and the ideal situation where everyone lives into old age free of disease and disability.⁷³ It is the total impact of health conditions judged by years of life lost due to disability and premature mortality.

The population burden of disease can be measured using the Disability Adjusted Life Years (DALYs) methodology.⁷³ One Disability Adjusted Life Year (DALY) is one year of 'healthy' life lost by either premature death or disability.

Burden of disease for Queensland

In 2003 in Queensland, the burden of disease and injury was estimated to be 489,058 DALYs, which means that on average Queenslanders lost 12.9 per cent

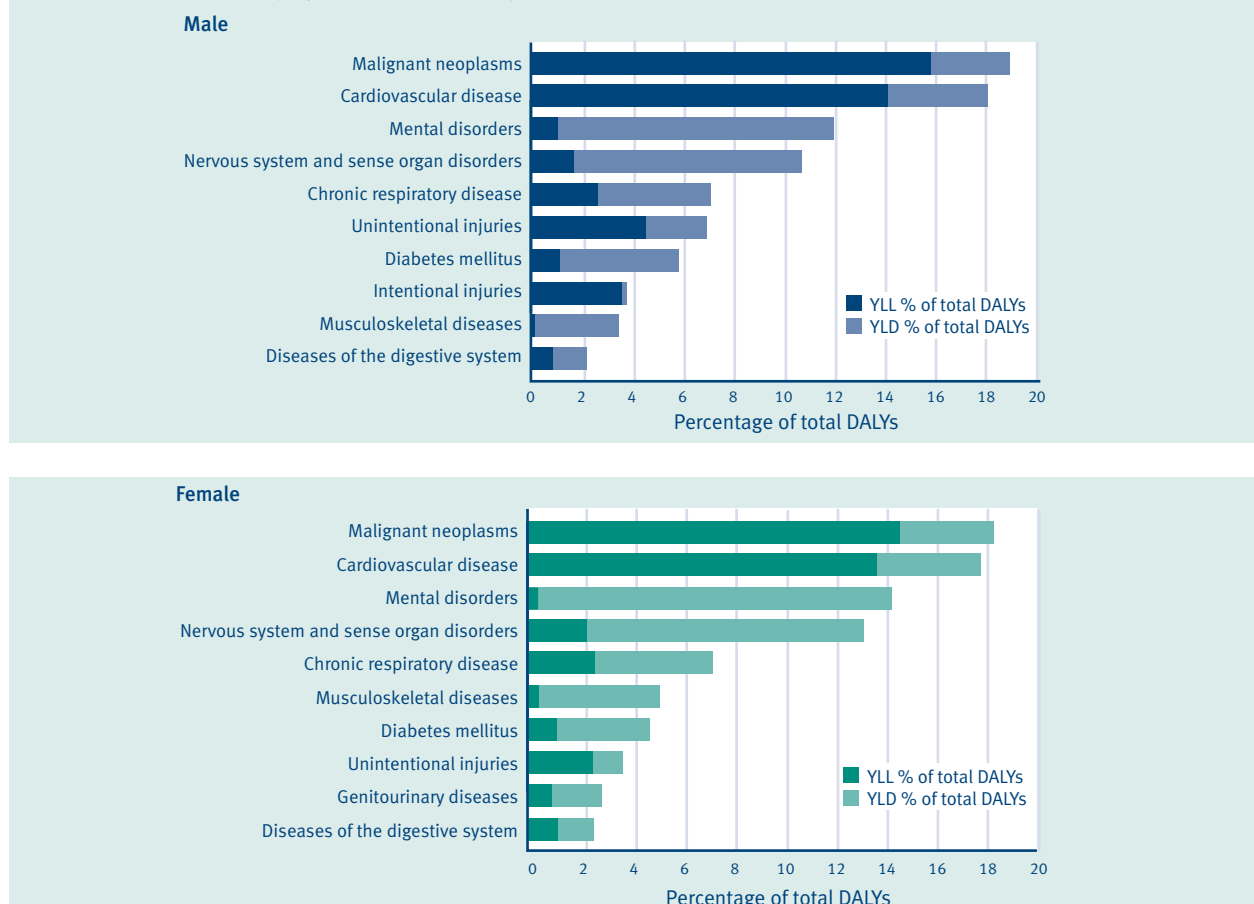
of total life years either through premature mortality or disability. Premature death accounts for 50.2 per cent of the burden of disease and injury in males and 43.1 per cent in females.

The burden of disease in Queensland has been calculated for disease groups and specific causes. For example, the disease group of mental disorders, includes the specific conditions of depression and anxiety, schizophrenia and substance use disorders among other conditions. The disease group of nervous system and sense organ disorders includes dementias, Parkinson's disease and multiple sclerosis, as well as a number of other specific conditions.

Overall, the main burden of disease in Queensland was firstly cancer (18.4 per cent), followed by cardiovascular disease (17.7 per cent) and then mental disorders (14.0 per cent) (Figure 11).

DALYs have a mortality component (years of life lost due to premature mortality (YLL)) and a disability component (years of life lost due to disability (YLD) associated with disease).

Figure 11: Disease and injury burden (DALYs), top 10 causes, Queensland 2003



The total burden of disease and injury due to chronic disease was 87.6 per cent. The chronic diseases targeted in the Queensland Strategy for Chronic Disease 2005–2015 caused 26.4 per cent of the burden and included coronary heart disease, stroke, heart failure, Type 2 diabetes, renal disease, asthma and chronic obstructive pulmonary disease.

The leading burden of disease due to:

- Mental disorders were anxiety and depression, and substance use disorders.
- Injury was suicide and self-inflicted injuries, and road traffic accidents.

Males experienced a 14 per cent higher burden than females; for males, 260,148 DALYs compared with 228,910 DALYs for females. The top specific cause of DALYs for males was coronary heart disease, due to its high mortality component. For males, the second and third leading specific causes of DALYs were diabetes and anxiety and depression, both of which mostly cause disability (YLD). For females, the top specific cause of DALYs was anxiety and depression. The second and third leading causes of DALYs were coronary heart disease and stroke.

Table 2: Specific causes of disability adjusted life years (DALYs), premature mortality (YLL) and years of life lost due to disability (YLD) in total population, top 15 diseases, Queensland 2003

| Males | | | | | | |
|--|------------|---|-------------------------------------|--|----------------------------------|------|
| Disability adjusted life years (DALYs) | | Years of life lost due to premature mortality (YLL) | | Years of life lost due to disability (YLD) | | |
| | % of total | | % of total | | % of total | |
| Coronary heart disease | 11.0 | Coronary heart disease | 18.6 | Anxiety and depression | 10.1 | |
| Type 2 diabetes | 5.4 | Lung cancer | 7.5 | Type 2 diabetes | 8.8 | |
| Anxiety and depression | 5.0 | Suicide and self-inflicted injuries | 6.4 | Adult-onset hearing loss | 7.5 | |
| Lung cancer | 4.0 | Stroke | 5.0 | Asthma | 4.0 | |
| Adult-onset hearing loss | 3.7 | Road traffic accidents | 4.1 | COPD | 3.6 | |
| COPD | 3.7 | Colorectal cancer | 3.8 | Dementia | 3.6 | |
| Stroke | 3.7 | COPD | 3.8 | Coronary heart disease | 3.4 | |
| Suicide and self-inflicted injuries | 3.2 | Prostate cancer | 3.3 | Alcohol dependence and harmful use | 2.5 | |
| Prostate cancer | 2.5 | Type 2 diabetes | 2.0 | Back pain (acute and chronic) | 2.5 | |
| Colorectal cancer | 2.4 | Melanoma | 1.7 | Personality disorders (isolated) | 2.4 | |
| Road traffic accidents | 2.4 | Pancreas cancer | 1.5 | Schizophrenia | 2.4 | |
| Dementia | 2.3 | Lower respiratory tract infections | 1.5 | Stroke | 2.4 | |
| Asthma | 2.1 | Alcohol dependence and harmful use | 1.4 | Osteoarthritis | 2.2 | |
| Alcohol dependence and harmful use | 2.0 | Brain cancer | 1.4 | Autism spectrum disorders | 1.9 | |
| Back pain (acute and chronic) | 1.3 | Oesophagus cancer | 1.4 | Prostate cancer | 1.7 | |
| Females | | | | | | |
| | DALYs | % of total | YLL | % of total | YLD | |
| Anxiety and depression | | 11.1 | Coronary heart disease | 16.8 | Anxiety and depression | 19.6 |
| Coronary heart disease | | 9.2 | Stroke | 8.8 | Type 2 diabetes | 5.7 |
| Stroke | | 5.1 | Breast cancer | 6.9 | Dementia | 5.7 |
| Breast cancer | | 4.6 | Lung cancer | 5.5 | Asthma | 4.9 |
| Dementia | | 4.3 | Colorectal cancer | 4.2 | Coronary heart disease | 3.5 |
| Type 2 diabetes | | 4.1 | COPD | 3.5 | Adult-onset hearing loss | 3.4 |
| Asthma | | 3.0 | Dementia | 2.5 | Osteoarthritis | 2.9 |
| COPD | | 2.8 | Suicide and self-inflicted injuries | 2.2 | Breast cancer | 2.9 |
| Lung cancer | | 2.5 | Lower respiratory tract infections | 2.0 | Personality disorders (isolated) | 2.4 |
| Colorectal cancer | | 2.2 | Type 2 diabetes | 2.0 | Back pain (acute and chronic) | 2.3 |
| Adult-onset hearing loss | | 1.9 | Pancreas cancer | 1.9 | COPD | 2.3 |
| Osteoarthritis | | 1.7 | Ovary cancer | 1.8 | Stroke | 2.3 |
| Personality disorders (isolated) | | 1.4 | Road traffic accidents | 1.8 | Migraine | 2.3 |
| Back pain (acute and chronic) | | 1.3 | Brain cancer | 1.5 | Schizophrenia | 1.8 |
| Migraine | | 1.3 | Nephritis and nephrosis | 1.4 | Rheumatoid arthritis | 1.7 |

Years of Life Lost (YLL) due to premature mortality

For years of life lost – the leading disease groups:

- for males were cancers, cardiovascular disease and injury (Figure 11).
- for females were cancers, cardiovascular disease and chronic respiratory disease.

For years of life lost - the top specific causes:

- for males were coronary heart disease, lung cancer and suicide (Table 2).
- for females were coronary heart disease, stroke and breast cancer.

Years of life lost due to disability (YLD)

For years of life lost due to disability – the leading disease groups:

- for males were mental disorders, followed by nervous system and sense organ disorders, and diabetes (Figure 11).
- for females were mental disorders, nervous system and sense organ disorders, and chronic respiratory disease.

For years of life lost due to disability - top specific causes:

- for males were anxiety and depression, diabetes and adult onset hearing loss (Table 2).
- for females were anxiety and depression, diabetes and dementia.

National comparison

The burden of disease in Queensland and Australia is similar. In 2003, males and females in Queensland and Australia lost similar total disability adjusted life years. On average Queensland males lost 0.1 per cent more total life years either through premature mortality or disability than Australian males,⁷⁴ while Queensland females lost 3.1 per cent less than Australian females.

While the percentage of the burden of disease due to many individual disease groups for Queensland was similar to that of Australia, there are however some differences. Compared with the national average, Queensland males had DALY rates that were:

- Higher for injury (12 per cent higher) and musculoskeletal disease (7 per cent);
- Lower for acute respiratory infections (8 per cent lower), chronic respiratory disease (2 per cent) and diabetes (3 per cent).

Compared with the national average, Queensland females had DALY rates that were:

- Higher for intentional injuries (6 per cent higher) and cardiovascular disease (3 per cent);
- Lower for mental disorders (11 per cent lower), cancers (5 per cent), and diabetes (7 per cent).

Chronic diseases cause most of the total burden of disease and affect people of all ages..

Impact of socioeconomic disadvantage

Socioeconomic disadvantage plays a significant role in the burden of disease for Queenslanders, (Figure 12). DALY rates were 34 per cent higher in the most disadvantaged areas when compared with rates in advantaged areas. When the burden is quantified across all the socioeconomic groups about 17 per cent of the total burden could be considered excess and attributed to socioeconomic disadvantage.

For almost all disease categories there were significant differences in DALY rates between areas of advantage and disadvantage (Figure 13). Specifically greater burden was evident in disadvantaged areas for about

90 per cent of the 188 specific diseases analysed. For example those in socioeconomically disadvantaged areas had about twice the burden due to diabetes, chronic obstructive pulmonary disease and road traffic accidents, than those in advantaged areas.

Of note, Indigenous peoples have substantially lower socioeconomic status than other Queenslanders (Figure 8), and thus the poorer health of Indigenous peoples is partly due to socioeconomic disadvantage.

Socioeconomically disadvantaged Queenslanders had DALY rates 34% higher than those in the more advantaged areas.

Figure 12: Burden of disease and injury, by socioeconomic area and by remoteness, Queensland, 2003

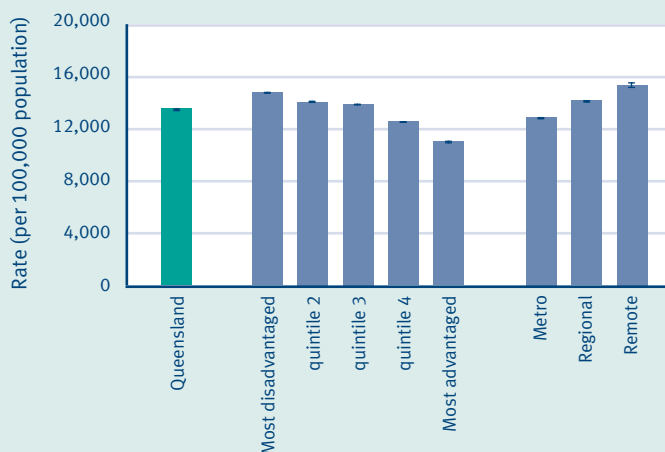
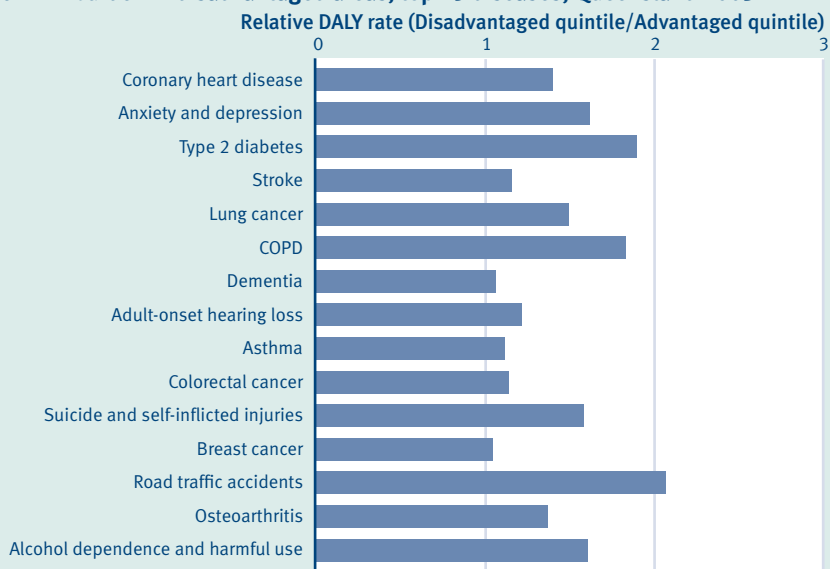


Figure 13: Relative DALY burden in disadvantaged areas, top 15 diseases, Queensland 2003



Note: A value of less than 1 indicates lower rates in disadvantaged areas, a value greater than 1 indicates higher rates

Geographic differences

Remoteness plays a significant role in the years of life lost for Queenslanders. People in remote areas of Queensland and people in regional areas, have higher rates of burden of disease than people in metropolitan areas (Figure 12). Rates are 21 per cent higher in remote areas and 10 per cent higher in regional areas.

This difference in rates among Queenslanders was seen across many diseases (Figure 14). For example, people in remote areas had about two to three times the burden in metropolitan areas due to road traffic

accidents, alcohol dependence and harmful use disorders and Type 2 diabetes. A significant proportion of the metropolitan-remote health difference will be due to higher proportion of Indigenous peoples in the remote areas.

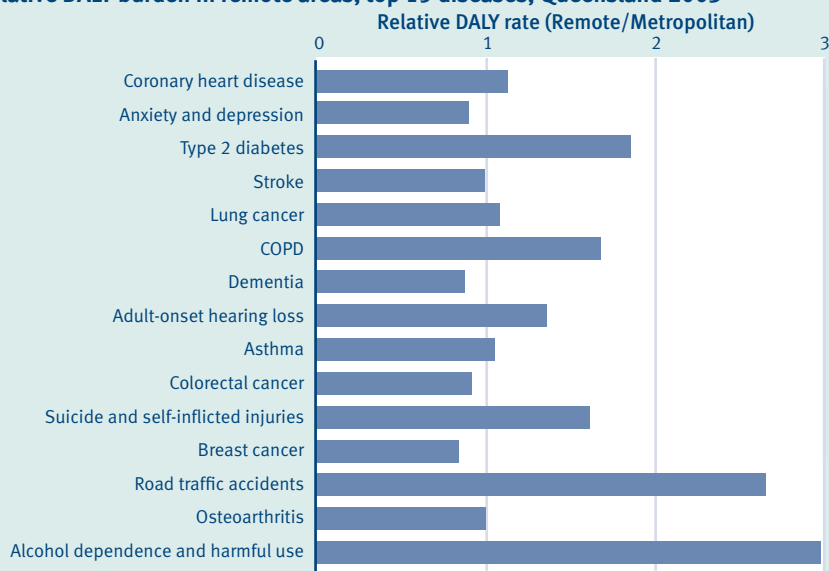
Geographic differences in the burden of disease in Queensland based upon specific geographic centres within Queensland are unavailable at this time.

How much disease can be prevented through healthier environments?

- 17% of all deaths
- 16% of total burden of disease

(In Australia, Brunei, Japan, New Zealand and Singapore).⁹

Figure 14: Relative DALY burden in remote areas, top 15 diseases, Queensland 2003



Note: A value of less than 1 indicates lower rates in remote areas, a value greater than 1 indicates higher rates

Risk factors

One third (33 per cent) of the total burden of disease in Australia is due to the joint or combined effect of behaviours that put health at risk, such as tobacco smoking, physical inactivity, harmful alcohol consumption and insufficient fruit and vegetable consumption and health risk factors such as overweight and obesity (Figure 15a).¹⁹³ While joint effects risk factor data for Queensland is currently unavailable, it is not expected to vary from the Australian results.

The joint effect of risk factors varies for disease groups;

- 77 per cent of diabetes can be attributed to the joint effect of two risk factors, overweight and obesity and physical inactivity;
- 70 per cent of cardiovascular disease can be attributed to twelve risk factors with high blood pressure and high blood cholesterol the largest contributors; 85.2 per cent of coronary heart disease attributed to these factors;

- 33 per cent of cancer can be attributed to ten risk factors with the vast majority caused by tobacco smoking;
- 32 per cent of injury is due to seven risk factors, where alcohol is the largest contributor;
- 27 per cent of the burden due to mental disorders is due to four risk factors, where alcohol and illicit drugs contribute in roughly equal proportions.

Reducing these risk factors will prevent a large amount of the 87.6 per cent of the total burden of disease and injury in Queensland due to all chronic diseases.

Considering the risk factors by their individual contribution (Figure 15b), overweight was the largest determinant of the total burden of disease in Queensland in 2003 (8.5 per cent of total burden). The risk factors responsible for the most burden of disease and injury were:

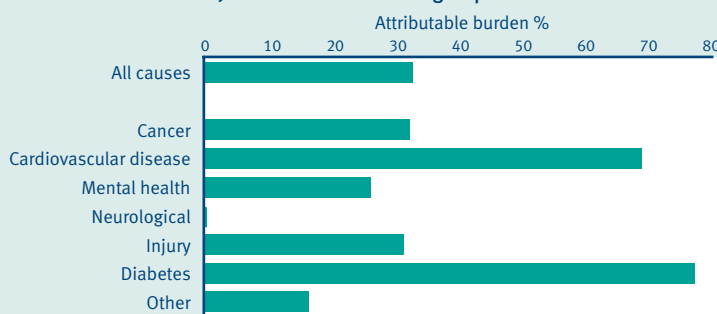
- For males - tobacco smoking (10.0 per cent),

followed by overweight (9.2 per cent), high blood cholesterol (6.6 per cent), physical inactivity (6.4 per cent), high blood pressure (5.5 per cent).

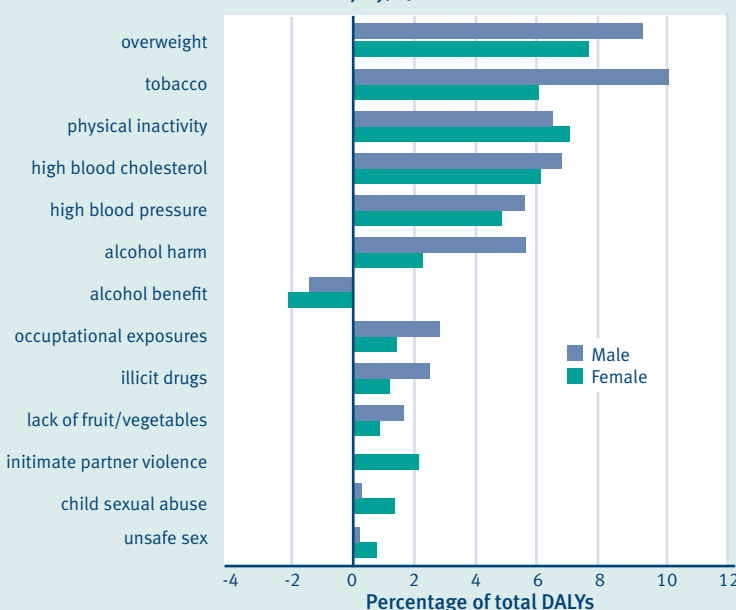
■ For females - overweight (7.7 per cent), followed by physical inactivity (6.9 per cent), high blood cholesterol (6.0 per cent), tobacco smoking (5.9 per cent) and high blood pressure (4.7 per cent).

Figure 15: Risk factors for burden of disease and injury, 2003

a. Joint burden of disease groups attributable to 14 selected risk factors, Australia



b. Individual contribution of selected risk factors to total burden of disease and injury, Queensland



Note: Intimate partner violence for males is unavailable

Change in burden since 1996-98

Premature mortality (YLL) in Queensland was calculated in a similar way in 1996-1998⁷⁵ and 2003 and so it can be compared in the two periods. However disability (YLD) was not calculated similarly in the two studies and therefore disability cannot be compared. Overall, between 1996-98 and 2003, the rate of YLL decreased in males by 14.4 per cent and in females by 10.4 per cent.

In particular, rates for YLL in Queensland:

- Decreased due to cardiovascular disease for males by 21 per cent and females 22 per cent.
- Decreased due to intentional injuries (suicide and homicide) for males by 32 per cent and for females by 25 per cent.
- Decreased for unintentional injury (eg road traffic accidents) for both males (10 per cent) and females (3 per cent).
- Increased due to nervous system and sense organ disorders (eg dementias) by 24 per cent for females.

Unhealthy eating may be twice as bad for health as smoking. Unhealthy nutrition is estimated to contribute 16% of the burden of disease.¹⁶

Projections

Projections of the burden of disease in Queensland are unavailable, and thus Australian projections are reported.¹⁹³

The projected burden of disease is based on extrapolations from past changes in disease patterns, projected changes in the population and by constraining the total number of deaths to age and sex projections of all cause mortality.^{74,76} Back casting to 1993 uses the same methodology.

The total burden of disease per Australian is projected to increase by four percent between 2003 and 2023. However this net increase includes an 18 per cent increase in disability burden per person and a 12 per cent decrease in the premature mortality burden per person (Figure 16). These projected changes allow for changes in the age structure of the population over this time and thus the projections reflect the impact

of burden of disease on health needs in the future.

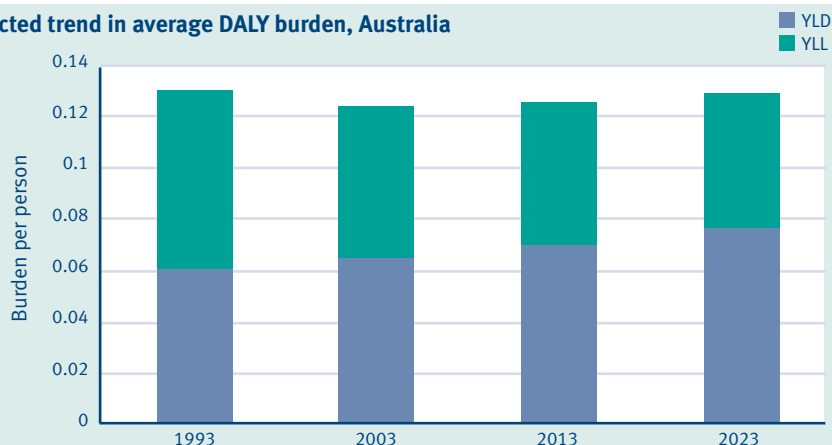
The disability burden as a proportion of total burden is projected to rise from 52 per cent in 2003 to 60 per cent in 2023.

The relative impact and extent of burden due to some diseases is projected to change considerably over the next 20 years.

Consistent with this projected decrease in the total mortality burden, the rate of mortality burden of the top ten diseases is projected to decrease over the period up to 2023 (Figure 18b), while the extent of the burden in the population will decrease for most but not all conditions (Figure 18a).

The total disability burden and rate for all of the top ten diseases (except COPD) is projected to increase over the period up to 2023 (Figure 19a and b), causing a significant proportion of the projected increase in total disability burden.

Figure 16: Projected trend in average DALY burden, Australia



Type 2 diabetes is projected to increase to become the largest specific cause of total burden of disease in 2023 (Figure 17), from the fourth largest in 1993. The projected trebling of the disability burden due to diabetes between 2003 and 2023 (Figure 19a) and ranking of diabetes is due to increased prevalence of overweight and obesity. In 2003, 77 per cent of Type 2 diabetes was due to the joint effects of overweight and obesity, and physical inactivity.

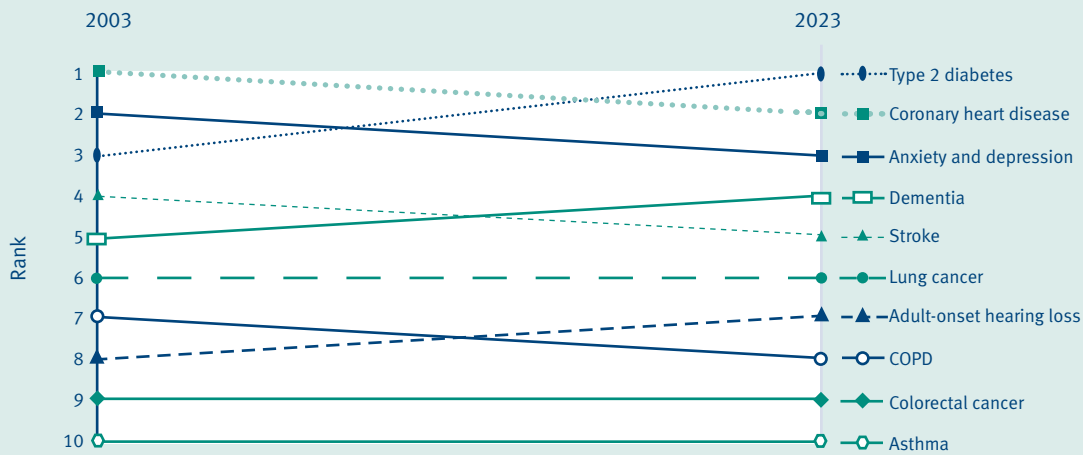
Coronary heart disease is projected to be displaced from largest to second largest specific cause of burden due to the projected increase in diabetes (Figure 17). The rate of the premature mortality burden of coronary heart disease is projected to decrease by about 60 per cent between 2003 and 2023 (Figure 18b), while the total burden is projected to decrease

by only 25 per cent (Figure 18a). The more moderate decrease in total burden due to coronary heart disease, despite substantial decline in rates is due to impact of increasing numbers of older people in the population.

Dementia, adult onset hearing loss and osteoarthritis are projected to become relatively larger causes of total burden in the population (Figure 17), reflecting doubling in disability burden (Figure 19a). These changes are due to population ageing.

Anxiety and depression is projected to be displaced from second largest to third largest cause of burden due to projected increase in diabetes (Figure 17). A small increase in total burden due to anxiety and depression is projected, which is consistent with an increase in the disability rate (Figure 19).

Figure 17: Trend in disability adjusted life years (DALYs) ranking, top 10 diseases 2003, Australia



The total premature mortality burden for a number of the top ten conditions is projected to decrease or remain steady over the period up to 2023 (Figure 18a) with rates showing a similar trend (Figure 18b). For example, the premature mortality burden of coronary heart disease is projected to decrease, although due to projected population increases and ageing, the proportional decrease in total burden will not be as great as the rates would suggest.

For lung cancer, Type 2 diabetes, and dementia, the total burden of premature mortality is projected to increase, despite projected reduction in rates (Figure 18a, b). The increase in total premature mortality burden is a result of population growth and ageing.

The total disability burden for all of the top ten diseases is projected to increase over the period up

to 2023 (Figure 19a). The total disability burden for coronary heart disease and dementia is projected to triple between 1993 and 2023, while for other conditions it is projected to double. Disability rates are also projected to increase but by relatively smaller proportions (Figure 19b).

The increase in total burden shows the impact of ageing and population growth in this state as well as projected changes in health determinant behaviours. For example, the total disability burden for coronary heart disease, stroke and diabetes are each projected to increase by about 220-280 per cent, between 1993 to 2023. These conditions are considered preventable through reduction in risk factors including overweight and obesity.

Figure 18: Projected change in premature mortality burden and rate, top 10 diseases 2003, Australia

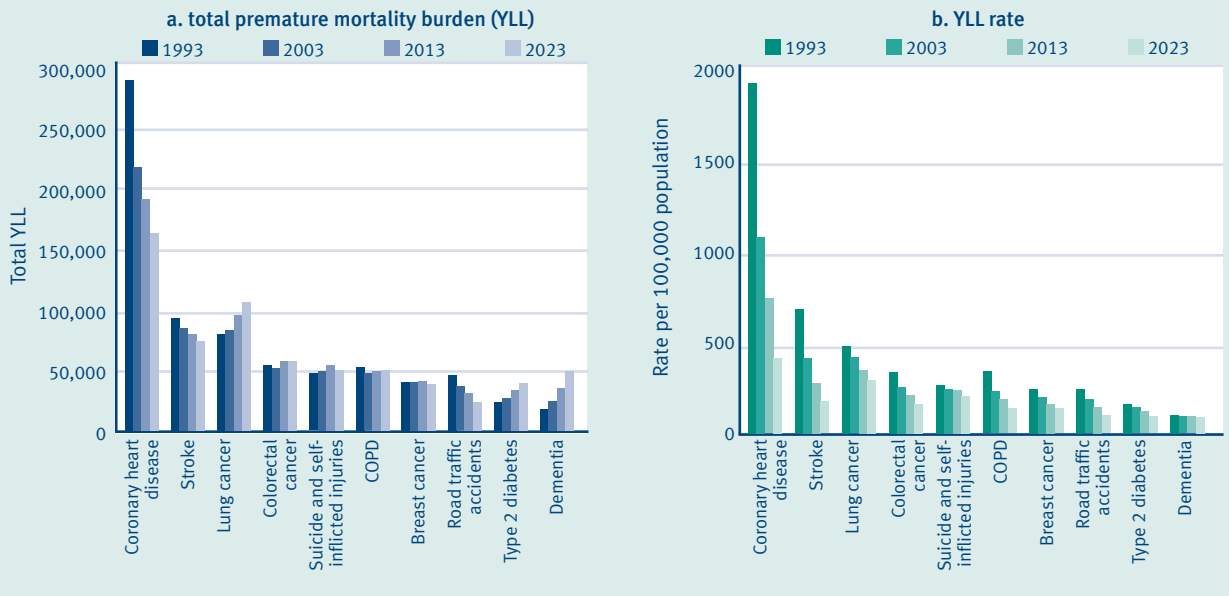
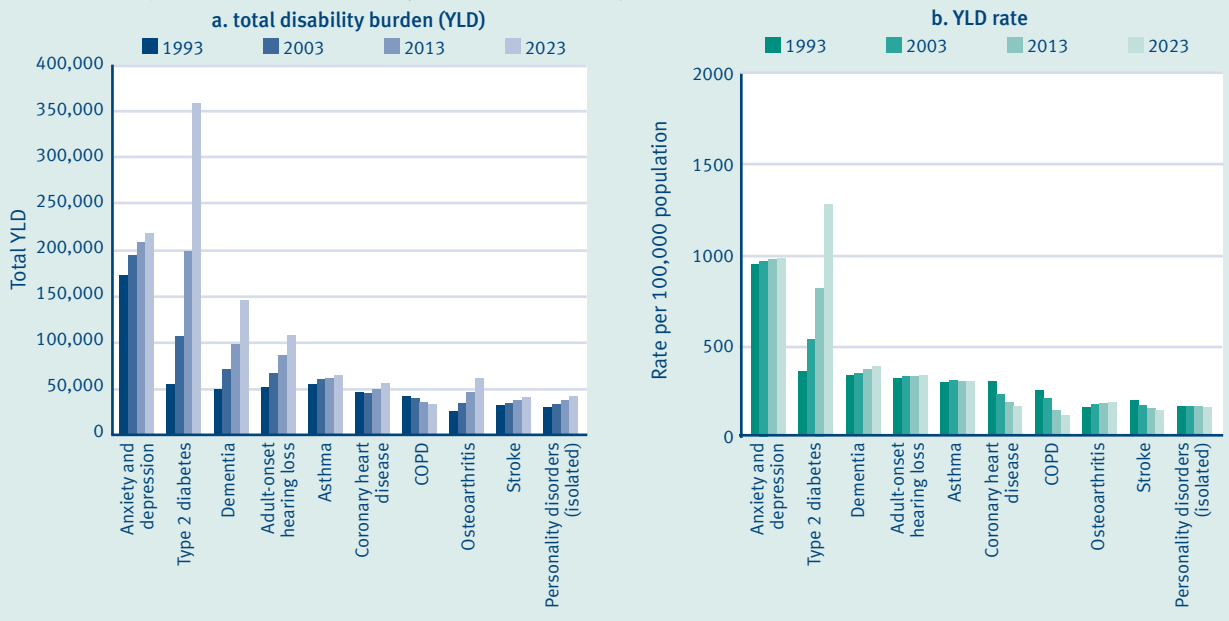


Figure 19: Projected change in disability burden and rate, top 10 diseases 2003, Australia



2.3 Life expectancy

The life expectancy of Queenslanders is increasing. In 2004 the life expectancy at birth of Queensland females had increased by 8.2 years to 82.9 years during the 33-year period since 1971. Life expectancy at birth of Queensland males, over the same period, had increased by 10 years to 77.8 years. Improvements in life expectancy in the past 30 years have largely been achieved through reduction in premature mortality in the middle years. Between 1970-72 and 2002-04 reductions in mortality of people aged 50 years and older have been responsible for 70 per cent of the increase in male life expectancy and 73 per cent of the increase in female life expectancy at birth.⁷⁷

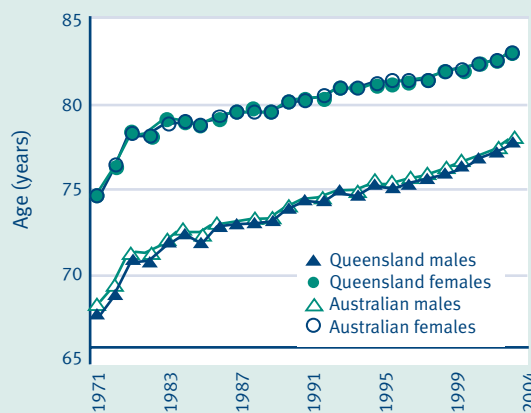
People who live in areas with greater socioeconomic advantage have higher life expectancy (Figure 21) than those living in areas of socioeconomic disadvantage. In areas in Australia with higher proportion of Indigenous peoples, life expectancy is generally lower.¹²

Since 1971 life expectancy at birth in Queensland has been similar to the national average (Figure 20). In

2004, compared to other states and territories, Queensland was ranked fifth highest life expectancy at birth for males and fourth highest for females (Figure 22). Similar to previous years, life expectancy was highest in the Australian Capital Territory and lowest in Northern Territory.

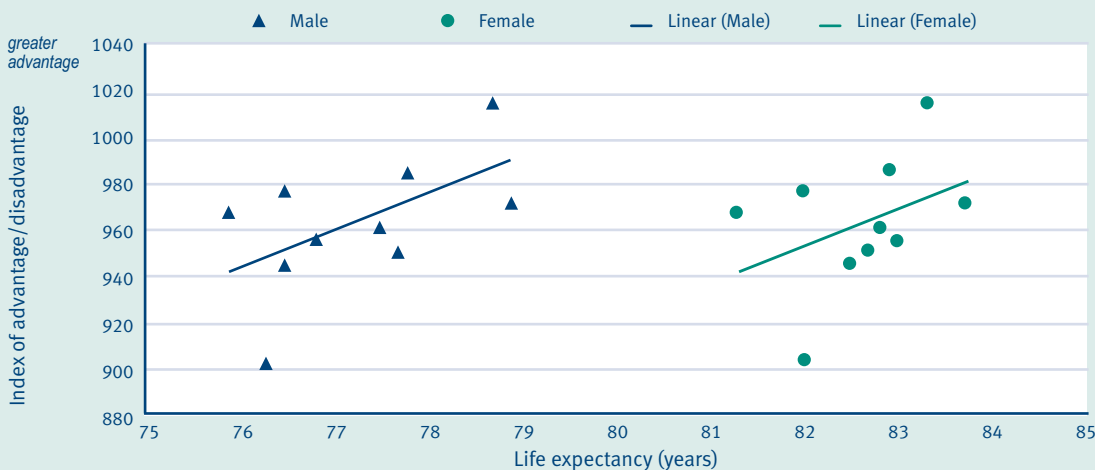
Compared with other OECD countries, life expectancy in Australia is very high. It is ranked fourth after Japan, Switzerland and Iceland with a difference of 1.8 years between Australia and Japan (Figure 23). In 2001, Queensland was ranked near Australia and between countries six and seven in the OECD listing. There was a difference of 0.2 years between Queensland and Australia. Within the OECD, Queenslanders and Australians have one of the highest increases in life expectancy and in the past decade alone, Queensland and Australia have progressed past Canada and the Mediterranean and Scandinavian countries, and have long been in front of the UK and USA.⁷⁸

Figure 20: Life expectancy at birth^{55,12}



Life expectancy of males is about 5 years less than for females. At least half of this difference could be attributed to preventable causes.

Figure 21: Life expectancy at birth, by socioeconomic level of geographic areas (statistical division), Queensland 2004¹²



Life expectancy for Indigenous peoples in Australia is much shorter than for those who are non-Indigenous.⁷⁹ In 1996–2001, life expectancy at birth for Indigenous males was estimated to be 59.4 years (17.5 years less than non-Indigenous males) and for Indigenous females was 64.8 years (19.4 years less than non-Indigenous females).^{12,80}

The shorter life expectancy for Indigenous peoples is due to higher rates of infant mortality and higher rates of death for many conditions across the life course.⁸¹ Compared with the non-Indigenous population, death rates in the Indigenous population are estimated to be many times greater for heart disease, diabetes, chronic respiratory disease, pneumonia and injury. These five conditions account for 56 per cent of the excess deaths of Indigenous peoples.

There are a number of factors that affect Indigenous life expectancy, including low incomes and education, environmental factors such as inadequate sanitation and clean drinking water.⁶⁵ There are also lifestyle behaviours that reduce life expectancy and are widespread in Indigenous communities such as excessive tobacco and alcohol consumption, poor diet and physical inactivity.

In Queensland in 2004, on average, Indigenous men died 22.5 years younger and Indigenous women died 24.6 years younger compared with their non-Indigenous counterparts.¹² This is consistent with lower life expectancy at birth of Indigenous peoples.

Figure 22: Life expectancy at birth, interstate comparisons 2004¹²

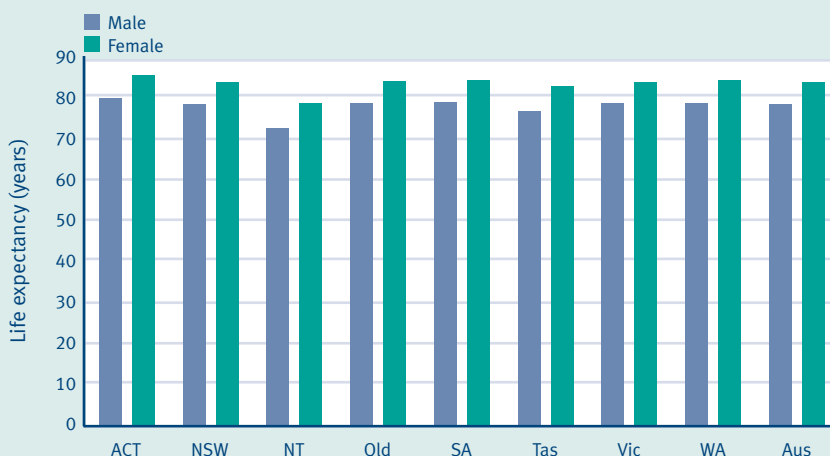
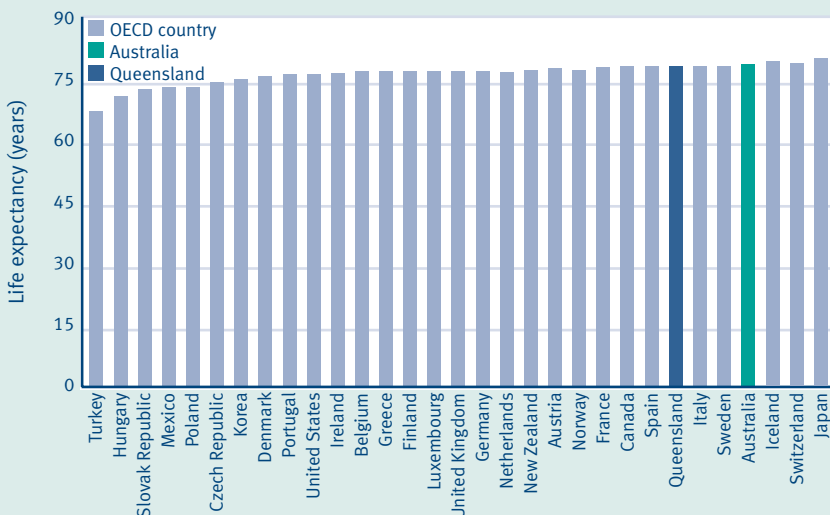


Figure 23: Life expectancy at birth, OECD comparisons, 2001⁷⁸



2.4 Infant mortality and health

Infant mortality rate is an important indicator of the general health and well-being of the population and greatly influences the life expectancy of a population. Infant mortality rates in Australia have declined dramatically over the 20th century mainly due to the decline of infectious diseases, along with growing preventive health measures and public health programs at the population level.

The infant mortality rate is measured as the number of deaths of children under one year of age per 1000 live births. The infant mortality rate in Queensland is close to the Australian rate, and has declined markedly throughout the previous decades (Figure 24).

Australia's infant mortality rate is the 16th lowest in the OECD countries, and two times higher than the best performing OECD country indicating there is potential for improvement (Figure 25).

The Indigenous infant mortality rate for Queensland is more than twice that of non-Indigenous infants,⁵ and similar to the national Indigenous infant mortality rate. This gulf has decreased by about 20 per cent since 1999. The mortality rate for Indigenous Australian infants is higher than for Indigenous infants in New Zealand and the USA.⁸²

Figure 24: Infant mortality rates; trend and interstate comparisons 2004¹²

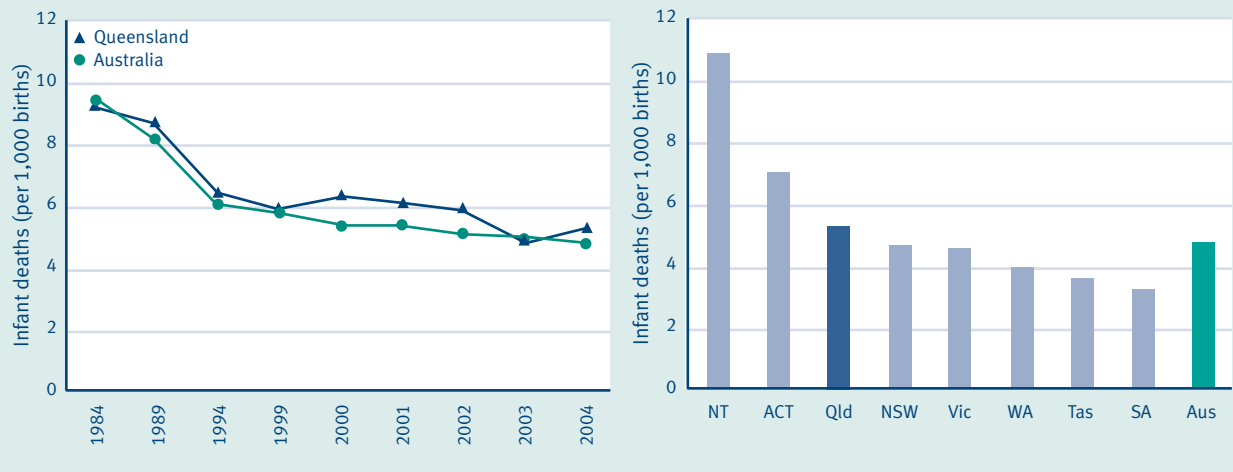
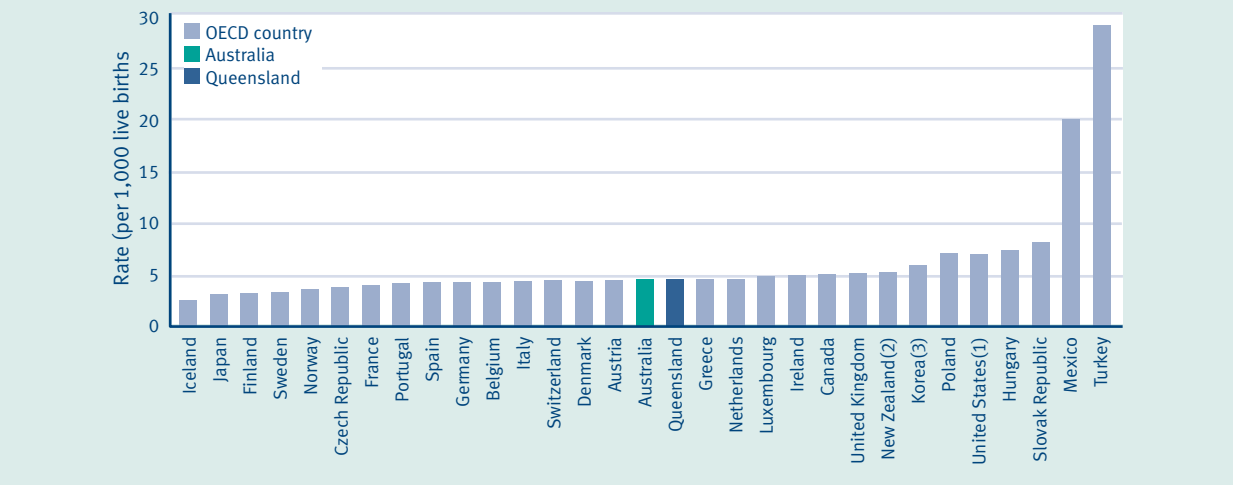


Figure 25: Infant mortality, OECD comparisons 2001⁷⁸



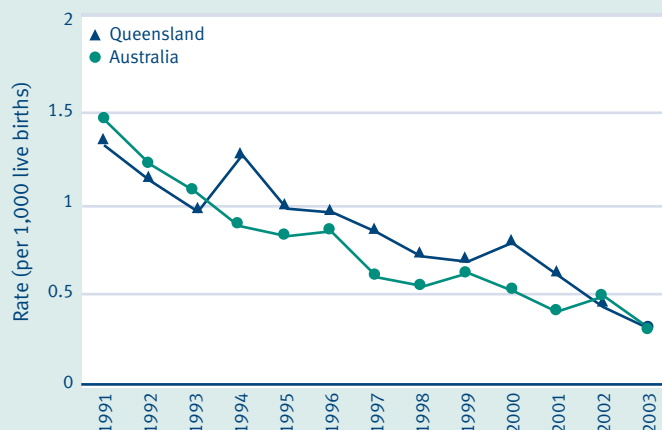
Queensland has experienced an increase in the number of babies born per year from 39,286 in 1987 to 50,777 in 2004.⁸³ In 2004, 5.0 per cent of babies were born to mothers who identified as Aboriginal or Torres Strait Islander.

In 2004, 7.0 per cent of all infants were low birth weight (less than 2500 grams at delivery) and 8.6 per cent were born at less than 37 weeks gestation, or preterm. Low birth weight babies, adjusted for gestational age, have an increased risk of early death and, if they survive, an increased risk of disability and chronic disease during childhood and adult life.⁸⁴ Risk factors for low birth weight include multiple pregnancy, maternal substance abuse (including smoking and alcohol), maternal illness, maternal age (either less than 20 years or greater than 40 years), socioeconomic status and previous premature birth.⁸⁵ The prevalence of low birth weight infants among Indigenous mothers was about twice that among non-Indigenous mothers.⁸⁶

The perinatal death rate (a stillbirth or death occurring in the neonatal period, ie first 28 days of life) has declined, with Queensland's rate in 2003 less than the national average.⁸⁷ The perinatal death rate of Indigenous mothers in Queensland is about twice that of non Indigenous mothers, similar to the national difference, although there is variation across the states.⁸⁶

Rates for SIDS are declining in Queensland and Australia largely due to education campaigns (Figure 26). In 2003, SIDS accounted for 2.5 per cent of the total burden of disease and injury in 0-4 year olds in Queensland and was the twelfth largest cause of total burden in this age group. In 2003, of the 227 deaths of infants under one year of age (excluding stillbirths), 15 were classified as SIDS (7 per cent of total deaths). Among Indigenous infants (0-1 years) the rate of SIDS is two to three times that of non-Indigenous infants.⁵

Figure 26: SIDS trends¹²



Maternal death rates have been declining steadily over recent decades⁸⁸ On average three women died per year during childbirth over the five year period between 2000 and 2004 in Queensland.⁸³ Maternal death rates among Indigenous women in Australia (24 deaths per 100,000 confinements) are around three times higher than non-Indigenous women (7 per 100,000 confinements).⁸⁹

The health and well-being of the mother have significant and lasting effects on the health of their infants well into the child's adult life.⁵

2.5 Deaths - all causes and avoidable deaths

Deaths rates due to all causes have been steadily declining for both males and females over the past 20 years, with greater decline in male rates than female rates (Figure 27b).

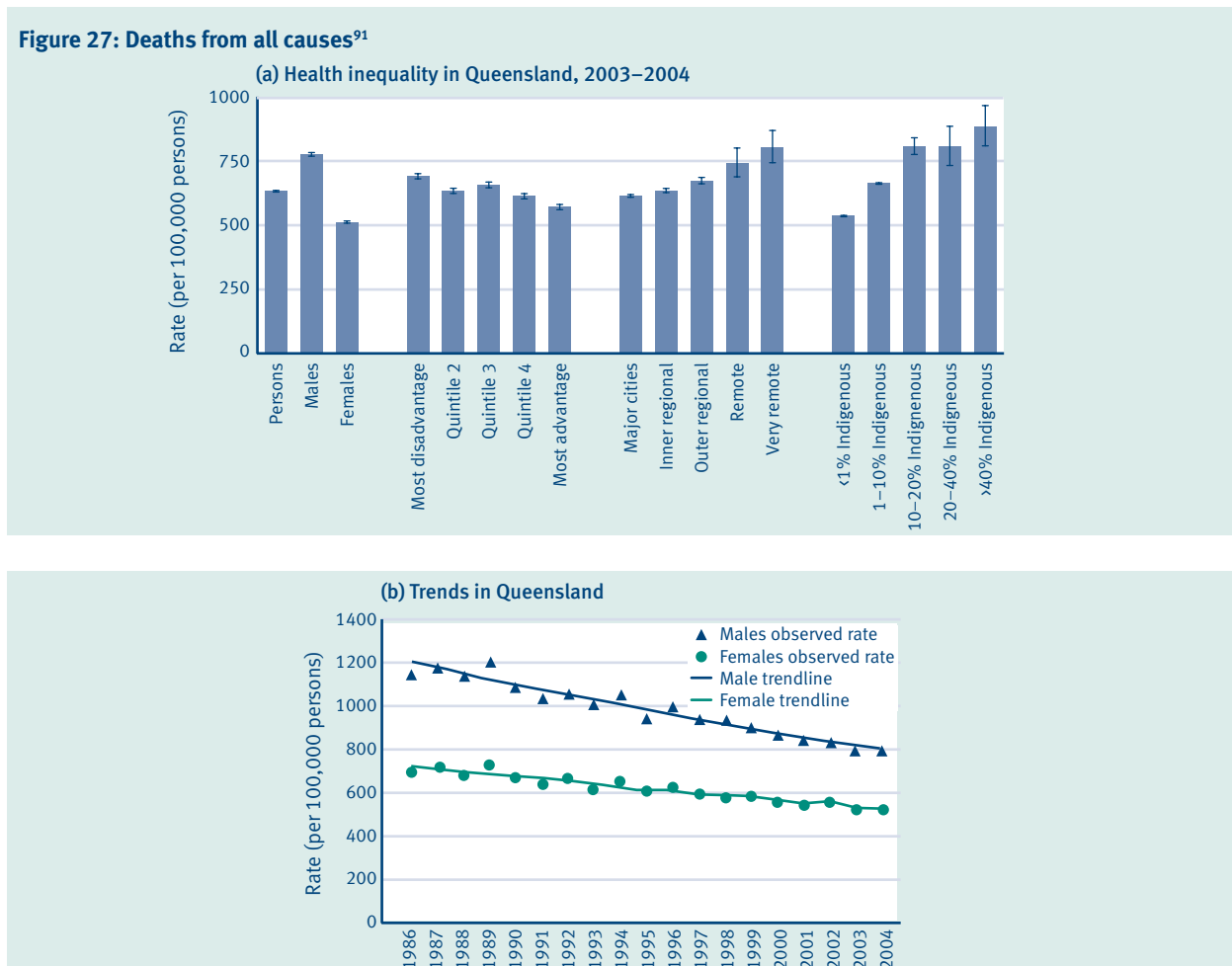
There were on average 23,610 deaths per year in Queensland in 2003–04. All cause death rates in Queensland were significantly higher in males than females; remote areas and very remote areas than major cities and inner and outer regional areas; in areas with greater than 10 per cent Indigenous population than in areas with less than 10 per cent Indigenous population and in areas of highest socioeconomic disadvantage than areas of advantage (Figure 27a).

Deaths from all causes are significantly affected by differences in socioeconomic status, which is consistent across the world. If everyone in Queensland had the same death rates as those in the most advantaged

areas, about 16 per cent of deaths from all causes in people aged less than 75 years could have been avoided. This translates to about 1530 premature deaths per year that could be regarded as being due to socioeconomic disadvantage.

All cause death rates are also higher in areas outside major cities (Figure 27a). If everyone had the same death rates for all causes as those in major cities, about 600 deaths per year of people aged less than 75 years could have been avoided. The excess premature deaths outside major cities could be attributed to a number of factors including the higher proportion of Indigenous peoples in remote and very remote areas who are known to have higher death rates. However as 80 per cent of these excess deaths occurred in inner and outer regional areas, it is likely that higher levels of socioeconomic disadvantage in these areas is a major factor contributing to the excess.

Figure 27: Deaths from all causes⁹¹

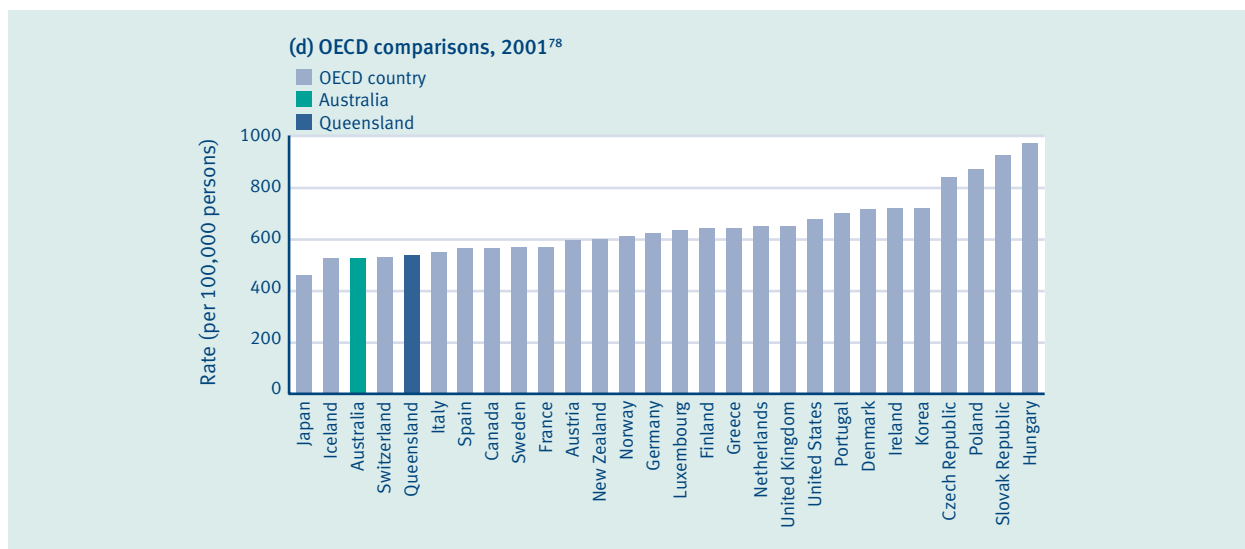
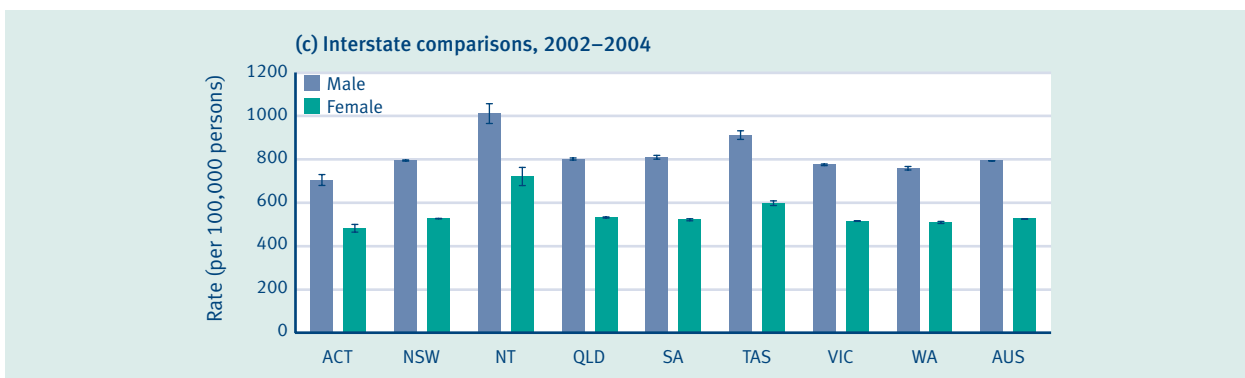


The extent of health inequality between the most and the least socioeconomically disadvantaged areas has remained fairly constant. The difference in mortality for both males and females in these areas of Queensland did not change between 2001–2003 and a decade earlier; either in Queensland¹⁷ or more broadly across Australia.⁹⁰

In 2002–04, the all cause death rates in Queensland were similar to the national rates (Figure 27c). Of all the states and territories, Queensland had the fourth highest rates for males and third highest for females.

Australia was ranked third lowest of 27 OECD countries in 2001 for all cause death rates (Figure 27d).⁷⁸

In areas of socioeconomic disadvantage, males have 30% higher death rates from all causes and females have about 20% higher death rates when compared with those living in areas of advantage.¹⁷



Avoidable deaths

Almost two thirds of all deaths of Queenslanders aged less than 75 years in 2004 were considered to have been potentially avoidable under nationally agreed criteria.⁹²

Of the 9598 deaths of people aged less than 75 years in 2004, 6805 or 64 per cent were considered avoidable and 3092 or 36 per cent were considered non avoidable (Figure 28). Given existing social and health systems in Australia, these deaths could be avoided through preventing the conditions from occurring in the first place (59 per cent or 3855 deaths) with the remainder being amenable to treatment, through health care, using existing technologies.⁹³

Avoidable deaths were:

- preventable conditions – such as lung cancer, intentional and unintentional injury, chronic obstructive pulmonary disease, alcohol and illicit drug disorders, Hepatitis and HIV/AIDs;
- treatable or health care amenable conditions – such as most cancers, asthma, and maternal and infant causes; and
- preventable and treatable conditions – coronary heart disease, stroke and diabetes.

Using this method, deaths are classified as entirely preventable, entirely treatable, or equally preventable and treatable,⁹² to provide a picture of the extent of avoidable deaths.

Since 1999, the rate of avoidable deaths in Queensland for males has decreased by 22 per cent and by 15 per cent for females (Figure 29).

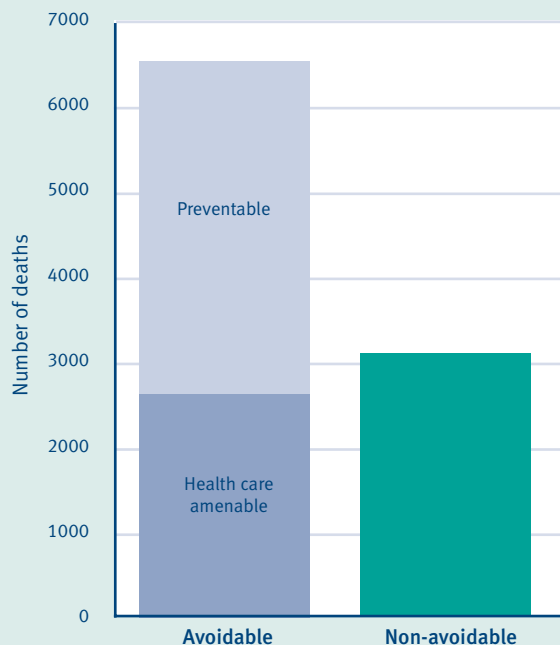
The rate of avoidable deaths, for both treatable and preventable conditions, was higher in socioeconomically disadvantaged areas and areas more remote from the cities (Figure 30).

Queenslanders who live in disadvantaged areas have a higher number of avoidable deaths (Figure 31). If everyone had the same rates of avoidable deaths as those in advantaged areas, about 1100 deaths per year could have been avoided. This illustrates the need to address socioeconomic inequalities in Queensland.

The rates of avoidable death are at least 40 per cent higher in remote and very remote areas than in cities (Figure 30). If everyone had the same rates of avoidable deaths as those in major cities, about 560 deaths per year or 8 per cent of avoidable deaths could have been avoided.

Prevention of disease, and thus premature death, requires changes to lifestyle including better diet, more physical activity, healthy weight, smoke free and safe alcohol consumption. This requires healthy public policy, environments and communities that support healthy living, prevention services, and informed, healthy choices by Queenslanders.

Figure 28: Avoidable and non avoidable deaths for persons aged 0-74 years, Queensland 2004⁹¹



Two thirds of premature deaths of Queenslanders are avoidable. Most can be prevented by changes in lifestyle behaviours.

Reduction in deaths for treatable conditions assumes that a proportion of deaths from specific conditions are preventable by early detection, disease treatment and management. This assumption is based on crude estimates of the extent to which deaths from these diseases can be prevented or delayed by medical interventions. Such medical services can be provided by the public and private health system and must be accessed in a timely manner to be effective.

The rate of avoidable deaths in Queensland was four per cent higher than the national rate over the period

1997 to 2001 for people aged 0-74 years.⁹² The rate in Queensland was third highest of the states and territories behind Northern Territory and Tasmania.

The rate of death due to treatable conditions and the rate due to preventable conditions, was similarly higher than the national rate.

Major killers of Queenslanders are coronary heart disease, stroke and lung cancer. About 4000 premature deaths per year could be prevented by changing the lifestyles of Queenslanders to a better diet, healthier weight, more physical activity, being smoke free and safer alcohol consumption.

Figure 29: Trend in avoidable deaths in persons aged 0-74 years, Queensland⁹¹

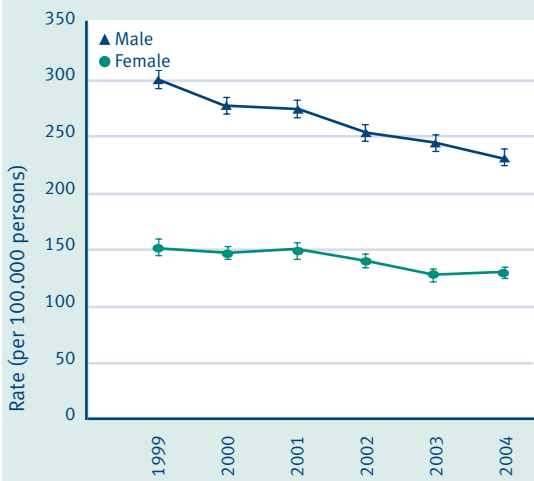


Figure 30: Avoidable death rates for persons aged 0-74 years, by socioeconomic status and remoteness, Queensland 2004⁹¹

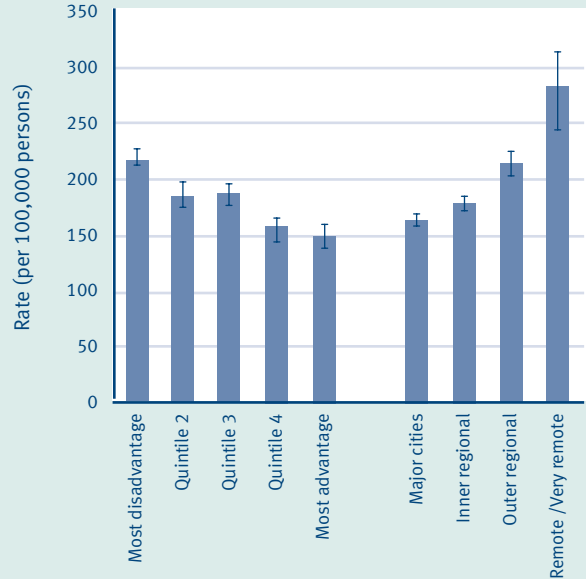
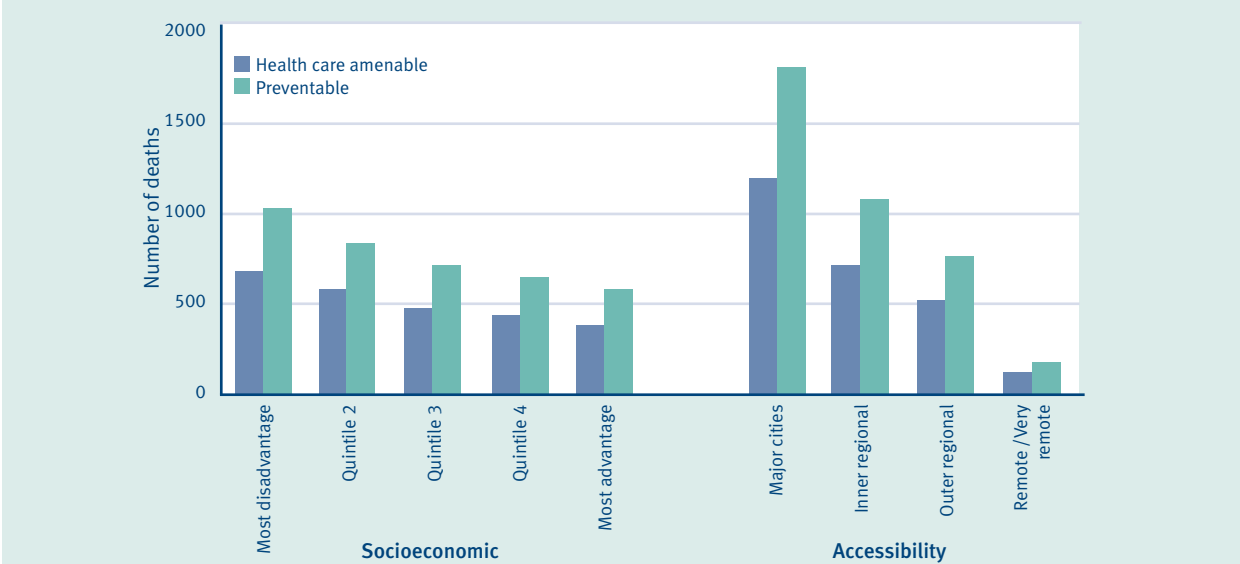


Figure 31: Avoidable deaths for persons aged 0-74 years, by socioeconomic status and remoteness, Queensland 2004⁹¹



2.6 Hospital separations - all causes, projections and avoidable

Hospital separations are a measure of hospital activity. Hospital separations are episodes of hospital care – from admission to discharge, transfer or death.

Hospital separation rates, adjusted for the age of the population, are often used to compare levels of illness in communities, though they need to be interpreted with caution. Hospital separations also reflect access to hospitals, need for repeated admission, and current medical practice of treating an illness or injury in hospital, all of which can vary over time and in some cases between geographic areas. Comparison of hospital separation rates across the states and OECD countries is of limited value as hospitalisation and admission practices vary widely.

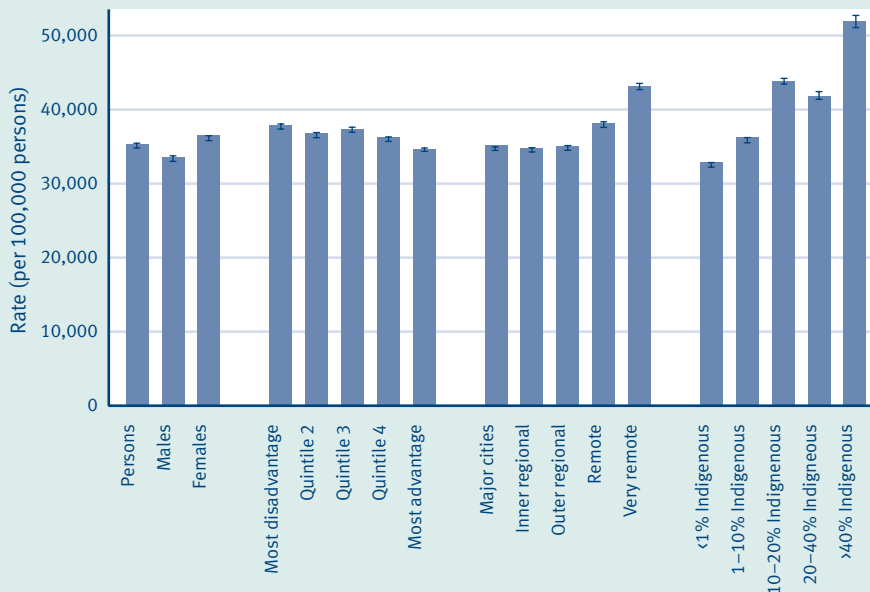
There were almost 1.37 million hospital separations in Queensland in 2004/05. Females accounted for 53 per cent of these separations.

In 2004/2005, hospital separation rates for all causes in Queensland were significantly higher in females than males; in areas of greater socioeconomic disadvantage than areas of advantage; in remote and very remote areas than major cities and inner and outer regional areas and in areas with greater than one per cent Indigenous population than in areas with less than one per cent Indigenous population (Figure 32a).

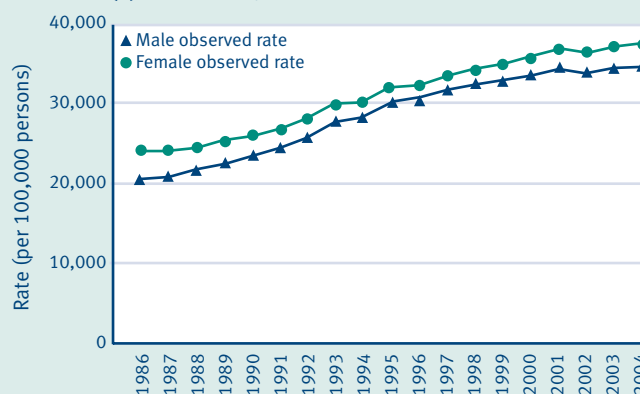
All cause hospital separation rates for males and females in Queensland have increased over recent decades (Figure 32b). There has been a 60 per cent increase in separation rates since 1986, with the male rate increase slightly greater than the female rate increase.

Figure 32: All cause hospital separations

(a) Health inequality in Queensland, 2003/04²¹



(b) Trends in Queensland²¹



Projections

The number of hospital separations in public and private hospitals in Queensland is projected to increase dramatically over the next 15 years from 1.4 million separations in 2004/05 to an estimated 2.7 million in 2021/22 (Figure 33).⁹⁴ These projections are based on supply, the projected increase in the Queensland population and the ageing of the population.

Most of the projected increase will be day separations (anticipated to increase by 120 per cent) rather than overnight separations (anticipated to increase by 40 per cent) (Figure 33). The greatest increase in hospital separations is expected for people aged 70-84 years (Figure 34).

Different conditions and procedures will differently impact on the projections. For example, the number of

separations for renal dialysis is projected to increase about four fold. In 2004/05, separations for renal dialysis represented 10 per cent of total separations in public and private hospitals, and by 2021/22 they are projected to represent 19 per cent. However in this period the total number of separations is projected to double, hence a four fold increase in the number of separations.

Hospital separation numbers are likely to double over the next 15 years in Queensland. Much of this increase will be due to increasing chronic disease.

Figure 33: Projected day only and overnight hospital separations, Queensland²¹

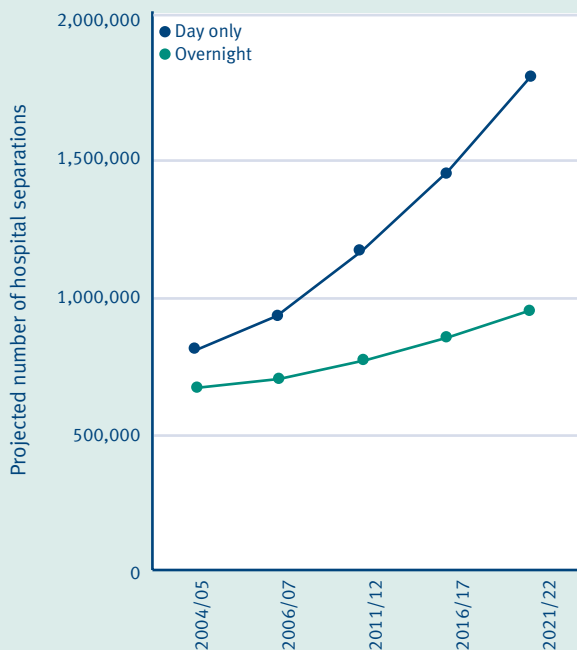
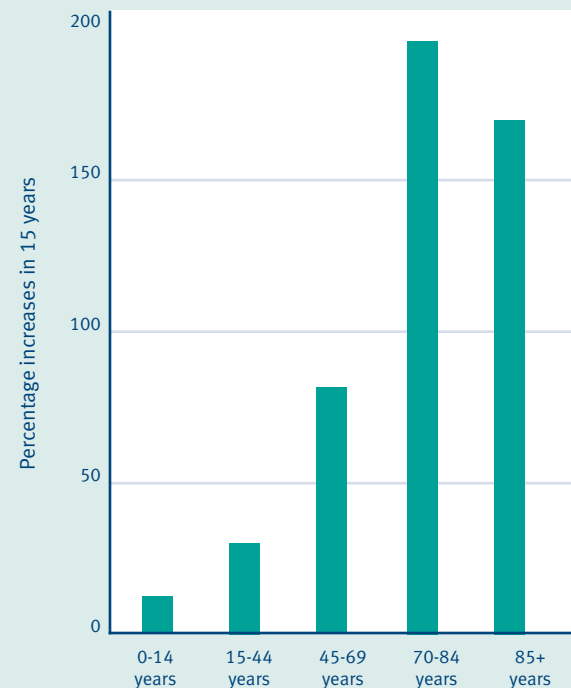


Figure 34: Projected percentage increase in hospital separations by age group, 2004/05 to 2021/22, Queensland²¹



Avoidable hospital separations

A substantial number of hospital separations are avoidable. In Queensland, nine per cent of public and private hospital separations were potentially avoidable by health care provided in an ambulatory setting. This includes settings such as primary health care by general practitioners and community health centres. The conditions classified as avoidable in the ambulatory setting using national criteria, include diabetes complications, angina and dental conditions.⁹⁵

Avoidable hospitalisation rates measure the effectiveness, timeliness and adequacy of non-hospital care, and do not measure all hospitalisations due to preventable conditions. By contrast, measurement of avoidable deaths includes all preventable or treatable conditions. To be included in the standard avoidable hospitalisation measure, there has to be an association with a specific process of care in an ambulatory setting that has been shown to be successful in reducing hospitalisation rates for the condition.

Thus this nine per cent figure does not include some major preventable illnesses such as coronary heart disease, stroke, lung cancer, intentional and unintentional injury – if these are included then the real percentage of hospital separations that are avoidable in Queensland is much higher.

In 2004/05, nine per cent of all separations to hospitals in Queensland (123,117 which resulted in 490,382 or 11.6 per cent of all patient days) could have been

avoided through preventive care and early disease management in the ambulatory care setting, for the specified conditions.⁹⁵ This was slightly lower than the national average (9.4 per cent).⁹⁵

Over the past five years the percentage of avoidable separations has remained steady. However the increase in Queensland's population during this time means the actual numbers have increased by 22 per cent (4.3 per cent per year), from around 101,000 in 1999/2000 to 123,000 in 2004/05.

Rates for avoidable hospital separations in Queensland were higher:

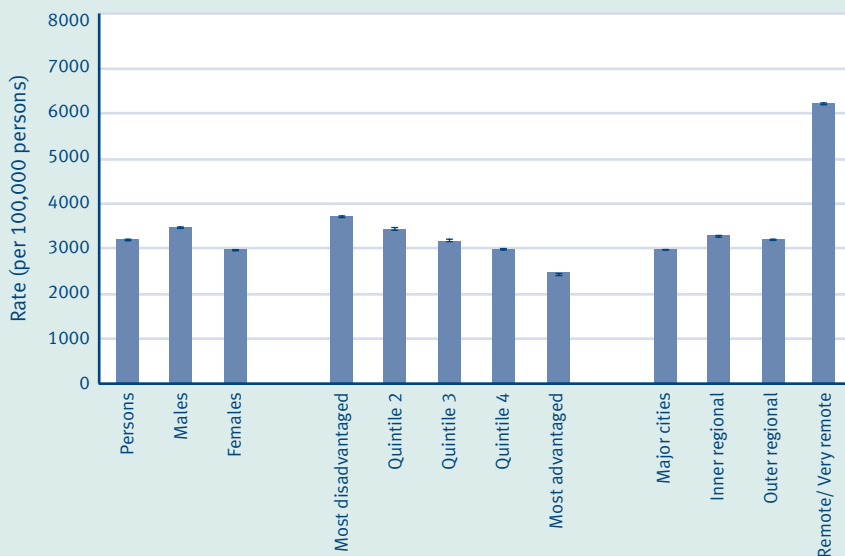
- For males than females (Figure 35).
- In areas of greater socioeconomic disadvantage than advantage - with rates in the most disadvantaged areas 50 per cent higher than the most advantaged areas.
- In remote and very remote areas by more than double that of major cities.

Queensland patterns of avoidable hospital burden across socioeconomic levels and areas of accessibility are similar to Australian patterns.⁹⁵

More than 123,000 hospital separations could be avoided each year.
Rates of avoidable separations are

- 50% higher in areas of socioeconomic disadvantage
- more than 100% higher in remote and very remote areas.

Figure 35: Avoidable hospital separations, Queensland 2003/04²¹



International studies show that the availability of non-hospital care explains a significant proportion of the variation between geographic areas in hospitalisation rates for the specified conditions.⁹⁶ While potentially avoidable hospitalisations will never be entirely eliminated, the variation between geographic areas demonstrates potential for strengthening the impact of non-hospital care.

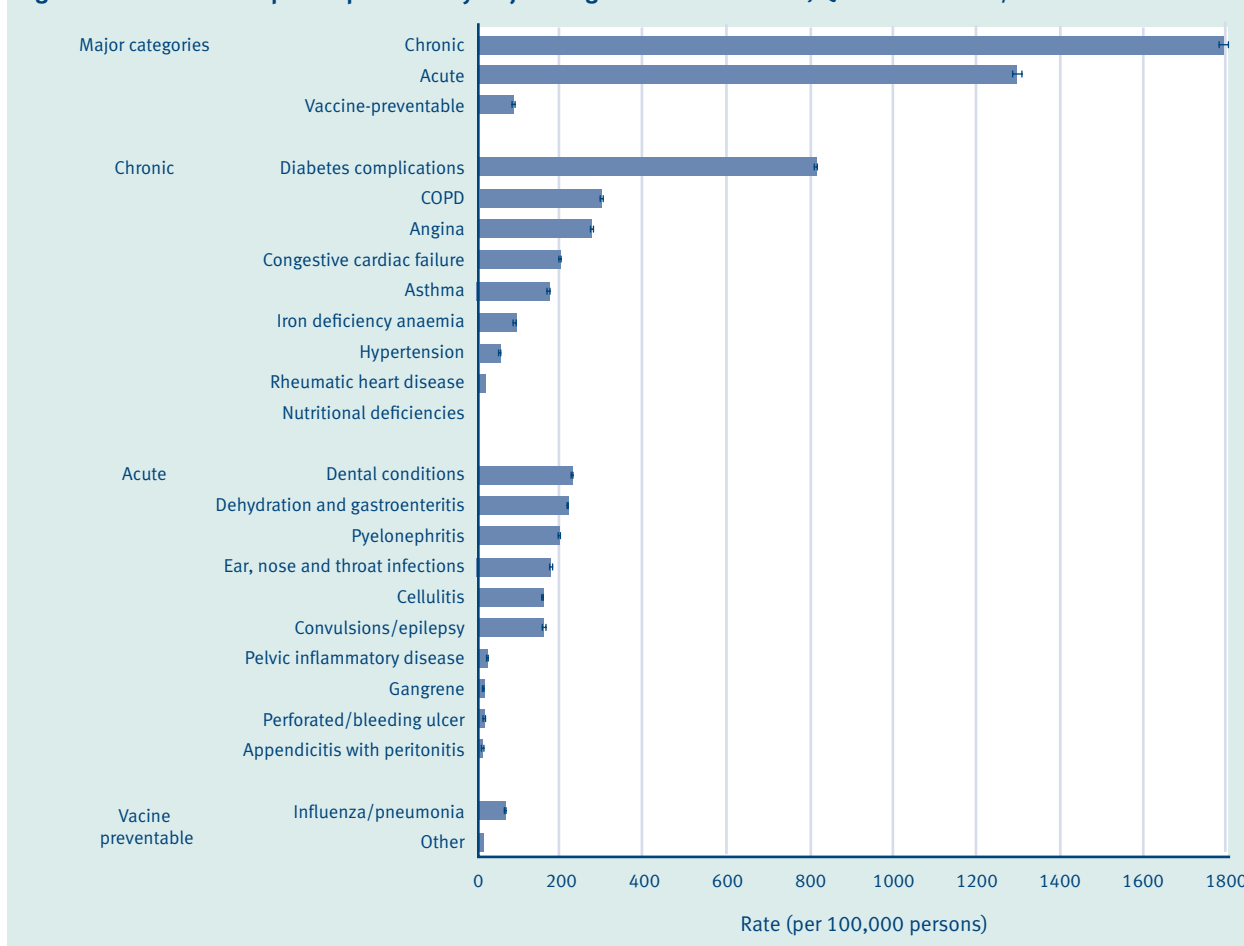
Chronic conditions were the biggest cause of avoidable hospital separations in 2003/04 (Figure 36). Complications of diabetes accounted for 25 per cent of avoidable hospital separations and were the largest single cause in both the chronic category as well as overall.

Acute conditions represent about 40 per cent of total preventable hospital separations. The leading acute conditions were dental conditions, dehydration and gastroenteritis. Influenza and pneumonia were about two per cent of preventable hospitalisations, and both can be prevented through vaccination.

Hospitalisations can be attributed to specific, preventable health risk factors. For example in 1999-2002, tobacco smoking in Queensland led to an average of 30,453 hospital separations per year of which 67 per cent were male.³³ This was about 2.6 per cent of all separations in Queensland, and 3.8 per cent of male separations. Nearly half the smoking-related hospital separations were for coronary heart disease and chronic obstructive pulmonary disease. In the last quarter of 2005, smoking was the cause of about 1.6 per cent of all hospital separations for surgical procedures, and 3.6 per cent of all hospital bed-nights.²¹

In Queensland in the last quarter of 2005, there were about 41,000 hospital bed nights due to smoking (63% in public hospitals). If this hospital burden had been prevented, there would be greater capacity to meet the needs of the 35,398 people waiting for elective surgery in the same period (where 7% were classified as urgent or Category 1, 35% were semi urgent or Category 2 and 58% Category 3).²¹

Figure 36: Avoidable hospital separations by major categories and conditions, Queensland 2003/04²¹



30

25

20

15

3 Health behaviours of Queenslanders

In this chapter

■ Risk behaviours

Tobacco smoking

Overweight and obesity

Inadequate fruit and vegetable intake

Physical inactivity

High blood pressure

High blood cholesterol

Alcohol

Illicit drugs

Unsafe sex

■ Protective behaviours

Breastfeeding

Water fluoridation

Child immunisation

Adult immunisation

Breast cancer

Cervical screening

Sun safety

Health is created and lived by people within the environments of their everyday life; where they learn, work, play and love.⁴⁰ People need environments that support healthy living in an everyday sense – in their community, school, workplace and home. To maintain good health and prevent ill health people need to have access to education and employment, clean air, access to healthy food, safe walking places⁴² and a sense of control over work and home life.⁶

Part of having good health is making healthy choices. In Queensland, much of the overall burden of disease – the years of life cut short by disease or injury – result from poor choices that impact on health. Poor choices that result in higher health risks include physical inactivity, being overweight, smoking, risky alcohol consumption, high blood pressure, high blood cholesterol and poor diet, including insufficient fruit and vegetable consumption.

People also need to make choices that protect their health and assist in early detection of disease: behaviours such as immunisation, cancer screening, breastfeeding, sun safety, and water fluoridation can improve health. Seeking help is another behaviour which protects health. It has previously been reported for Queenslanders.³³

How good and poor health behaviours for Queenslanders translate into health outcomes are reported in Section Four: Health outcomes in Queensland.

Governments, business and community in Queensland contribute to health through policies and activities. They can provide safe and supportive environments and opportunities to participate in society both socially and economically. Most importantly, they can help by making healthy choices the easy choices.

“It makes little sense to expect individuals to behave differently from their peers; it is more appropriate to seek general change in behavioural norms and in the circumstances which facilitate their adoption.”
Geoffrey Rose 1992³⁸

■ 3.1 Risk factors

Tobacco smoking

Smoking is the largest cause of preventable deaths in Australia⁹⁷ and increases the risk of lung cancer, cardiovascular disease, chronic lung disease, and several other conditions. The earlier a smoker takes up the habit and the longer they smoke, both increase the health risk. Quitting smoking leads to a large and rapid fall in the risk of heart, stroke and vascular disease.⁹⁸

Tobacco smoking was the second largest single determinant of burden of disease in Queensland in 2003 (8.1 per cent): and caused 10.0 per cent of the total burden for males and 5.9 per cent for females.

In 1999-2001, there were on average 3402 deaths per year attributed to tobacco smoking in Queensland, where 69 per cent were males.³³ Smoking caused a

relatively high number of deaths – almost one in five of all male deaths in Queensland and one in ten for females. In a similar period, smoking resulted in an average 30,453 hospital separations per year in Queensland.³³

About 80 per cent of lung cancer is caused by smoking. There were about 1300 deaths of Queenslanders per year in 2003-2004 due to lung cancer where two thirds of these were male. Lung cancer death rates are higher in areas of socioeconomic disadvantage. If everyone had the same lung cancer death rates as those in the most advantaged areas, about 18 per cent of lung cancer deaths in people aged less than 75 years could be avoided. This translates to 130 lung cancer deaths per year which could be regarded as being due to socioeconomic disadvantage.

Table 3: Daily smokers, percentage (95%CI), Queensland 2004⁹⁴

| | Male | Female | Persons |
|---|---------------------------|------------------|------------------|
| 18+ years | 22.7 (20.8-24.8) | 18.5 (17.0-20.2) | 20.6 (19.3-21.9) |
| 12+ years | 20.8 (19.0-22.7) | 17.5 (16.1-19.1) | 19.1 (18.0-20.3) |
| 12-19 years | 7.8 (5.4-10.9) | 10.3 (7.9-13.2) | 9.2 (7.5-11.3) |
| 12-15 | 2.7 (1.2-6.2) | 3.6 (1.6-8.1) | 3.1 (1.7-5.6) |
| 16-17 | 7.0 (3.2-14.6) | 18.1 (12.2-25.9) | 12.4 (8.7-17.5) |
| 18-19 | 18.8 (10.4-31.6) | 16.5 (9.7-26.8) | 17.7 (11.9-25.5) |
| 14+ years | 21.5 (19.6-23.5) | 18.1 (16.6-19.6) | 19.8 (18.6-21.0) |
| 14-19 | 10.0 (6.5-15.1) | 13.3 (9.8-17.8) | 11.6 (9.0-14.8) |
| 20-29 | 32.1 (26.9-37.7) | 27.9 (24.0-32.2) | 30.0 (26.7-33.5) |
| 30-39 | 25.3 (20.6-30.7) | 20.8 (17.3-24.9) | 23.0 (20.0-26.3) |
| 40-49 | 24.7 (20.2-29.8) | 21.2 (17.5-25.5) | 22.9 (20.0-26.2) |
| 50-59 | 20.4 (16.2-25.2) | 15.5 (12.5-19.1) | 17.9 (15.3-20.9) |
| 60+ | 13.1 (10.3-16.4) | 9.4 (7.0-12.5) | 11.1 (9.2-13.3) |
| Socioeconomic advantage/ disadvantage (persons 14+ years) | Quintile 1 (disadvantage) | | 26.4 (23.6-29.5) |
| | Quintile 2 | | 20.4 (17.9-23.1) |
| | Quintile 3 | | 21.1 (18.6-23.8) |
| | Quintile 4 | | 15.4 (13.2-18.0) |
| | Quintile 5 (advantage) | | 13.8 (11.0-17.3) |
| Accessibility (14+ years) | Major cities | | 18.6 (17.2-20.2) |
| | Inner regional | | 19.3 (16.7-22.2) |
| | Outer regional | | 22.2 (19.4-25.4) |
| | Remote and very remote | | 27.8 (20.9-36.0) |

Queensland has the third highest proportion of daily smokers of the states and territories of Australia, and greater than the national average (Figure 38).

In 2004, the rates of smoking in Queensland were about 14 per cent higher than the national average. At this time, 21.5 per cent of Queensland males aged 14 years and older reported smoking daily compared with 18.6 per cent of Australian males; 18.1 per cent of Queensland females aged 14 years and older reported smoking daily compared with 16.3 per cent of Australian females (Table 3).

In young people aged 14-19 years, about one in eight or 11.6 per cent reported smoking daily, again higher than the national average of 10.7 per cent. About one in ten young people in Queensland aged 12-19 years (9.2 per cent) reported smoking daily. Among young people in these age groups, rates of smoking were higher among young women than among young men in both Queensland and Australia.

Consistent with the national patterns,⁹⁹ smoking is more common in Queenslanders aged 20-29 years,

and in areas of socioeconomic disadvantage and more regional and remote areas.

Between 1991 and 2004 there have been small, but not significant decreases in proportion of people who report smoking daily (Figure 37). The proportion of ex-smokers has increased over this period in Queensland and nationally.⁹⁹

In 2004-05, half the adult Indigenous Australian population (50 per cent) were current daily smokers.¹⁹⁴ There is little change in the rate of smoking by Indigenous peoples since 1995. After adjusting for age differences between the two populations, indigenous adults were more than twice as likely as non Indigenous adults to be current smokers.

It is never too late to quit smoking. For former smokers, within 2-5 years of quitting, the risk of some serious diseases is similar to those who have never smoked.^{20,28}

Figure 37: Daily smokers and ex smokers, Queensland¹⁴

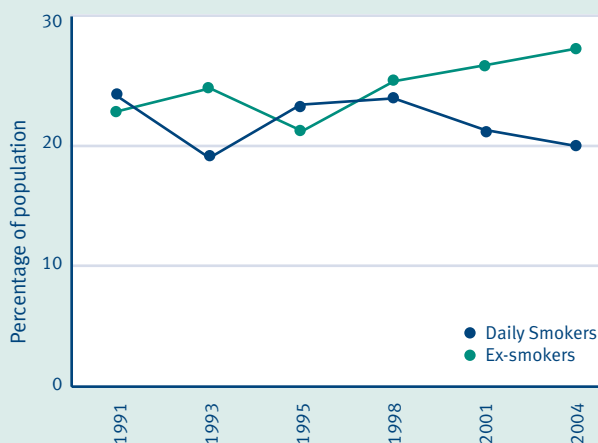
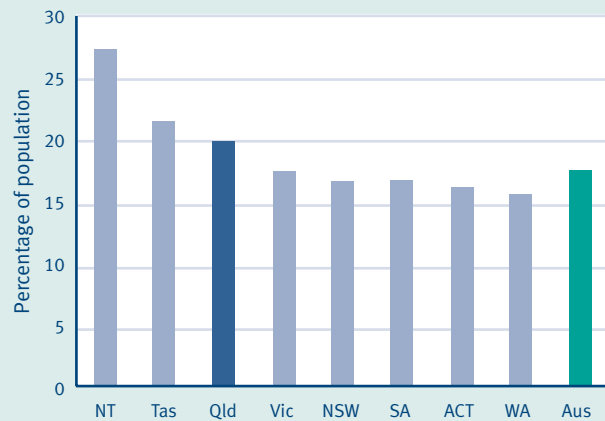


Figure 38: Daily smokers, interstate comparisons, 2004¹⁴



Overweight and obesity

Queensland, like the rest of Australia, is in an epidemic of overweight and obesity for children and adults. In general, overweight and obesity is caused by lack of physical activity or inappropriate eating patterns, or a combination of both.

Obesity in a population comes from a combination of factors – technological, social and economic – that result in reduced physical activity and increased consumption of high energy food and drinks. Although obesity has a strong genetic link, the large increase in obesity in recent years comes from non-genetic factors.¹⁰⁰

In Queensland in 2003, overweight and obesity was the largest determinant of burden of disease (8.5 per cent), causing 9.2 per cent of the total burden for males and 7.7 per cent for females.

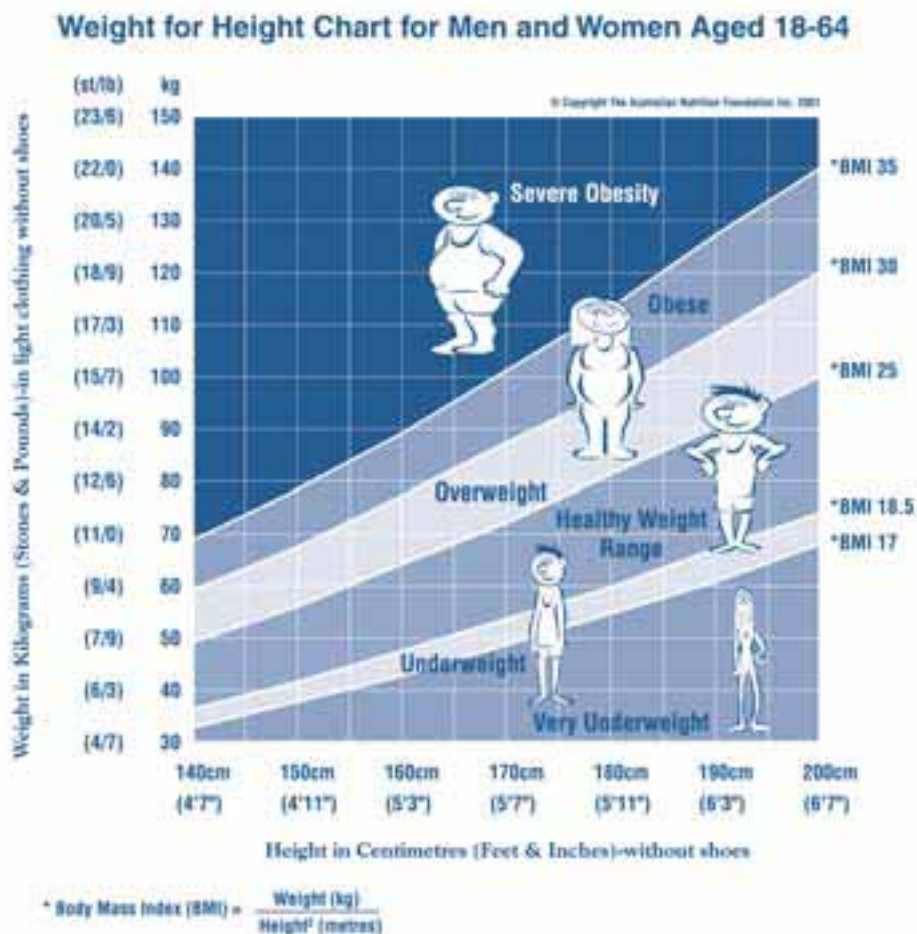
Funds directed towards dealing with the consequences of obesity are significantly greater than funds spent on

preventing this disease. The health sector in Australia “probably spends less than \$1 per person per year on preventing obesity, against \$70 per person per year on treating the consequences”.¹⁹

In Australia in 1989, direct health costs associated with overweight and obesity were \$464 million, or two per cent of total direct health care costs.¹⁰¹ Ten years ago in the USA health care costs associated with overweight and obesity were around two per cent of health costs; today they are greater than nine per cent. Similar trends are likely for Queensland.¹³

A guide to desirable weights for adults (aged 18 to 64 years) is the Body Mass Index (BMI); a measure reflecting recommended weight adjusted for height. For most people, BMI is a good indication of health risk associated with weight. The chart of this weight for height measure is below.

Spending on prevention of obesity is less than \$1 per person each year: treating the consequences costs \$70 per person each year.¹⁹



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Children and young people

Overweight and obesity in children and young people is a serious problem with a number of health risks in the short and long term,¹⁰² as well as impacts on social and emotional development. These health risks include stress on weight-bearing joints, asthma, high blood pressure, abnormal blood lipids, diabetes and respiratory problems.^{102,103} In the long term, overweight children are more likely to develop chronic diseases such as cardiovascular disease, diabetes and some forms of cancer.¹⁰²

While Queensland-specific data will be available in 2007, interstate data highlight the size of this health problem for children and young people. In New South Wales in 2004, 25 per cent of boys and 23 per cent of girls aged 7-16 were overweight or obese.¹¹ While 15 per cent of boys were overweight in kindergarten, by the end of primary school 30 per cent were overweight (Figure 39). Around 20-25 per cent of girls were

overweight with a peak of 30 per cent among year 4 students. Both boys and girls in areas of higher socioeconomic status generally were less likely to be overweight and obese.¹⁰⁴ Similar results were found in Western Australia in 2003.¹⁰⁵

The number of overweight or obese students in NSW in 2004 increased from 1985 and 1997.¹¹ Boys are becoming overweight at a faster rate whilst girls are becoming overweight at a steady or slowing pace.

This picture in Australia is similar to many overseas countries, with the trend to overweight and obese children increasing at a similar rate to USA, Canada and UK. From 1980 to 2000 the tendency to overweight and obesity in children has about doubled in many countries (Figure 40).¹⁰⁶

Boys are becoming overweight at a faster rate than girls. Around one third of boys were overweight by the time they were in secondary school.¹¹

Figure 39: Percentage measured overweight and obesity in children and young people, New South Wales 2004¹¹

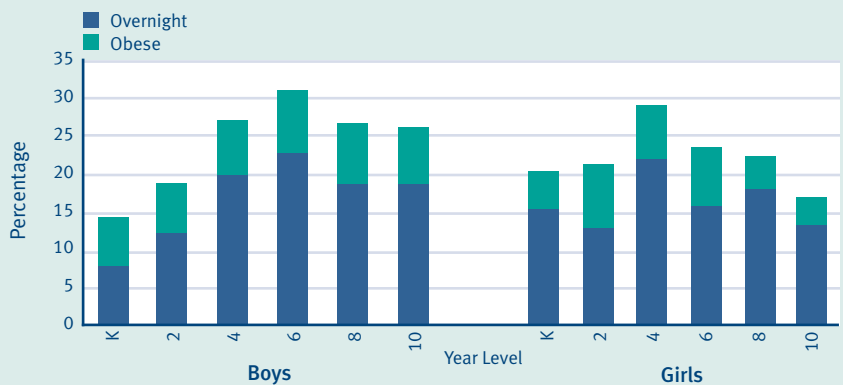


Figure 40: Percentage measured overweight and obesity in children in selected countries¹⁰⁶



Adults

Overweight and obesity are major risk factors for many diseases including Type 2 diabetes, high blood pressure, coronary heart disease, stroke, and psychological problems such as social isolation, depression and difficulty with interpersonal relationships.^{101,107} The risk of coronary heart disease and diabetes rises with increasing Body Mass Index (BMI) above acceptable weight.¹⁰⁸ Depression is specifically linked to overweight and obesity in young people.¹⁰⁹

In 2000, 37 per cent of Queenslanders aged 25 years and older were measured as overweight and almost 22 per cent were obese.¹¹⁰ Figures for Queensland in 2000 were similar to the national average, with about twice as many men than women measured as overweight, with similar proportions obese.

When people report their own height and weight they tend to underestimate by up to 20 per cent.^{111,112} The most recent data in Queensland is through such self reports and so accurate figures could be significantly higher. In 2005, by self reported height and weight, 50 per cent of Queensland adults were overweight or obese; 58 per cent of adult males and 42 per cent of adult females (Table 4), similar to the national

average.¹¹³ Overweight and obesity prevalence increased with age; in areas of greater socioeconomic disadvantage; and in remote and very remote areas of the state.

In almost a decade, the prevalence of overweight and obesity in Queensland has increased dramatically. Since 1998, the prevalence of overweight and obese adults has increased by about 11 per cent for both men and women aged 18 to 70 years (Figure 41). Most of this increase is due to an increase in obesity; a 60 per cent increase in males and in females a 25 per cent increase.

In 2004–05, Indigenous Australians aged 15 years and older were 1.2 times more likely to be overweight than non Indigenous Australians, after adjustments were made for age differences in the two populations¹⁹⁴ In each ten year age group, the disparity between Indigenous and non Indigenous people was greater for females than for males.

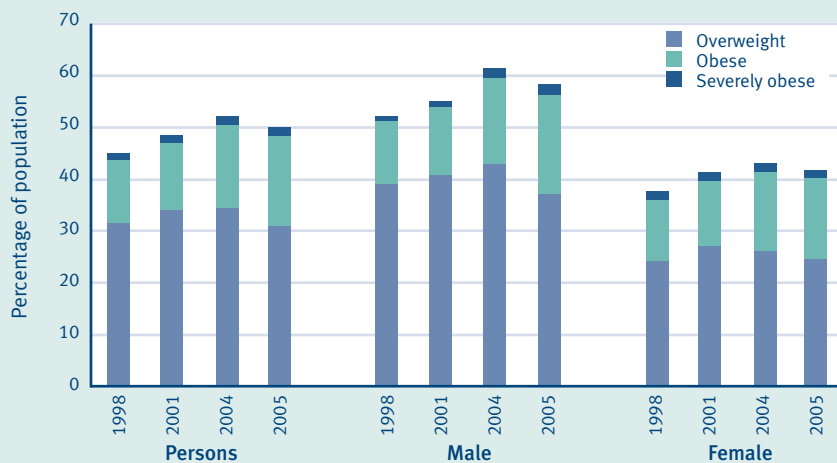
International comparisons of overweight and obesity prevalence are difficult. As reported in 2005, obesity prevalence in males and females in Australia was similar to that of the United Kingdom, and lower than that of the USA.⁷⁸

Table 4: Overweight and obesity: percentage (self report 95%CI), Queensland 2005⁷²

| Healthy weight | | Under weight <18.5 | Acceptable weight 18.5-<25 | Over weight 25-<30 | Obese 30-<40 | Severely Obese >=40 |
|-------------------------|---------------------------|-----------------------|-------------------------------|-----------------------|------------------|------------------------|
| | BMI category | | | | | |
| Persons | 18+ years | 4.0 (2.9-5.5) | 46.0 (43.0-48.9) | 31.0 (28.3-33.7) | 17.5 (15.4-19.7) | 1.6 (1.1-2.4) |
| Male | 18+ years | 1.8 (0.9-3.8) | 40.0 (35.6-44.4) | 37.1 (33.0-41.4) | 19.1 (16.0-22.6) | 2.1 (1.2-3.5) |
| Female | 18+ years | 6.2 (4.3-8.8) | 52.1 (48.3-56.0) | 24.7 (21.6-28.1) | 15.8 (13.2-18.7) | 1.2 (0.6-2.1) |
| Persons | 18-29 years | 10.6 (6.5-16.8) | 60.3 (52.3-67.8) | 19.0 (13.5-26.1) | 9.1 (5.7-14.4) | 1.0 (0.2-3.8) |
| | 30-39 years | 2.4 (1.1-5.1) | 47.4 (41.1-53.8) | 35.9 (30.0-42.3) | 13.0 (9.2-18.0) | 1.3 (0.4-3.5) |
| | 40-49 years | 2.4 (1.0-5.3) | 40.3 (34.5-46.5) | 32.7 (27.0-38.9) | 23.4 (18.4-29.2) | 1.3 (0.4-3.5) |
| | 50-59 years | 1.5 (0.6-3.8) | 40.1 (34.0-46.5) | 36.2 (30.2-42.7) | 19.7 (15.2-25.1) | 2.5 (1.2-5.3) |
| | 60-69 years | 1.8 (0.7-5.0) | 36.2 (29.5-43.4) | 36.3 (29.6-43.4) | 22.8 (16.7-30.4) | 2.9 (1.2-6.6) |
| | 70+ years | 2.4 (1.1-5.4) | 43.6 (36.5-51.0) | 29.6 (23.4-36.7) | 22.7 (17.0-29.6) | 1.7 (0.5-5.1) |
| Socioeconomic | Quintile 1 (disadvantage) | 2.8 (1.4-5.9) | 35.6 (29.7-41.9) | 37.5 (31.5-43.9) | 21.8 (17.0-27.6) | 2.3 (1.1-4.7) |
| advantage/ disadvantage | Quintile 2 | 5.2 (2.9-9.0) | 41.5 (35.8-47.4) | 28.6 (23.6-34.2) | 23.0 (18.4-28.4) | 1.7 (0.8-3.9) |
| (persons 18+ years) | Quintile 3 | 1.8 (0.6-5.1) | 51.5 (45.1-57.9) | 31.2 (25.4-37.4) | 14.8 (11.1-19.5) | 0.8 (0.2-3.0) |
| | Quintile 4 | 5.2 (2.6-10.1) | 47.6 (41.3-53.9) | 30.3 (25.0-36.2) | 15.1 (11.2-20.1) | 1.9 (0.8-4.1) |
| | Quintile 5 (advantage) | 5.1 (2.3-10.9) | 57.1 (48.9-65.0) | 25.9 (19.5-33.5) | 10.3 (6.5-15.8) | 1.6 (0.5-5.1) |
| Accessibility | Major cities | 5.4 (3.6-8.0) | 48.2 (43.9-52.4) | 28.5 (25.0-32.4) | 15.9 (13.2-19.1) | 2.0 (1.2-3.4) |
| (persons 18+) | Inner regional | 1.8 (0.8-4.2) | 41.5 (36.4-46.7) | 36.0 (31.1-41.2) | 19.4 (15.5-23.9) | 1.3 (0.6-3.1) |
| | Outer regional | 4 (1.9-8.2) | 47.6 (40.8-54.4) | 29.7 (23.8-36.2) | 17.5 (13.0-23.1) | 1.3 (0.5-3.1) |
| | Remote | n/a* | 39.9 (17.8-66.9) | 25.6 (9.2-53.7) | 34.6 (15.3-60.6) | n/a* |
| | Very remote | n/a* | 43.8 (19.7-71.2) | 28.9 (10.3-59.0) | 27.2 (9.0-53.7) | n/a* |

* not available

Figure 41: Trends in self reported overweight and obesity in adults, Queensland⁷²



Just as a too high body weight presents health problems, so does a body weight that is below the healthy weight range. It may be a sign of current illness or impending health problems including the

eating disorders anorexia and bulimia. In 2005, one in ten (10.6 per cent) 18-29 year olds self reported as being underweight. In this age group, females are three times more likely to be underweight than males.

If all overweight or obese Australians lost 5 kg, there would be a \$44 million saving per year in health care costs associated with Type 2 diabetes and its complications.¹³

Inadequate fruit and vegetable intake

Fruit and vegetables are rich in substances including fibre, vitamins, minerals and other factors which enhance health and protect against disease. A higher intake of fruit and vegetables also means lower levels of substances like saturated fat in the diet.

Eating vegetables and fruits protects against a range of health problems including coronary heart disease, high blood pressure, stroke, some forms of cancer (including colon, lung and gastrointestinal cancers), obesity, and Type 2 diabetes.^{25,114,115}

Insufficient fruit and vegetable consumption caused 1.2 per cent of the burden of disease and injury in Queensland in 2003; 1.6 percent for males and 0.8 per cent for females. About 11 per cent of all Australian cancer deaths are due to inadequate fruit and vegetable consumption.¹¹⁶

Increasing the fruit and vegetable consumption of Queenslanders is a key public health priority.

GUIDELINES

■ Recommended daily intake of fruit and vegetables^{24, 25}

Age group: 4 - 7 years

1 serve fruit + **2** serve vegetables

Age group: 8 - 11 years

1 serve fruit + **3** serve vegetables

Age group: 12 - 18 years

3 serve fruit + **4** serve vegetables

Age group: 18+ years

2 serve fruit + **5** serve vegetables

Note: Excluding pregnant and breast feeding women

Children and young people

Queensland-specific data on the fruit and vegetable consumption of children and young people will be available in 2007. Interstate data can give some indication and in New South Wales in 2004, 15-25 per cent of students stated that they eat recommended levels of at least four serves of vegetables per day. Consumption varied across the age groups of girls and boys. For fruit, only a small proportion of students (12-18 per cent in years 6, 8 and 12) eat the recommended quantity of at least three pieces each day: however about two-thirds of students (65-70 per cent) eat at least two pieces daily.¹¹

Adults

The national guidelines for vegetable consumption indicate adults should consume five serves of vegetables per day.^{24,25} In 2005, Queensland adults did not consume sufficient vegetables: only about nine per cent of adult males and 15 per cent of adult females ate at least five serves of vegetables per day, including cooked vegetables, salad vegetables and potatoes (Table 5).⁷² Vegetable consumption was even lower amongst males and females aged 18-29 years. There was no difference in eating patterns between areas of socioeconomic difference or major city, rural or remote areas. Consumption patterns in 2004-05 in Queensland were similar to the national average.¹¹³

Fruit consumption in Queensland is higher, with many Queenslanders eating the recommended two pieces of fruit per day (Table 5). In 2005, about half of all adults ate two or more pieces each day, including fresh, dried, frozen and tinned fruit. Lower fruit consumption was more common in men and in younger people. Similar to vegetable consumption, there was no difference in eating patterns in areas of socioeconomic difference or major city, rural or remote areas. Consumption patterns in Queensland in 2004-05 were similar to the national average.¹¹³

About 11 per cent of all Australian cancer deaths are due to inadequate fruit and vegetable consumption.

Fruit and vegetable consumption has increased in recent years (Figure 42). Using other data, from 2001 to 2004 the proportion of Queensland adults who reported eating at least two serves of fruit per day increased by about two per cent for both males and females.¹¹⁷ Over this same time, the proportion of adults who reported eating at least four serves of vegetables per day increased by about 12 per cent for males and eight per cent for females.

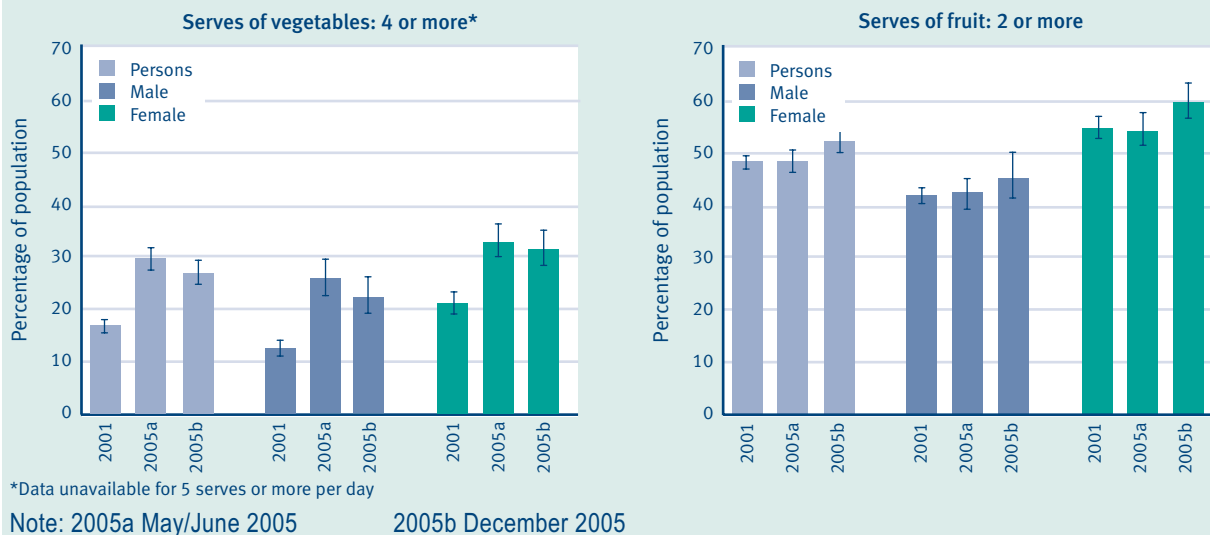
In 2004, while most adults reported not eating the recommended amount of fruits and vegetables, those groups who ate least fruit and vegetables tended to be higher risk groups such as males, younger age groups, current smokers, obese or sedentary persons, and those with risky levels of alcohol consumption.¹¹⁷

Only about 9% of adult males and 15% of adult females eat the recommended amount of vegetables per day.

Table 5: Fruit and vegetables daily serves, Queensland 2005b⁷²

| | | Serves of fruit 2 or more | Serves of vegetables | |
|-------------------------|---------------------------|------------------------------|----------------------|------------------|
| | | | 4 or more | 5 or more |
| Persons | 18+ years | 52.6 (49.7-55.4) | 26.7 (24.3-29.2) | 11.9 (10.3-13.8) |
| Male | 18+ years | 45.3 (41.1-49.7) | 22.0 (18.7-25.6) | 8.6 (6.5-11.1) |
| Female | 18+ years | 59.6 (55.9-63.2) | 31.3 (28.0-34.7) | 15.2 (12.8-18.0) |
| <hr/> | | | | |
| Persons | 18-29 years | 45.1 (37.6-52.8) | 18.4 (13.2-25.0) | 7.6 (4.5-12.6) |
| | 30-39 years | 45.9 (39.8-52.1) | 20.3 (16.0-25.5) | 8.3 (5.6-12.2) |
| | 40-49 years | 51.4 (45.3-57.4) | 27.6 (22.6-33.3) | 12.9 (9.3-17.5) |
| | 50-59 years | 58.9 (52.6-64.9) | 34.5 (28.8-40.6) | 17.3 (13.2-22.4) |
| | 60-69 years | 64.2 (56.9-71.0) | 36.6 (30.0-43.7) | 15.8 (11.2-21.7) |
| | 70+ years | 60.2 (53.3-66.8) | 31.4 (25.5-37.9) | 13.3 (9.4-18.6) |
| <hr/> | | | | |
| Socioeconomic | Quintile 1 (disadvantage) | 50.6 (44.4-56.7) | 24.5 (19.9-29.7) | 10.6 (7.6-14.5) |
| advantage/ disadvantage | Quintile 2 | 50.9 (45.1-56.6) | 32.3 (27.2-38.0) | 13.2 (9.9-17.4) |
| (persons 18+) | Quintile 3 | 47.2 (41.0-53.4) | 23.0 (18.4-28.4) | 12.7 (9.2-17.4) |
| | Quintile 4 | 56.8 (50.6-62.8) | 29.3 (24.2-34.9) | 13.5 (10.0-18.0) |
| | Quintile 5 (advantage) | 59.7 (51.5-67.5) | 22.4 (16.8-29.3) | 8.3 (5.1-13.2) |
| <hr/> | | | | |
| Accessibility | Major cities | 53.2 (49.0-57.3) | 26.0 (22.7-29.6) | 11.6 (9.4-14.2) |
| (persons 18+) | Inner regional | 55.9 (50.8-60.8) | 29.3 (25.1-33.9) | 12.2 (9.4-15.6) |
| | Outer regional | 46.6 (40.1-53.3) | 23.9 (19.0-29.5) | 11.8 (8.3-16.6) |
| | Remote | 47.5 (25.0-71.1) | 36.8 (16.4-63.3) | 23.2 (7.1-54.2) |
| | Very remote | 34.2 (13.8-62.8) | 29.2 (10.4-59.3) | 12.6 (2.6-44.2) |

Figure 42: Trends in daily serves of fruit and vegetables, Queensland⁷²



Physical inactivity

Physical activity is essential for physical and mental health and general well-being for adults and children. Lack of regular physical activity carries high health risks and is directly linked with several chronic diseases including cardiovascular disease, Type 2 diabetes, high blood pressure, colon cancer, depression, obesity and osteoporosis.¹¹⁸ Specifically, physical activity improves glucose metabolism, reduces body fat and lowers blood pressure.⁴⁵ Moderate physical activity can reduce the risk and severity of many diseases, for example it can lower the risk of Type 2 diabetes by up to 35 per cent:¹¹⁹ and reduce the risk of depression.¹²⁰

Insufficient physical inactivity was the third largest single determinant of burden of disease in Queensland in 2003 (6.6 per cent): and caused 6.4 per cent of the total burden for males and 6.9 per cent for females.

In 1999-2001, a lack of physical activity led to on average 646 deaths per year in Queensland, of which about 60 per cent were male.³³ Similarly there were on average 7005 hospital separations per year in Queensland.³³

Lack of physical activity in Australia has a direct health care cost of around \$400 million per year, based on mid-1990s costings.^{10,121} Up to \$8 million per year could be saved for every one per cent increase in the number of people who get sufficiently active.¹²¹

About one third (31 per cent) of current physical inactivity levels in North America and developed regions of the Western Pacific (including Australia) could be prevented by environmental interventions.⁹ Specifically, designing environments that are more conducive to physical activity in the workplace, at home, in transport and in leisure time.

The effects of an active lifestyle are lasting. Children who are sufficiently active, particularly if they participate in additional vigorous physical exercise, have a lower risk in later life of developing chronic diseases such as diabetes and cardiovascular disease.

GUIDELINES

■ Guidelines: Recommended physical activity for health benefit^{1,26,30}

Children and young people Moderate to vigorous physical activity

60 minutes daily

Adults

Moderate physical activity

30 minutes on most days

Be active every day in as many ways as you can

Note: Children and youth should spend less than two hours per day playing computer games, watching television or surfing the internet for entertainment.

Children and young people

Queensland specific data on children and young people's physical activity will be available in 2007. However, for comparison, in New South Wales in the summer of 2004, a large majority of students (80-90 per cent) in years 6, 8, and 10 did at least 60 minutes of moderate to vigorous physical activity per day.¹⁰⁴ However, only 60 per cent of year 10 girls did as much. Rural girls, but not boys, were more active than their urban counterparts. The amount of physical activity did not vary significantly with socioeconomic status. Students who were of healthy weight were only slightly more active than overweight and obese students.

Many studies show that excessive time spent in television watching and small screen recreation is more likely to be linked with overweight and obesity. It is recommended that children and young people spend no more than two hours per day watching television or other small screen activities, except for educational reasons.¹ In New South Wales in 2004, three-quarters of secondary school boys and two-thirds of secondary school girls exceeded these recommended levels.¹⁰⁴

Adults

In Queensland in 2005, fewer than half (47.5 per cent) of the adult population did enough physical activity to achieve a health benefit (Table 6). This includes physical activity for recreation, exercise or to get from one place to another, but does not necessarily include physical activity related to work or employment.

People aged 18-29 were more likely to report sufficient activity, but this decreased in older age groups. Males were more likely than females to be physically active. People in areas of greater socioeconomic advantage were more likely to do sufficient physical activity.

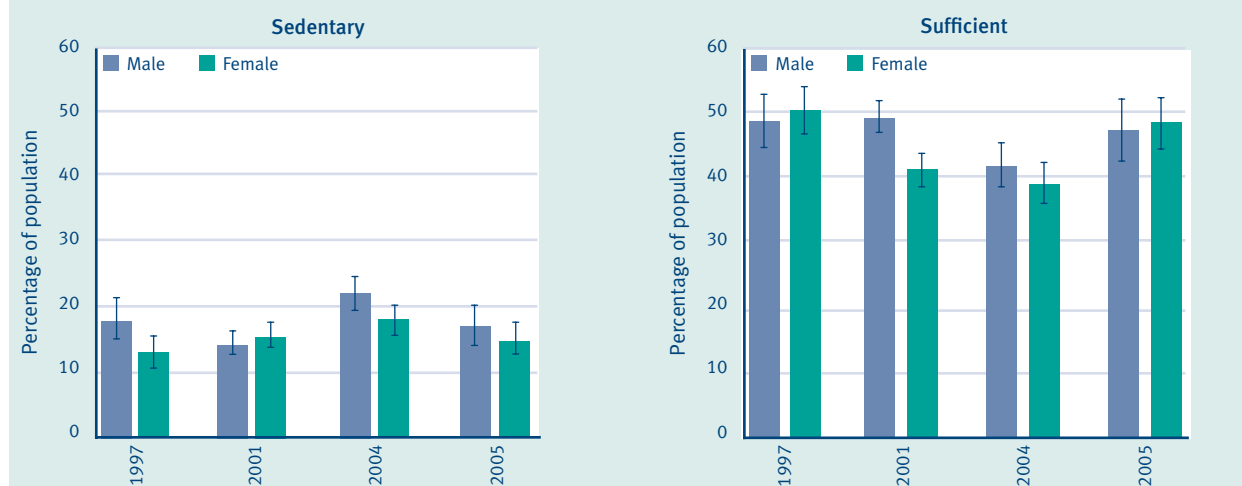
Despite very recent improvements, physical activity levels have dropped over the decade. The proportion of males and females who did enough physical activity in 2005 is lower than 1997 levels (Figure 43). Compared to national figures, in 2004-05, about 15 per cent fewer Queenslanders were doing enough physical activity to achieve a health benefit.¹²²

The biggest gain for physical activity in the population would be for sedentary people to become at least moderately active.¹⁰

Table 6: Physical activity prevalence (95%CI), Queensland 2005⁷²

| | | Sedentary | Insufficient | Sufficient |
|---|---------------------------|------------------|------------------|------------------|
| Persons | 18-75 years | 16.1 (14.1-18.3) | 36.4 (33.5-39.3) | 47.5 (44.5-50.5) |
| Male | 18-75 years | 17.2 (14.1-20.7) | 35.9 (31.7-40.3) | 46.9 (42.4-51.5) |
| Female | 18-75 years | 15.1 (12.7-17.8) | 36.8 (33.2-40.7) | 48.1 (44.2-52.0) |
| Persons | 18-29 years | 6.8 (3.9-11.4) | 33.6 (26.7-41.3) | 59.6 (51.9-66.9) |
| | 30-39 years | 13.5 (9.8-18.4) | 40.7 (34.7-47.0) | 45.7 (39.6-51.9) |
| | 40-49 years | 18.1 (13.8-23.5) | 36.2 (30.6-42.2) | 45.6 (39.7-51.7) |
| | 50-59 years | 23.7 (18.8-29.3) | 34.9 (29.2-41.1) | 41.4 (35.4-47.7) |
| | 60-75 years | 21.9 (17.3-27.4) | 36.5 (31.0-42.3) | 41.6 (35.9-47.5) |
| Socioeconomic advantage/ disadvantage (persons 18-75 years) | Quintile 1 (disadvantage) | 21.4 (16.6-27.1) | 40.4 (34.2-46.9) | 38.2 (32.1-44.7) |
| | Quintile 2 | 16.8 (13.0-21.4) | 40.1 (34.3-46.2) | 43.1 (37.3-49.2) |
| | Quintile 3 | 16.4 (12.2-21.6) | 34.0 (28.2-40.4) | 49.6 (43.1-56.1) |
| | Quintile 4 | 15.2 (11.3-20.3) | 31.0 (25.3-37.3) | 53.8 (47.4-60.1) |
| | Quintile 5 (advantage) | 8.6 (5.3-13.8) | 36.2 (28.7-44.5) | 55.2 (46.8-63.2) |
| Accessibility (persons 18-75 years) | Major cities | 14.1 (11.6-17.1) | 33.7 (29.8-37.9) | 52.2 (47.9-56.4) |
| | Inner regional | 16.5 (13.0-20.8) | 42.7 (37.5-48.1) | 40.7 (35.7-46.0) |
| | Outer regional | 18.0 (13.3-23.8) | 34.3 (28.0-41.2) | 47.7 (40.8-54.7) |
| | Remote | 25.5 (10.3-50.7) | 35.8 (17.2-59.9) | 38.6 (17.3-65.4) |
| | Very remote | 64.3 (32.5-87.1) | 12.2 (1.7-52.4) | 23.5 (6.6-57.1) |

Figure 43: Trends in physical activity percentage (95%CI), persons aged 18-75 years, Queensland⁷²



High blood pressure

High blood pressure (often referred to as hypertension), is caused by a number of factors including stress,¹²³ obesity, risky alcohol use, physical inactivity, high dietary salt intake, and nutrition patterns which involve a low intake of fruit and vegetables and a high intake of saturated fat.¹²⁴

In 2003 in Queensland, high blood pressure was the fifth largest determinant of the total burden of disease (5.1 per cent), 5.5 per cent for males and 4.7 per cent for females.

In 2005, about one quarter of adult Queenslanders aged 18 years and older (26.3 per cent) reported they had been told by a doctor or nurse they had high blood pressure, at any stage of their lives (Table 7). Of these, 62.1 per cent were taking medication to help manage their blood pressure.

Untreated and treated high blood pressure increases with age, with males more likely to have high blood pressure than females in all age groups.

By clinical measurement in 2000, 16.0 per cent of Queensland males aged 25 years and older had untreated high blood pressure and 12.0 per cent had treated high blood pressure (Table 8). For females, 8.7 per cent had untreated high blood pressure and 13.7 per cent had treated high blood pressure. Untreated and treated high blood pressure rates in Queensland were similar to Australia.

High blood pressure leads to greater risk of cardiovascular problems which can be severe, often fatal.¹²⁵ Using medication to reduce blood pressure - particularly at an early stage - is a relatively cost effective way to prevent cardiovascular disease.¹²⁶ In all age groups about 40 per cent of males and 60 per cent of females were receiving treatment for their high blood pressure (Table 8). That is, for every one person receiving treatment for high blood pressure, there is about one other person with untreated high blood pressure.¹²⁶

Females were more likely to receive treatment for high blood pressure than males - up to 60% of males go untreated.

Table 7: High blood pressure prevalence (self report; 95%CI), Queensland 2005⁷²

| | Male | Female | Persons |
|--|------------------|------------------------------------|------------------|
| 18+ years | 23.8 (20.5-27.5) | 28.6 (25.6-31.9) | 26.3 (24.0-28.7) |
| 18-29 years | 8.3 (3.7,17.4) | 9.4 (5.0,16.7) | 8.8 (5.4-14.1) |
| 30-39 years | 9.1 (4.9,16.4) | 16.9 (11.7,23.6) | 13.1 (9.6-17.8) |
| 40-49 years | 22.1 (15.4,30.7) | 23.8 (17.7,31.2) | 23.0 (18.3-28.5) |
| 50-59 years | 32.3 (24.0,41.9) | 32.9 (26.0,40.7) | 32.6 (27.1-38.7) |
| 60-69 years | 44.6 (34.0,55.7) | 47.4 (38.5,56.4) | 46.0 (38.9-53.1) |
| 70+ years | 49.3 (38.9,59.9) | 64.3 (55.2,72.5) | 57.9 (50.9-64.6) |
| Socioeconomic advantage/ disadvantage (persons 18+) | | Accessibility (persons 18+) | |
| Quintile 1 (disadvantage) | 31.1 (25.8-37.0) | Major cities | 24.8 (21.7-28.2) |
| Quintile 2 | 28.1 (23.4-33.4) | Inner regional | 31.1 (26.8-35.8) |
| Quintile 3 | 27.2 (22.3-32.7) | Outer regional | 23.2 (18.3-29.1) |
| Quintile 4 | 25.9 (21.3-31.2) | Remote | 22.3 (9.0-45.5) |
| Quintile 5 (advantage) | 16.2 (11.9-21.8) | Very remote | 26.9 (9.8-55.5) |

Table 8: Prevalence of measured treated and untreated high blood pressure by age and sex, 2000¹¹⁰

| Male | Australia | | Queensland | | Female | Australia | | Queensland | |
|-------|-----------|---------|------------|---------|--------|-----------|---------|------------|---------|
| | Untreated | Treated | Untreated | Treated | | Untreated | Treated | Untreated | Treated |
| 25+ | 19.1 | 11.5 | 16.0 | 12.0 | 25+ | 11.8 | 15.3 | 8.7 | 13.7 |
| 25-34 | 7.0 | 0.0 | 7.6 | 0.0 | 25-34 | 2.7 | 1.2 | 2.0 | 0.0 |
| 35-44 | 14.0 | 2.9 | 8.0 | 0.8 | 35-44 | 4.3 | 3.2 | 3.6 | 3.0 |
| 45-54 | 20.0 | 10.5 | 16.9 | 14.5 | 45-54 | 11.1 | 11.9 | 8.6 | 7.1 |
| 55-64 | 26.3 | 20.5 | 24.5 | 22.0 | 55-64 | 21.1 | 21.7 | 16.0 | 21.3 |
| 65-74 | 33.3 | 34.5 | 28.3 | 34.5 | 65-74 | 25.1 | 41.8 | 20.2 | 44.1 |
| 75+ | 44.8 | 33.3 | 40.2 | 35.6 | 75+ | 25.8 | 48.7 | 14.7 | 48.2 |

High blood cholesterol

High blood cholesterol is a risk factor for stroke and coronary heart disease.⁴⁵ While coronary heart disease is not limited to people with high blood cholesterol, the risk of heart disease increases as levels of high cholesterol increase.¹⁰⁸

In 2003 in Queensland, high blood cholesterol was the fourth largest cause of disease burden; 6.3 per cent of the total burden with 6.6 per cent for males and 6.0 per cent for females.

Similar to the national figures, around half the population in Queensland had high cholesterol levels. In 2000, 51.1 per cent of males and 47.4 per cent of females aged 25 years and older had measured raised blood cholesterol levels.¹¹⁰ The prevalence of abnormal total cholesterol, LDL-cholesterol, HDL-cholesterol and triglycerides increases markedly with age up to 75 years (Table 9).

Table 9: Abnormal blood lipids, measured, percentage of population, Queensland 2000¹¹⁰

| | | Total cholesterol | LDL-cholesterol | HDL-cholesterol | Triglycerides |
|--------|-------|-------------------|-----------------|-----------------|---------------|
| Male | 25-34 | 31.0 | 36.9 | 23.8 | 10.0 |
| | 35-44 | 56.2 | 49.5 | 13.7 | 22.2 |
| | 45-54 | 60.0 | 57.7 | 24.2 | 35.3 |
| | 55-64 | 61.8 | 68.9 | 16.9 | 24.2 |
| | 65-74 | 65.8 | 65.6 | 16.1 | 28.3 |
| | 75+ | 51.0 | 51.3 | 24.5 | 27.1 |
| Female | 25-34 | 19.7 | 16.8 | 6.2 | 9.0 |
| | 35-44 | 36.5 | 36.1 | 6.2 | 10.7 |
| | 45-54 | 50.3 | 42.7 | 3.9 | 18.8 |
| | 55-64 | 75.9 | 68.5 | 4.8 | 24.4 |
| | 65-74 | 82.6 | 68.8 | 4.3 | 27.7 |
| | 75+ | 66.5 | 55.8 | 3.4 | 17.0 |

Clinical measurements of high blood cholesterol were about 20 per cent higher than self reported high blood cholesterol in 2000. This difference may be due to patients being unaware of the nature of blood tests taken by their doctors.

In 2005, around 30 per cent of adult Queenslanders reported that they had been informed that they had

high blood cholesterol (Table 10). Of these, 41.5 per cent were taking medication to help manage their high cholesterol.

In 1998, of those who self reported high blood cholesterol, 47.6 per cent had been advised by their doctor to modify their diet or initiate physical activity to reduce it.¹²⁷

Table 10: High blood cholesterol: self assessed prevalence (self report; 95%CI), Queensland 2005⁷²

| | Male | Female | Persons |
|--|------------------|------------------------------------|------------------|
| 18+ years | 30.0 (25.8-34.4) | 29.1 (25.6-32.9) | 29.5 (26.8-32.4) |
| 18-29 years | 7 (2.1,20.4) | 15.3 (7.6,28.4) | 11.2 (6.1-19.6) |
| 30-39 years | 19 (11.2,30.4) | 17.7 (11.1,26.9) | 18.4 (12.9-25.4) |
| 40-49 years | 27.8 (19.6,37.8) | 30.4 (22.9,39.2) | 29.2 (23.5-35.7) |
| 50-59 years | 33.2 (24.4,43.4) | 30.2 (23.0,38.4) | 31.8 (25.9-38.3) |
| 60-69 years | 55.9 (44.6,66.5) | 42.4 (33.5,51.7) | 49.3 (42.0-56.6) |
| 70+ years | 39.1 (29.3,49.9) | 37.9 (29.4,47.2) | 38.4 (31.8-45.4) |
| Socioeconomic advantage/ disadvantage (persons 18+) | | Accessibility (persons 18+) | |
| Quintile 1 (disadvantage) | 34.1 (27.8-41.0) | Major cities | 29.6 (25.7-33.8) |
| Quintile 2 | 32.3 (26.7-38.4) | Inner regional | 32.7 (27.8-38.0) |
| Quintile 3 | 25.8 (20.5-32.0) | Outer regional | 24.3 (18.3-31.4) |
| Quintile 4 | 27.4 (22.0-33.6) | Remote | 24.1 (9.5-49.0) |
| Quintile 5 (advantage) | 26.5 (19.5-34.9) | Very remote | 12.2 (3.0-38.8) |

Alcohol

Consumption of alcohol has both positive and negative effects on health. At low or moderate levels, alcohol can benefit some people,^{2,76} and in particular, during the middle age years it may help reduce the risk of heart disease. However, regular excessive consumption of alcohol over time can lead to chronic ill health and premature death. Episodes of heavy drinking may place the drinker, and others, at risk of injury or death.

In Queensland in 2003, alcohol consumption caused 2.1 per cent of the total burden of disease; which comprised 4.0 per cent attributed to alcohol harm and -1.8 per cent to alcohol benefit. For males, alcohol consumption caused 3.9 per cent of the total burden, which comprised 5.5 per cent attributed to alcohol harm and -1.5 per cent to alcohol benefit. For females, alcohol consumption caused 0.1 per cent of the total burden, which comprised 2.2 per cent attributed to alcohol harm and -2.1 per cent to alcohol benefit.

In 1999-2001, hazardous and harmful alcohol consumption in Queensland led to on average 812 deaths per year, of which 74 per cent were male and around 20 per cent were suicides.³³ Excess alcohol consumption led to almost 21,000 hospital separations.³³

In 2004, around 12.3 per cent of Queensland males aged 14 years and older had a usual alcohol consumption that put them at risk of harm in the long term (Figure 44), compared with 10.1 per cent of Australian males (Figure 44). The corresponding figure for Queensland females was 10.2 per cent and for Australian females 9.6 per cent. The Queensland rates were not significantly higher than national rates for males or females.

Young Queenslanders, particularly teenage females, are at the highest risk of harmful patterns of alcohol consumption. In 2004, highest levels of risky consumption were among people in the age group 20-29 years (Table 11). Females aged 14-19 years were twice as likely to drink at risky levels (9.8 per cent) as young men of the same age (5.1 per cent).¹⁴ In the adult population, the proportion of males and females who usually drank harmful quantities of alcohol decreased significantly after the age of 30 years.

In 2004-05, 16 per cent of Australian Indigenous adults reported drinking alcohol at risky or high risk levels.¹⁹⁴ After adjusting for age differences in the populations, the rate of risky or high risk drinking among Indigenous peoples is similar to that in the non Indigenous population.

Guidelines: Recommended daily maximum alcohol consumption²

Men
Average **4** or less standard drinks

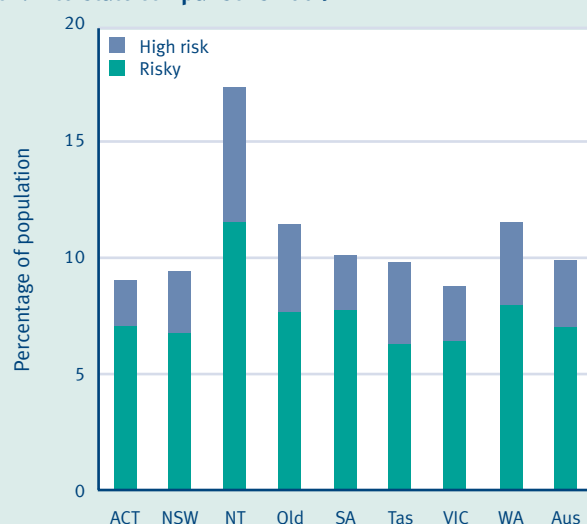
Women
Average **2** or less standard drinks

Drinks should be spread over several hours
Everyone should have 1 or 2 alcohol free days each week

Table 11: Alcohol consumption: percentage of population at risk of harm in the long term (95%CI), Queensland 2004¹⁴

| | | Low risk | Risky | High risk |
|---|---------------------------|--------------------|--------------------|------------------|
| Persons | 14+ years | 72.8 (71.4 - 74.1) | 7.6 (6.8 - 8.4) | 3.7 (3.1 - 4.3) |
| Male | 14+ years | 75.3 (73.4 - 77.2) | 7.5 (6.4 - 8.8) | 4.8 (3.9 - 5.9) |
| Female | 14+ years | 70.2 (68.4 - 72.0) | 7.7 (6.7 - 8.8) | 2.5 (2.0 - 3.2) |
| Persons | 14-19 years | 59.5 (55.2 - 63.8) | 7.4 (5.5 - 9.8) | 5.4 (3.4 - 8.5) |
| Male | 14-19 years | 60.1 (53.5 - 66.4) | 5.1 (3.1 - 8.3) | 4.8 (2.2 - 10.4) |
| Female | 14-19 years | 59.0 (53.3 - 64.4) | 9.8 (6.9 - 13.7) | 6.0 (3.5 - 10.1) |
| Persons | 14-19 years | 59.5 (55.2 - 63.8) | 7.4 (5.5 - 9.8) | 5.4 (3.4 - 8.5) |
| | 20-29 years | 73.4 (70.1 - 76.5) | 12.8 (10.5 - 15.5) | 4.4 (3.2 - 6.2) |
| | 30-39 years | 78.8 (75.5 - 81.8) | 8.8 (6.9 - 11.2) | 2.8 (1.7 - 4.4) |
| | 40-49 years | 76.5 (73.3 - 79.5) | 7.0 (5.4 - 9.0) | 4.3 (3.1 - 6.0) |
| | 50-59 years | 74.6 (71.2 - 77.7) | 6.7 (5.0 - 8.9) | 4.0 (2.7 - 5.8) |
| | 60+ years | 68.9 (66.0 - 71.6) | 3.4 (2.5 - 4.6) | 2.1 (1.4 - 3.1) |
| Socioeconomic advantage/ disadvantage (persons 14+ years) | Quintile 1 (disadvantage) | 69.5 (66.3 - 72.4) | 6.4 (5.0 - 8.4) | 5.0 (3.7 - 6.8) |
| | Quintile 2 | 70.3 (67.3 - 73.1) | 7.1 (5.6 - 8.9) | 4.0 (2.8 - 5.6) |
| | Quintile 3 | 73.6 (70.7 - 76.3) | 8.7 (7.1 - 10.6) | 3.4 (2.4 - 4.8) |
| | Quintile 4 | 76.6 (73.8 - 79.2) | 7.6 (6.1 - 9.5) | 2.6 (1.8 - 3.8) |
| | Quintile 5 (advantage) | 74.0 (70.1 - 77.5) | 8.2 (6.3 - 10.7) | 3.4 (2.2 - 5.2) |
| Accessibility (persons 14+ years) | Major cities | 72.8 (71.0 - 74.5) | 8.0 (7.0 - 9.1) | 3.6 (2.9 - 4.5) |
| | Inner regional | 74.2 (71.3 - 76.9) | 6.3 (5.0 - 7.9) | 3.2 (2.2 - 4.8) |
| | Outer regional | 70.8 (67.6 - 73.9) | 7.6 (5.8 - 9.8) | 3.9 (2.7 - 5.5) |
| | Remote & very remote | 75.2 (68.1 - 81.2) | 9.0 (5.5 - 14.4) | 5.9 (3.3 - 10.3) |

Figure 44: Alcohol consumption: interstate comparisons 2004¹⁴



Young people under the age of 30 years are at greatest risk of harm from alcohol, based on their usual consumption patterns. More teenage girls than teenage boys are drinking at riskier levels.

Illicit drugs

In 2003 in Queensland, illicit drugs were the cause of 1.8 per cent of the total burden of disease 2.4 per cent for males and 1.2 per cent for females.

In 1999-2001 in Queensland, illicit drugs led to an average of 94 deaths per year, of which 78 per cent were male,³³ and on average 4,197 hospital separations per year.³³

Illicit drug use in Queensland in 2004 is similar to the Australian average (Figure 45), with almost 16 per cent of people aged 14 years and older reporting having used an illicit drug in the previous 12 months (Table 12).

Most drug users tend to be males, with highest use in the age group 20-29 years (43 per cent of males and

25.4 per cent of females in this age group had used a drug in the previous 12 months).¹⁴ Use of illicit drugs significantly decreased with age after 30 years (Table 12).

Drug use has increased over the past decade. Between 1995 and 2004 illicit drug use amongst Queenslanders 14 years and older increased by about 23 per cent or 2.3 per cent per year (Table 13). This increase was evident for most age groups, but especially for 20-29 year old males. Teenagers were the exception: amongst teenagers aged 14-19 years, illicit drug use decreased by about 45 per cent for males and 25 per cent for females.

One in five teenagers, and one in three people aged 20-29 years report having used illicit drugs in the last 12 months.

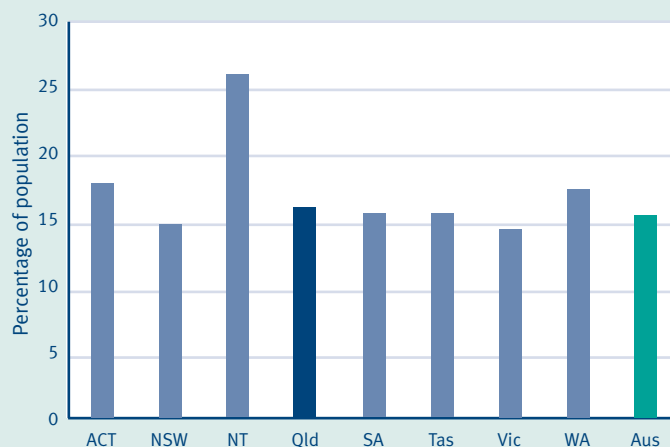
Table 12: Illicit drug use in the last 12 months: percentage of population (95%CI), Queensland 2004¹⁴

| | | Percentage |
|---|---------------------------|--------------------|
| Persons | 14+ years | 15.9 (14.8 - 17.0) |
| Male | 14+ years | 19.2 (17.4 - 21.1) |
| Female | 14+ years | 12.7 (11.5 - 14.0) |
| Persons | 14-19 years | 21.5 (18.2 - 25.2) |
| | 20-29 years | 34.2 (30.9 - 37.7) |
| | 30-39 years | 18.6 (15.9 - 21.7) |
| | 40-49 years | 12.7 (10.4 - 15.3) |
| | 50-59 years | 7.6 (5.8 - 9.8) |
| | 60+ years | 3.8 (2.8 - 5.1) |
| Socioeconomic advantage/ disadvantage (persons 14+ years) | Quintile 1 (disadvantage) | 16.3 (14.0 - 18.9) |
| | Quintile 2 | 14.4 (12.2 - 16.8) |
| | Quintile 3 | 16.6 (14.4 - 19.1) |
| | Quintile 4 | 16.1 (13.9 - 18.6) |
| | Quintile 5 (advantage) | 16.4 (13.5 - 19.9) |
| Accessibility (persons 14+ years) | Major cities | 17.3 (15.9 - 18.9) |
| | Inner regional | 13.6 (11.4 - 16.0) |
| | Outer regional | 14.9 (12.4 - 17.6) |
| | Remote/very remote | 12.5 (8.5 - 18.0) |

Table 13: Illicit drug use in the last 12 months: percentage of population, Queensland ¹⁴

| Male Age group (years) | Male | | | | Female | | | |
|---------------------------|------|------|------|------|--------|------|------|------|
| | 1995 | 1998 | 2001 | 2004 | 1995 | 1998 | 2001 | 2004 |
| 14+ | 15.4 | 23.5 | 19.1 | 19.2 | 10.8 | 19.6 | 13.6 | 12.7 |
| 14-19 | 37.2 | 26.2 | 23.8 | 20.3 | 30.5 | 39.4 | 30.4 | 22.7 |
| 20-29 | 30.0 | 44.2 | 40.9 | 43.0 | 25.6 | 39.2 | 26.8 | 25.4 |
| 30-39 | 19.2 | 26.8 | 24.8 | 22.9 | 7.4 | 17.8 | 13.0 | 14.4 |
| 40-49 | 1.9 | 24.7 | 13.2 | 16.1 | 3.0 | 11.5 | 8.8 | 9.4 |
| 50-59 | 2.6 | 7.8 | 7.2 | 8.9 | 4.4 | 10.2 | 5.5 | 6.2 |
| 60+ | 1.5 | 5.6 | 4.4 | 4.5 | 2.5 | 4.7 | 3.4 | 3.1 |

Figure 45: Illicit drug use in the last 12 months: interstate comparisons, 2004¹⁴



Cannabis was the illicit drug most widely used by Queenslanders with approximately 12% reporting cannabis use in the past 12 months.¹⁴ In the same period, 3% used amphetamines and 0.2% heroin. There were around 18,700 injecting drug users in Queensland, which is 20 per cent of the 90,800 injecting drug users nationwide.²⁹

Unsafe sex

Unsafe sex accounted for 0.5 per cent of total burden of disease and injury in Queensland in 2003; 0.2 per cent in males and 0.7 per cent in females.

Condom use is one of the most effective ways to prevent transmission of sexually transmissible infections (STIs).

The numbers of teenagers having sexual intercourse has increased in the past decade and in 2002, 26 per cent of Year 10 students and 47 per cent of Year 12 students reported having had sexual intercourse.²³ This is an increase since the 1992 and 1997 surveys.

More than half the sexually active students reported always using condoms (Figure 46). However, in 2001, for Queenslanders aged 16-59 years, only 16 per cent of heterosexual females and 46 per cent of heterosexual males reported always using condoms with a casual partner (Figure 46).³²

Protective sexual behaviours include limiting the number of partners and having an awareness of one's actions. In Queensland in 2001, with similar figures reported nationally, the average number of partners in the past year ranged from 0.9 to 3.8 for heterosexual men aged 16-59 years, and 0.8 to 1.3 for heterosexual women.

For sexually active students in Years 10 and 12 in 2002, nearly a quarter reported being drunk or high last time they had sex. One in five reported more than three partners in the past year (Figure 47).

Information on the rates of sexually transmitted infections can be found in the communicable diseases section of the report.

For more information on safe sex practices, visit the Queensland Health websites
<http://www.istaysafe.com>
<http://www.health.qld.gov.au/sexhealth>

Figure 46: Safe sex practice among Australian year 10 and year 12 sexually active students, and Queenslanders, 2001 and 2002²³

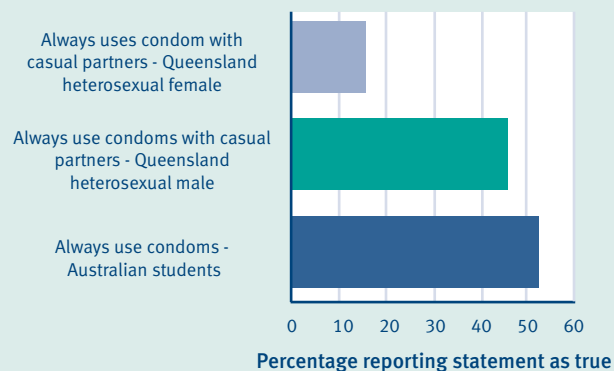
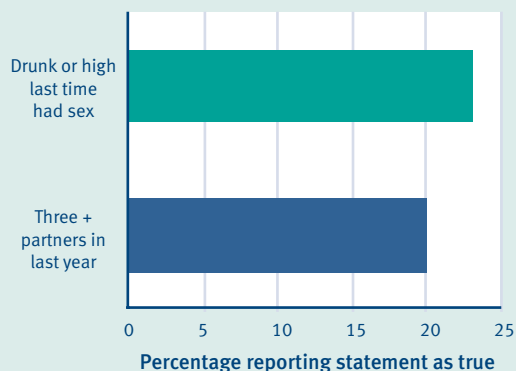


Figure 47: Unsafe sex practices, year 10 and year 12 students, Australia 2002²³



"Sometimes STIs cause symptoms but very often a person can have an STI without knowing it. A person with an STI may look perfectly healthy. If you have had unprotected sex you have been at risk of an STI. Go to your local doctor, family planning clinic or sexual health clinic for a sexual health check."²²

■ 3.2 Protective factors

Breastfeeding

Infants and children depend on good nutrition for normal growth and development. The benefits of such nutrition last throughout life¹²⁸ and directly influence a range of childhood conditions including overweight and obesity and dental disease. Good nutrition in infancy and childhood can also prevent diet-related diseases in later life.

Breastfeeding is recommended by the National Health and Medical Research Council (NHMRC).¹²⁹ Infants should be fed only breast milk until six months of age with the appropriate introduction of solid foods at six months and continued breastfeeding to at least 12 months of age.

In 2003, most Queensland children (92 per cent) under five years had been fed breast milk at some point.¹³⁰ This was in line with the NHMRC objective of a breastfeeding initiation rate in excess of 90 per cent. On discharge from hospital, 82.6 per cent of Queensland infants were given breast milk.⁸³

At one month of age 79 per cent of infants were breastfed.¹³⁰ By six months of age, the rate of

breastfeeding had fallen to 57 per cent,¹³⁰ well below the national objective of 80 per cent breastfeeding at six months.²⁴

The usual duration of breastfeeding was six months, among children aged less than five years who were ever breastfed. While data on exclusive breastfeeding rates is difficult to obtain, it is known that the proportion of infants exclusively breastfed during their first six months is low.¹³¹ It is also known that formula is widely used and introduced early. Twenty three per cent of all children aged less than five years, commenced formula before the age of four weeks.

Mothers who make a decision to breastfeed before they give birth are more likely to actually follow through with breastfeeding and continue for the recommended six months.¹²⁸ Mothers who intended to breastfeed were 19 times more likely to initiate breastfeeding, and about five times more likely to breast feed to six months, than women who had not made such a decision. Younger mothers were less likely to initiate breast feeding and less likely to continue breast feeding than older mothers.¹³⁰

■ Guidelines: Recommended breastfeeding and solid food introduction for infants¹²⁹

GUIDELINES

Birth

Breastfeeding

6 months

Breastfeeding

Introduction of solids

12 months

Breastfeeding

Solid foods

Introduction of cow's milk

Water fluoridation

Oral health is a costly diet related disease. Approximately \$3.7 billion was spent on dental services in Australia in 2001-02.¹³⁴ Fundamental to general health, oral health status can act as an indicator for general health. Oral health problems are very common in the population, ranked as the fourth most frequent illness condition, behind headache, high blood pressure and colds.¹³³ In Queensland in 2003 oral health accounted for 0.9 per cent of the burden of disease and injury.

Fluoride protects teeth from tooth decay and so adding fluoride to drinking water is a commonly used way to protect the dental health of a population.¹³⁴ Fluoridation of water, means that everybody has the benefit of fluoride, regardless of age, income or education level. Both children and adults benefit from water fluoridation. Water fluoridation can prevent tooth decay in both 'baby' (deciduous) and permanent teeth, perhaps by as much as 20-40 per cent over a lifetime.^{135,136}

Queensland has the lowest proportion of population living in areas with fluoridated water in Australia (Figure 48).¹³³ In 2006, 4.7 per cent of the Queensland population lived in areas with adequate protective fluoride, compared with 75 per cent of the rest of Australians.¹³³

Capital funding for water fluoridation plants was announced in the 2005 health mini budget to assist local governments to establish facilities to enable water fluoridation. The position of the Queensland

government is that decisions relating to fluoridation should rest with local government.

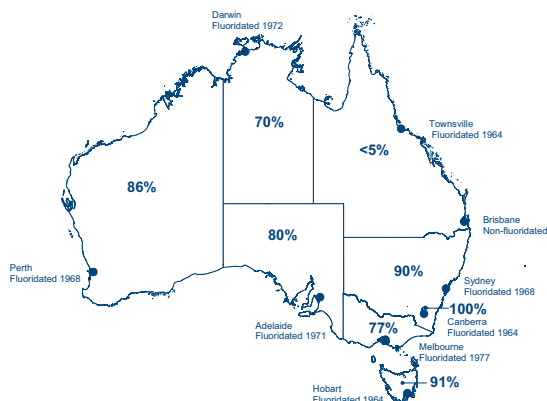
Tooth decay is the single most common chronic childhood disease.¹³⁶ Queensland children have significantly higher rates of tooth decay than the national average.¹³⁷⁻¹³⁹ In 2001, six year olds in Queensland had a tooth decay rate that was 10 per cent higher (2500 extra six year olds) than nationally: that is 52 per cent of Queensland six year olds with tooth decay compared with 47.3 per cent nationally.¹³⁹ For 12-year-olds, the Queensland rate was 7 per cent higher than nationally (1,600 extra 12 year olds), that is 43.1 per cent compared with 40.3 per cent. In 2001, 50.1 per cent of Queensland children have tooth decay in baby teeth, compared with 45.9 per cent nationally (Figure 48b). About one quarter (24.7 per cent) of Queensland children have tooth decay in permanent teeth, compared with 22.8 per cent nationally. Children in Townsville (fluoridated water) aged five to twelve years have 45 per cent less tooth decay than children living in Brisbane with a non fluoridated supply.¹³⁴

Queensland children have a higher number of teeth affected by tooth decay than the national average. In 2001 in six-year-olds in Queensland, the number of baby teeth with decay was nearly 30 per cent higher than nationally (on average 2.44, compared with 1.85 nationally). Results for permanent teeth in 12 year olds were similar (1.25 and 0.95 respectively).¹³⁸

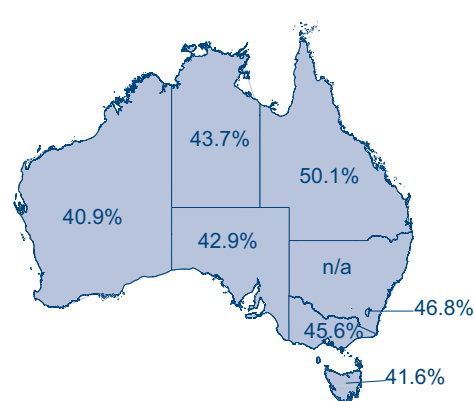
Victoria saved \$1billion in the last 25 years through fluoridating water supplies. Savings resulted from avoided dental costs, saved work and leisure time.³

Figure 48: Water fluoridation and oral health status in Australia

a. Percentage of population with access to fluoridated water and dates of introduction, 2005¹³⁴



b. Percentage of children with tooth decay in deciduous teeth 2001¹³⁸



Sun safety

Skin cancer is the most common cancer in Australia. Queensland has the highest rates of melanoma incidence and death of any Australian state,¹⁴⁰ and among the highest in the world.⁴¹ In 2005, over one third of Queenslanders reported ever having a skin cancer treated or removed, and over 80 per cent knew someone who had a skin cancer treated or removed.¹⁴¹

Although attitudes to tanning are changing,^{33,141} in Queensland in 2005, a majority of people still thought that being tanned looks attractive (59 per cent) or healthier (38 per cent). In the previous year about one fifth (19 per cent) of Queenslanders had tried to get a tan in the sun, and 1.5 per cent reported visiting a solarium, with younger people more likely to try to tan or use a solarium than older people. Solaria are an artificial form of ultra violet (UV) radiation and have the same damaging effect as UV from the sun.

Queenslanders can prevent skin cancer by reducing exposure to UV radiation from the sun, particularly during peak UV times between 10am and 3pm. This includes exposure while on the job in outdoor environments. In 2005, sun protection behaviours of Queenslanders who were outdoors during weekdays were variable:

- 29 per cent reported wearing a hat, visor safety helmet/hard hat or motorcycle helmet;

- 54 per cent reported wearing sun glasses; and
- 31 per cent reported using sunscreen, and of these, less than half applied the sunscreen correctly.

People became more concerned about getting skin cancer as they got older and if they lived outside south-east Queensland. Young males, often due to their jobs, were more likely to spend time outside in the high risk period (between 10am and 3pm) on a weekday. Males were generally more likely to use sunglasses. Older people were more likely to wear hats. Women were more likely to use sunscreen products, although this was often associated with the use of moisturiser and makeup.

The guidelines below indicate the precautions that should be taken during different levels of UV exposure. Guidelines regarding UV levels are particularly important for the Queensland population, as Queensland is located in both a sub-tropical and tropical latitude and experiences high levels of solar UV all year round, including the winter months.

UV light can cause skin cancer. All Queenslanders are at risk.

Guidelines^{142,143}

| UV-Index level | Exposure category | Recommended sun protection precautions | UV-Index colour code |
|------------------|-------------------|--|----------------------|
| 2 or less | Low | You can safely stay outdoors with minimal protection. | Green |
| 3 to 5 | Moderate | Hat, sunscreen, sunglasses, shady area. | Yellow |
| 6 to 7 | High | Hat, sunscreen, sunglasses, shady area, stay indoors between 10am-2pm. | Orange |
| 8 to 10 | Very High | Stay indoors as much as possible, otherwise use all precautions above. | Red |
| 11+ | Extreme | Same as for the previous category. | Purple |

Cancer screening

Cancer screening is the use of a test to identify the early stages of the disease before symptoms are present. Currently national screening programs are in place for breast cancer and cervical cancer for eligible women. They are the BreastScreen Australia Program,¹⁴⁴ which provides screening and follow up services, and the National Cervical Screening Program,¹⁴⁵ providing Pap smear tests. A third program, the National Bowel Cancer Screening Program, is being phased in from August 2006. The goal of these programs is to reduce the morbidity and mortality of these cancers and improve the quality of life of patients and their families.

BreastScreen Queensland Program actively promotes free breast cancer screening (screening mammograms) to women in the target age range of 50 to 69 years. Women aged 70 years and older and women aged 40-49 years are also able to access free breast cancer screening services.

In 2003-04 the Program participation rate in the target age group, 50-69 years, was 57.8 per cent. The Program goal is to screen 70 per cent of women in the target age group (Table 14). About one third of women aged 40-49 years and 70-79 years were also screened. Participation rates in the Program were lowest in Brisbane and in areas of highest socioeconomic advantage.

The participation rate for women aged 50-69 years increased during the 1990s but has remained steady since 2000, mainly because of population growth. With the participation rate still below the ideal, some new and significant barriers for the Program are emerging:

- As Queensland's population is projected to grow (Figure 5) and age (Figure 3), the number of women eligible for screening will increase dramatically.
- More women in the target group are likely to be in the paid workforce and so require more flexibility of access.
- Maintaining high standards and improving the capacity of the Program to deliver a high quality service while increasing the participation rate to 70 per cent.

GUIDELINES

■ Guidelines: Recommended breast¹⁴⁴ and cervical¹⁴⁵ cancer screening frequency

Breast screen

50-69
years

2 yearly

PAP smear

20-69
years

2 yearly

Breast cancer screening

Deaths from breast cancer can be reduced by 25-30 per cent if 70 per cent of women aged 50-69 years are screened every two years.¹⁴⁶ For this reason the

Table 14: BreastScreen Queensland participation rates, percentage of women, Queensland 2003-04¹⁴⁷

| | Socioeconomic disadvantage | | | | Remoteness | | | |
|--------|----------------------------|------------------|-------------|----------------------|--------------|-------------|-------|--------|
| | Total | Decile 1 (least) | Deciles 2-9 | Decile 10 (greatest) | Capital City | Other Metro | Rural | Remote |
| 40-49 | 30.5 | 26.8 | 31.1 | 30.1 | 28.8 | 32.1 | 30.9 | 38.9 |
| *50-69 | 57.8 | 47.2 | 59.1 | 58.8 | 55.0 | 58.2 | 60.8 | 60.5 |
| 70-79 | 36.4 | 34.5 | 36.7 | 35.5 | 34.7 | 36.7 | 37.8 | 41.3 |

*Target age group

Cervical cancer screening

Cervical cancer is widely recognised as one of the most preventable cancers. Approximately 90 per cent of the the most common form of cervical cancer (squamous cell) can be prevented by regular screening Pap smears every two years.¹⁴⁸

In 2003–04, more than half (57.6 per cent) of Queensland women aged 20–69 years had a Pap smear as a screen for cervical cancer within a two year period.¹⁴⁹ About two thirds (69.1 per cent) of women were screened within a three year period. Fewer women have Pap smears if they live in areas of greatest socioeconomic disadvantage; live in metropolitan areas other than Brisbane or remote areas (Table 15).

In 2005, of Queensland women aged 20–69 years who had not had a hysterectomy, 80 per cent reported

having regular Pap smears for cervical screening.¹⁵⁰

Regular screening was defined as having had a Pap smear within the past three years and regularly having smears every three years or less.

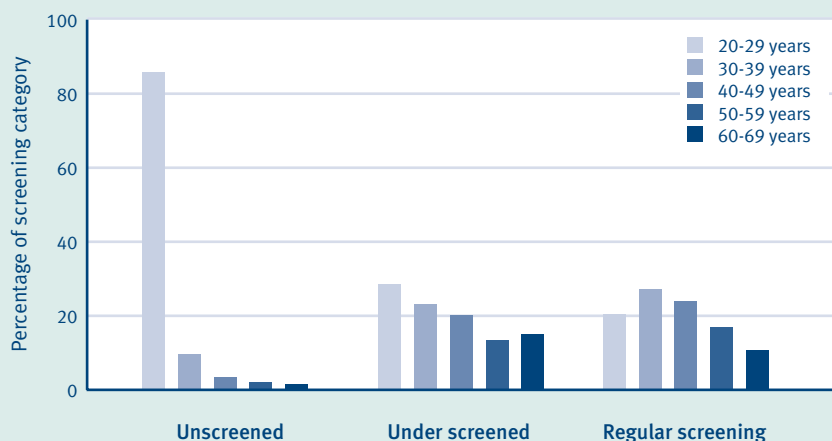
The age profile of regularly screened women was similar to under-screener (Figure 49), while those women who were unscreened i.e. had never had a Pap smear, were younger, with 83 per cent under 30 years of age.¹⁵⁰

Effective screening programs lead to improved survival: the earlier that cancer is detected and treated, the higher chance of a better outcome.

Table 15: Cervical screening participation rates, percentage of women aged 20-69 years, Queensland 2003-04¹⁴⁹

| Socioeconomic disadvantage | | Remoteness | |
|----------------------------|------|--------------|------|
| Decile 1 (least) | 62.5 | Capital city | 58.9 |
| Deciles 2-9 | 57.4 | Other metro | 54.0 |
| Decile 10 (most) | 57.7 | Rural | 57.8 |
| | | Remote | 54.5 |

Figure 49: Screening status for target population by age group, Queensland 2005¹⁵⁰



Immunisation

Childhood immunisation

Childhood vaccination prevents a range of diseases including measles, rubella meningococcal C and hepatitis A. One of the most cost-effective preventive services is childhood immunisation.¹⁵¹

Free vaccines are provided to Queensland children under the National Immunisation Program (Table 16). Besides the nationally funded vaccines, Queensland Health funds several additional vaccination programs: rabies vaccination for persons who have had exposure to either Australian Bat Lyssavirus or rabies; vaccination against Q Fever for those at occupational risk (e.g. dairy farmers, cattle industry workers, veterinarians); and vaccination against Japanese encephalitis for residents of the outer islands of the Torres Strait. Some vaccines are also funded for refugees. In Queensland, vaccinations are given by general practitioners (82 per cent), Queensland Health

vaccinators (eight per cent) and local government (seven per cent).¹⁵²

This system of free vaccines that can be administered by a number of health providers has resulted in high vaccination rates for Queensland's children. However, Queensland and Australia remain below vaccine coverage targets (Figure 50).

In 2005, more than 90 per cent of Queensland's children aged 24-27 months were fully vaccinated which is similar to the national rate (Figure 50) and has risen markedly since 1998 (Figure 51). The target vaccination rate set by National Health and Medical Research Council is 95 per cent vaccinated at 24-27 months. This target has not been met anywhere in Australia, suggesting more work needs to be done. Vaccination rates for older children (aged 72-75 months) were lower than national rates (Figure 50). It is not clear why Queensland rates are lower for these age groups and so Queensland Health has initiated research to investigate this pattern.

Figure 50: Childhood vaccination rates, Queensland and Australia 2005¹⁵²

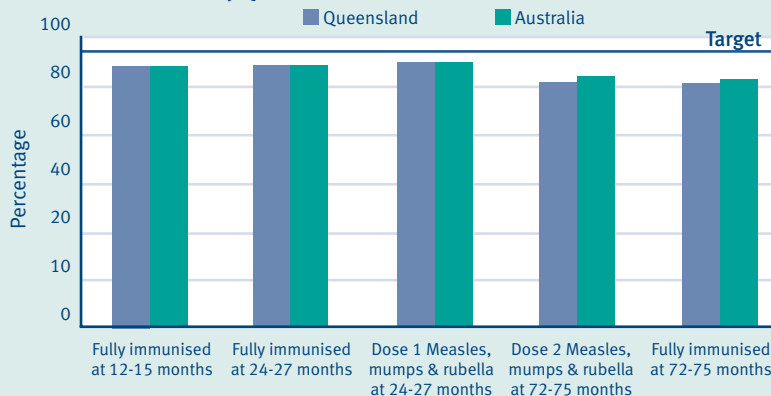


Figure 51: Trends in vaccination rates, Queensland and Australia¹⁵²

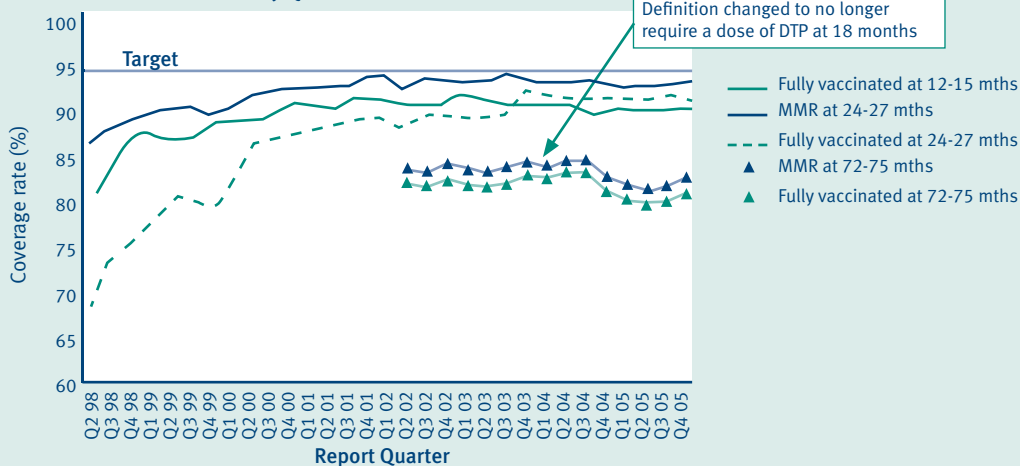


Table 16: National Immunisation Program Schedule, 2005¹⁵³

| Age | Disease | Vaccine |
|---------------------------------------|--|---------------------|
| Birth | Hepatitis B | Hepatitis B |
| 2 months | Diphtheria, Tetanus, Pertussis, | DTPa-IPV |
| | Poliomyelitis | |
| | Hepatitis B | |
| 4 months | <i>Haemophilus influenzae</i> type b | HepB-Hib (PRP-OMP) |
| | Pneumococcal | 7vPCV |
| | Diphtheria, Tetanus, Pertussis, | DTPa-IPV |
| | Poliomyelitis | |
| | Hepatitis B | HepB-Hib |
| 6 months | <i>Haemophilus influenzae</i> type b | |
| | Pneumococcal | 7vPCV |
| | Diphtheria, Tetanus, Pertussis, Poliomyelitis | DTPa-IPV |
| 12 months | Pneumococcal | 7vPCV |
| | Measles, Mumps, Rubella | MMR |
| 18 months | Hepatitis B | HepB-Hib |
| | <i>Haemophilus influenzae</i> type b | |
| | Meningococcal C | MenCCV |
| | Pneumococcal (eligible children only) ¹ | 7vPCV |
| | Varicella (chickenpox) | VZV |
| 24 months | Hepatitis A (eligible children only) ² | Hepatitis A |
| | Pneumococcal (eligible children only) ³ | 23vPPV |
| 4 years | Hepatitis A (eligible children only) ² | Hepatitis A |
| | Diphtheria, Tetanus, Pertussis | DTPa-IPV |
| | Poliomyelitis | |
| | Measles, Mumps, Rubella | MMR |
| 13 years | Pneumococcal (eligible children only) ¹ | 23vPPV |
| | Hepatitis B 4 | H-B-Vax II |
| | Varicella (chickenpox) ⁵ | VZV |
| 15 years | Diphtheria, Tetanus, Pertussis ⁶ | dTpa |
| Indigenous peoples 15-49 years | Pneumococcal (eligible only) ⁷ | 23vPPV ⁸ |
| | Influenza ⁷ | Influenza |
| Indigenous peoples 50 years and older | Pneumococcal | 23vPPV ⁹ |
| | Influenza | Influenza |
| 65 years and older | Pneumococcal | 23vPPV ⁹ |
| | Influenza | Influenza |

¹ Children under 5 years with an underlying medical condition predisposing them to pneumococcal disease

² Indigenous children under 5 years

³ Indigenous children under 2 years

⁴ Year 8 students in a school based program or 13 year old from vaccine service provider ;2nd dose 4-6 months after the first dose

⁵ Year 8 students in a school based program or 13 year old from vaccine service provider, unless they have received VZV or had a clinical history of varicella

⁶ Year 10 students in a school based program or 15 year old from vaccine service provider

⁷ Indigenous persons only with a pre-existing medical condition or certain health risk factors eg smoking

⁸ Booster 5 years after the primary dose and again at 50 years, or 10 years later (whichever is the later)

⁹ A single booster 5 years after the primary dose

For more information see <http://www.immunise.health.gov.au>

Influenza immunisation

Influenza or flu is widely recognised as a health threat for the elderly and other high risk populations. This disease can usually be prevented through vaccination.

Each year, Queensland Health coordinates a general practitioner sentinel surveillance program during the influenza season. This program gathers information on

populations most affected by Influenza-Like-Illnesses (ILI), and on strains of influenza in the community, which informs vaccine development for the following year.

During the influenza season, up to 150 cases of influenza will be notified each week in Queensland (Figure 52), which is thought to be only a fraction of

people who actually get the flu. Most people (86 per cent), seen by general practitioners with influenza-like illness had not been vaccinated against influenza.

Currently in Queensland vaccination against influenza is free for persons aged 65 years and older, and for many Indigenous persons aged 15 years and older. Queensland Health has also trialled vaccinating 'special case' at risk populations such as those in areas affected by Cyclone Larry which caused dramatic destruction of property and infrastructure around Innisfail in March 2006.

In 2005 around 80 per cent of Indigenous adults aged 65 years and older were vaccinated against influenza.¹⁵⁴ Vaccination in the lower age groups was

not as high; only 33 per cent of Indigenous persons aged 50 years and older, and 11 per cent of Indigenous peoples aged 15-49 were immunised. Not all Indigenous peoples aged less than 50 years are eligible.

In 2005, there were a disproportionately high number of influenza cases amongst children under five years (21.5 per cent of notifications) (Table 17). Conversely, people aged 65 years and older who could receive free vaccinations were responsible for relatively few notifications.

For more information on influenza, including hospitalisations, see the communicable diseases section of this report.

Figure 52: Laboratory confirmed influenza and Influenza-Like-Illness notifications per week, Queensland 2005¹⁵⁵

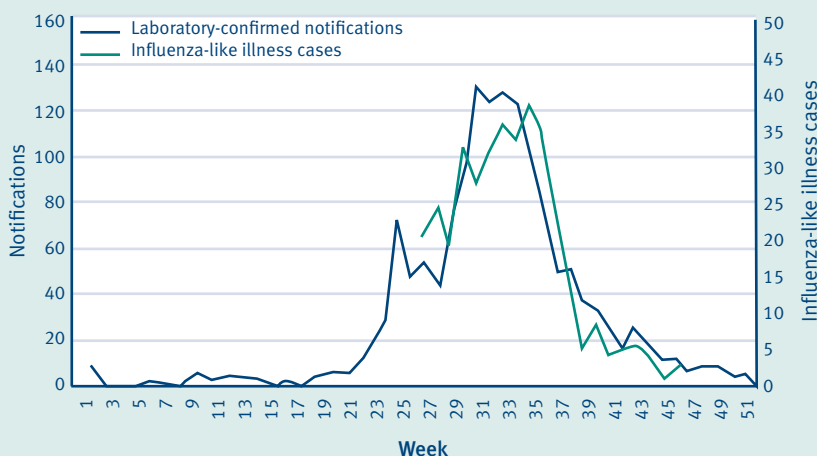


Table 17: Influenza notifications during influenza season, Queensland 2005¹⁵⁵

| Age group | Influenza notifications May-November | | Rate per 100,000 |
|-------------|--------------------------------------|------|------------------|
| | number | % | |
| 0-4 years | 320 | 21.4 | 127.9 |
| 5-24 years | 417 | 27.9 | 38.0 |
| 25-44 years | 307 | 20.5 | 27.3 |
| 45-64 years | 302 | 20.5 | 32.1 |
| 65 + | 149 | 10.0 | 32.0 |
| Total | 1495 | 100 | 38.5 |

Cyclone Larry immunisation program
Prior to the influenza season in 2006, Queensland Health conducted a mass vaccination campaign to protect residents against influenza in areas affected by Cyclone Larry. Free vaccine was provided to more than 7000 healthy individuals aged 6 months and older.

4 Health outcomes in Queensland

In this chapter

- Cancer
- Coronary heart disease
- Stroke
- Diabetes
- Psychological distress
- Mental and behavioural problems
- Suicide
- Chronic respiratory disease
- Musculoskeletal conditions
- All injury
- Road transport injury
- Falls
- Drowning
- Vaccine preventable conditions
- Sexually transmitted diseases
- HIV and AIDS
- Vector-borne disease
- Food-borne illness
- Hepatitis C
- Tuberculosis
- Zoonotic diseases
- Pandemic influenza preparedness

Most ill health, disability and burden of premature death in Queensland today is due to chronic disease: 87.6 per cent of total burden of disease. In Australia in 2001, treatment of chronic diseases accounted for \$34 billion in health care, or over 70 per cent of allocated health expenditure.¹⁵⁶

Chronic disease is increasing due to a range of factors, including:

- Ageing of the population with chronic disease much more common in older people
- Lifestyle changes including seven risk factors which are largely preventable and which cause about one third of the chronic disease burden: tobacco smoking; risky and high risk alcohol consumption; physical inactivity; poor diet and nutrition; overweight and obesity; high blood pressure; and high blood cholesterol¹⁵⁷
- Improvements in the treatment of some infectious diseases and injury, resulting in a morbidity burden where once death occurred¹⁵⁸

In addition to chronic disease, injury caused 7.8 per cent of the total burden of disease in Queensland, 1.6 per cent was due to communicable diseases and the remainder was due to maternal and neonatal conditions.

This report outlines the eight National Health Priority Areas identified by Australian Health Ministers. These areas of health can be significantly improved through prevention and management. They are cancer,

cardiovascular health, diabetes mellitus, mental health, asthma, injury prevention and control, and musculoskeletal conditions. In addition selected major communicable disease indicators are included.

Surveillance of disease outcomes and health determinants plays an important role in objectively monitoring the health of the population. Communicable disease surveillance has a well established role in monitoring the population's health. Monitoring of chronic and non-communicable conditions and determinants is established, although coverage is incomplete. However, a better approach is needed as traditional surveillance and monitoring is disease specific and so does not enable the management and prevention of these diseases to be integrated. An integrated response, particularly for assessing risk and protective factors is critical to effective prevention and management of these diseases.

Health outcomes depend on a variety of factors or determinants that influence individuals, families and communities. Personal health behaviours as well as social and economic factors and the physical environment, all have a major impact on health outcomes. The major risk and protective behaviours which relate to the health outcomes of Queenslanders were outlined in the previous section.

- Lifestyle prevention strategies including healthy eating, being smoke free, being sun safe, maintaining a healthy weight and increasing physical activity could:
- Reduce the risk of diabetes by 60%;⁷
 - Reduce coronary heart disease by 37%;²⁷ and
 - Prevent 25% of cancer cases.³¹

4.1 Cancer

Cancers are a group of diseases in which the cells that make up the body's tissues and organs grow and divide abnormally and out-of-control. Affected cells can invade surrounding healthy tissues and spread to other parts of the body.

In 2003 in Queensland, cancer was the largest cause of total burden of disease. Overall, cancers caused 18.4 per cent of the total burden; 18.8 for males and 17.8 per cent for females (Figure 11). Considering the burden of disease by specific cause, cancers were individually important causes: lung cancer was the cause of 3.3 per cent of total burden, colorectal cancer 2.3 per cent, prostate cancer 1.3 per cent (2.5 per cent for males), breast cancer 2.2 per cent (4.6 per cent for females), and lymphoma, melanoma and leukaemia together about 2.4 per cent of total burden (Table 2). Lung cancer was the second most important cause of premature death in males, while for females, breast cancer and lung cancer were among the leading causes.

One third of the burden of cancer is due by ten risk factors. The vast majority is explained by tobacco. The contribution of alcohol, occupational exposure, air pollution and unsafe sex is much smaller by comparison.

In 2003, there were 18,202 new cases of cancer in Queensland and 6667 deaths, excluding non-melanoma skin cancers. For some cancers, eg lung cancer, death rates are higher in areas of socioeconomic disadvantage. Considering all cancers, about 13 per cent of cancer deaths of people aged 0-74 years could be attributed to socioeconomic disadvantage. This translates to about 470 premature deaths per year, of which about 30 per cent were lung cancer deaths. It is likely that one in three males and one in four females in Queensland will be diagnosed with cancer before

they are 75 years old (allowing for the fact that a person may have more than one cancer, and based on current incidence rates).¹⁴⁰ In 2001, the average age of first diagnosis of a cancer was 66 years for males and 64 years for females.¹⁴⁰

Death rates for all cancers have been decreasing for both males and females since the mid-1990s (Figure 53).¹⁵⁹ For females, this has been due to improved early detection and treatment of breast cancer, colorectal, cervical, stomach and ovarian cancer. For males, this has been due to improved early detection of prostate cancer, and continuing improvements in prevention and treatment of lung, colorectal and stomach cancer.

Cancer incidence rates (rate of newly diagnosed cancers) need to be interpreted with care as they may reflect changes in screening practices and public awareness, rather than actual new cases.¹⁵⁹ However, it seems that the incidence rate of all cancers in females increased in the early 2000s and has since decreased (Figure 53). The initial increase was driven by new cases of breast cancer, lung cancer, non-Hodgkin's lymphoma and melanoma. The decrease is partially explained by a recent decline in breast cancer.

The incidence of cancer among males has decreased since 1993, mainly due to decreases in lung and stomach cancer. Melanoma and non-Hodgkin's lymphoma continue to increase in males.

Cancer death rates in Queensland and Australia are towards the lower end of those in OECD countries (Figure 54), although the ranking varies for different types of cancers.¹⁶¹ For example, Australia is among the lowest for lung cancers but among the highest for skin cancers (along with New Zealand) and towards the highest for colorectal cancers.¹⁶¹

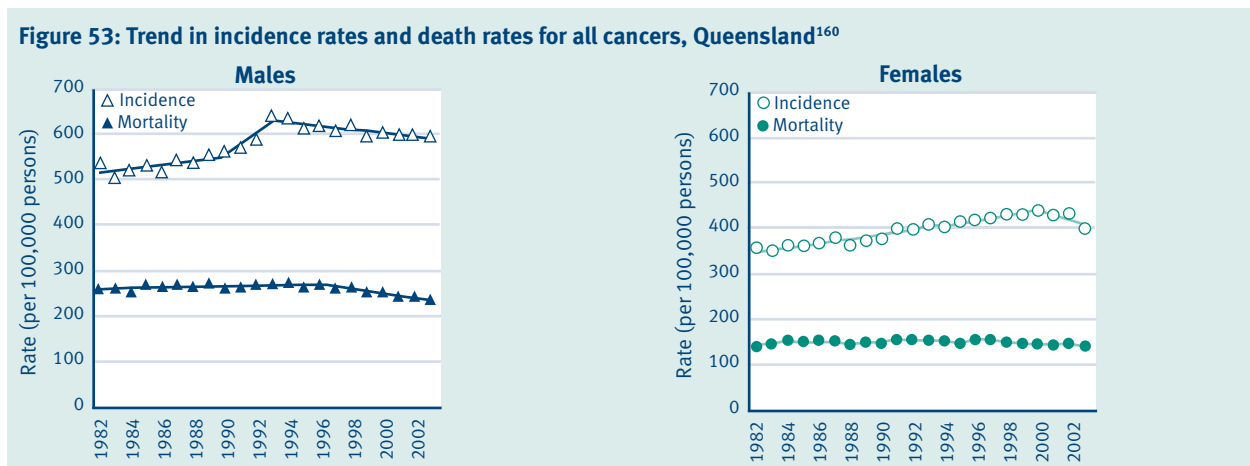
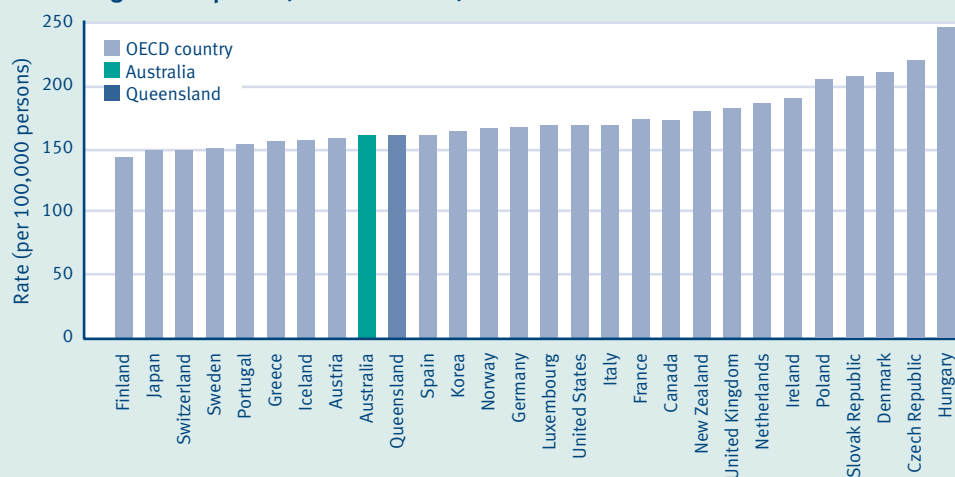


Figure 54: Total malignant neoplasms, OECD countries, 2005⁷⁸



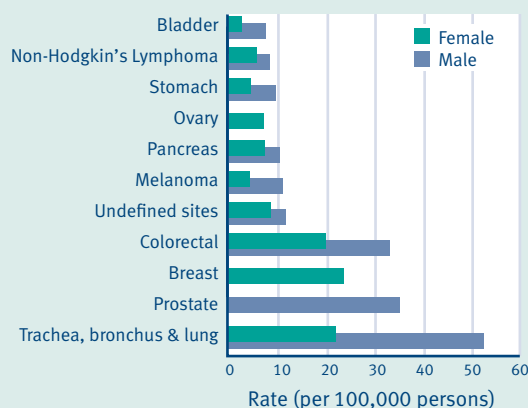
For males, cancer death rates are generally higher than female rates (Figure 55).

- Lung cancer remains the major cause of cancer death in males, even though for the past two decades there have been declining rates of new cases and declining death rates (Figure 58)
- Prostate cancer is the second-ranked cause and, despite rises in the rates of new cases, death rates are falling as more cases are being diagnosed and managed earlier (Figure 57).
- Colorectal cancer death rates are also declining while rates of new cases are increasing, reflecting earlier diagnosis and improved management (Figure 59).
- Mortality from melanoma is the fourth-ranked cancer in males.

For females, the major causes of cancer are breast and lung cancers (Figure 55).

- Breast cancer is the most common cancer diagnosed and one of the leading causes of cancer death in Queensland women. Deaths rates are now declining (Figure 56).
- Lung cancer rates of new cases are rising; so too are death rates (Figure 58).
- Colorectal cancers are the third-ranked of the cancers in terms of death rates, but as in males, despite increasing rates of new cases, death rates are declining as more cases are diagnosed and managed earlier (Figure 59).
- Cancers of the pancreas and ovary and lymphomas are the other major causes of cancer death in Queensland females.
- Cervical cancer death rates have fallen dramatically – at around 5.5 per cent each year for the past decade – largely as a result of organised screening programs enabling earlier detection and treatment.

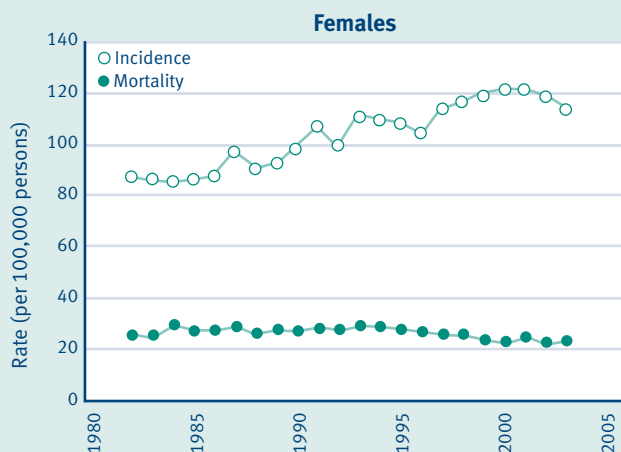
Figure 55: Mortality due to selected cancers, Queensland 2003¹⁶⁰



For breast cancer the introduction of the BreastScreen Queensland Program in 1991 significantly reduced the death rate. The rate of new cases of breast cancer increased by 2.1 per cent per year between 1982 and 2000, but then decreased by 1.7 per cent per year from 2000 to 2003 (Figure 56). The recent decrease in

the rate of new cases may be due to early detection in the BreastScreen Queensland Program where a large population has now been screened and the rate of detection of new cases is starting to approach an equilibrium.¹⁵⁹

Figure 56: Incidence and deaths due to breast cancer, Queensland¹⁶⁰

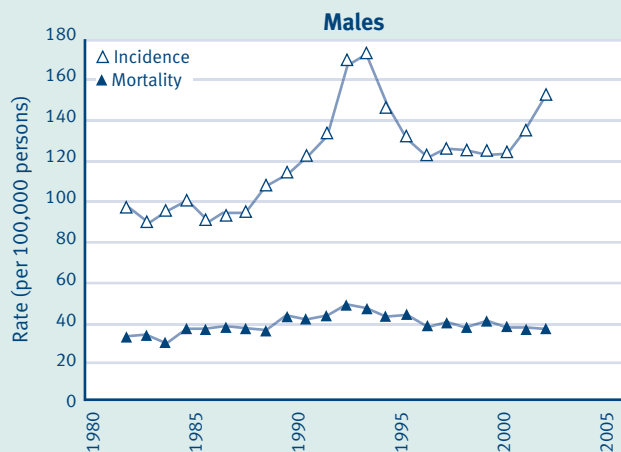


Prostate cancer is a leading male cancer. New testing techniques (eg prostate-specific antigen or PSA) were introduced in Queensland between 1988 and 1994. The resultant pattern of newly diagnosed cases reflects the effect of the introduction of the test, rather than any change in the incident rate of the disease (Figure 57).

then there has been a 22 per cent decrease in death due to prostate cancer. The reason for this decline is not clear but contributing reasons may include: new testing techniques such as PSA, better treatment of early stage disease with surgery or radiotherapy, or better treatment of advanced prostate cancer with medical therapies.¹⁵⁹

Death rates for prostate cancer peaked in 1993. Since

Figure 57: Incidence and deaths due to prostate cancer, Queensland¹⁶⁰



Lung cancer is primarily caused by tobacco smoking, and trends in lung cancer in males and females largely reflect smoking patterns more than 20 years ago. Lung cancer can largely be prevented. Lung cancer in males has been decreasing for several decades both in terms of rate of death (28 per cent decrease since 1982) (Figure 58) and new cases.¹⁵⁹ However the trends for females are opposite with rates of death increasing.

Between 1982 and 2003 there was a 75 per cent increase in the death rate for lung cancer in females in Queensland (Figure 58) and similar increases in the rate of new cases diagnosed.¹⁵⁹

For colorectal cancer there has been a steady increase in rates of new cases diagnosed for males and females since 1982 (Figure 59), but death rates have fallen.

Figure 58: Deaths from lung cancer, Queensland¹⁶⁰

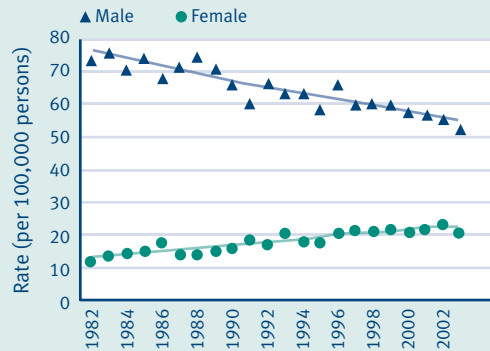
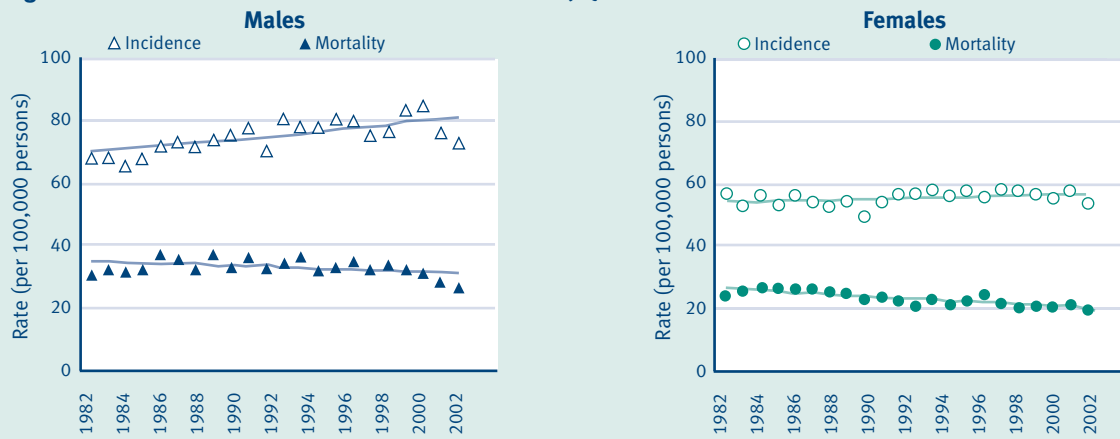


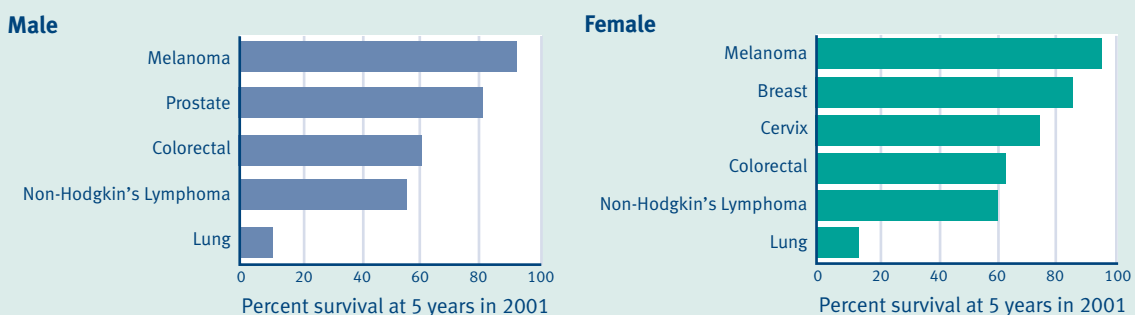
Figure 59: Incidence and death due to colorectal cancer, Queensland¹⁶⁰



Cancer survival rates among Queenslanders are improving and are generally among the world's best. Overall, the five-year survival for all cancers diagnosed in Queensland, was 63.5 per cent between 1996 and 2000.¹⁶² For some cancers the five year survival was greater than 90 per cent including cancers of the testis,

thyroid gland and for melanoma (Figure 60).¹⁶² Survival was relatively high (70-89 per cent) for some cancers including female breast, prostate, and cervical cancer. Five-year survival was low (less than 20 per cent) for cancer of the lung, liver, pancreas and mesothelioma.

Figure 60: Five year survival for selected cancers, Queensland 2001¹⁶²



Cancer control covers the spectrum of health activities including: primary prevention, detection and treatment, ongoing management, rehabilitation and palliative care. Early detection of some cancers is very effective such as breast and cervical, and increasingly colorectal and prostate. Almost all cancers respond very well to high

quality management and care. As survival rates improve and the population grows and ages, more Queenslanders are living with cancers than at any other time.

At least one-third of all cancer cases are preventable. Prevention offers the most cost-effective long-term strategy for the control of cancer.⁴

4.2 Cardiovascular disease

Coronary heart disease (heart attack and angina)

In 2003 in Queensland, coronary heart disease (heart attack and angina) was the largest specific cause of burden of disease accounting for 10.2 per cent of the total burden; 11.0 per cent for males and 9.2 per cent for females (Table 2). About 80 per cent of the total burden was due to premature mortality.

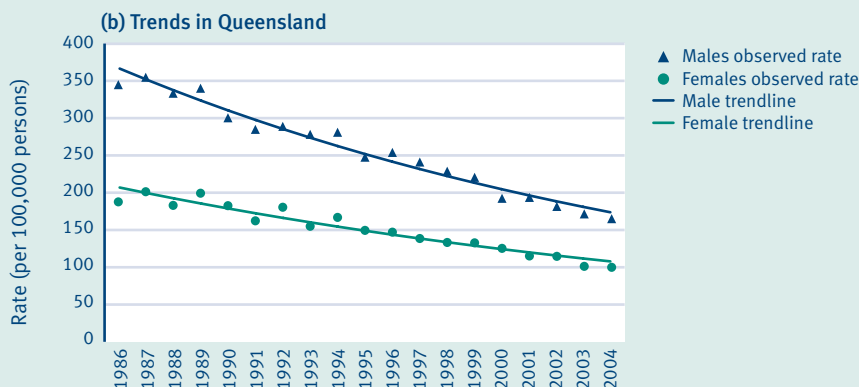
More than 80 percent of the burden due to coronary heart disease is due to 12 risk factors. High blood pressure and blood cholesterol are the largest contributors, followed by overweight and obesity, physical inactivity, tobacco and insufficient fruit and vegetable intake.

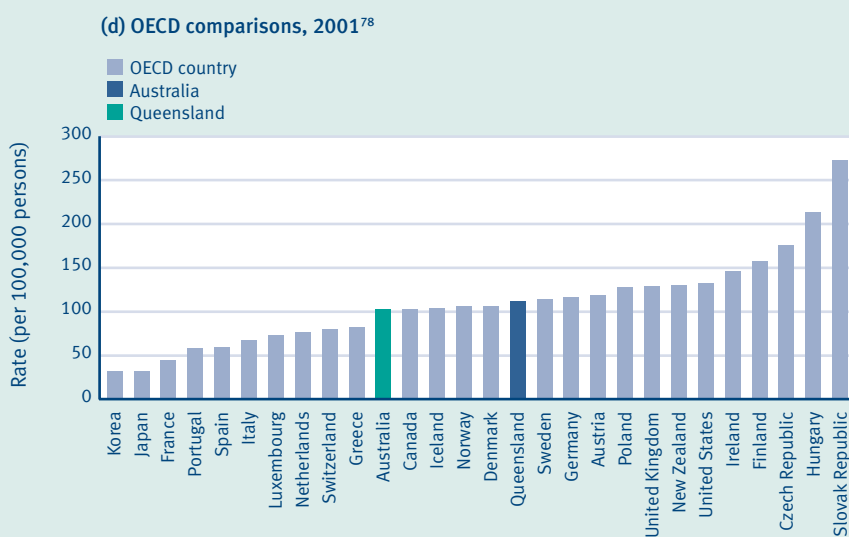
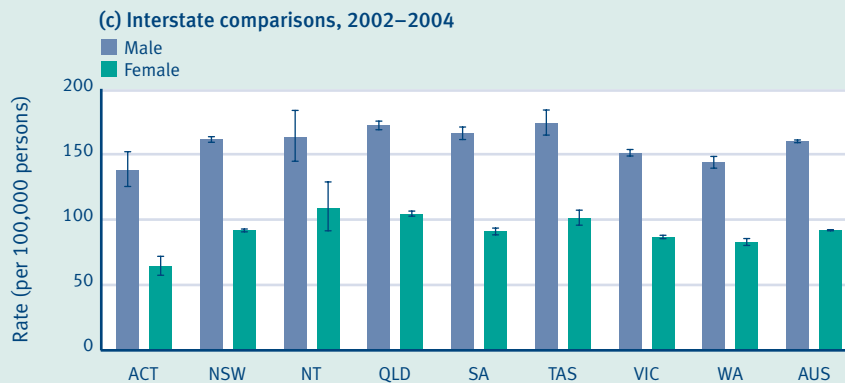
Coronary heart disease led to, on average, 4853 deaths per year in Queensland in 2003-04. Rates of death were higher in males than in females, in all areas with greater than one per cent Indigenous peoples and in disadvantaged areas compared with advantaged areas

(Figure 61a). If everyone had the same death rates as those in the most advantaged areas, about 27 per cent of deaths from coronary heart disease in people aged less than 75 years could have been avoided. This translates to about 350 premature deaths per year that could be regarded as being due to socioeconomic disadvantage. Similarly, if everyone had the same rates of death as those in major cities, about 130 coronary heart disease deaths per year in people aged less than 75 years could have been avoided.

Rates of death for coronary heart disease in Queensland have fallen dramatically over the past two decades (Figure 61b), however it remains the condition with the greatest potential for gain. Rates in Queensland are significantly higher than the national average by about 10 per cent, well above rates in Western Australia, Australian Capital Territory and Victoria (Figure 61c), and over twice those of the leading Asian and European countries (Figure 61d).

Figure 61: Deaths from coronary heart disease⁹¹





The major risk factors for heart disease are well understood and include diets high in fat and low in fruit and vegetables, insufficient physical activity, smoking, risky alcohol use and psychological stress. Disadvantaged populations are more likely to experience these factors and so experience higher death rates. Rates among Indigenous Queenslanders are around three times the state average.

Health services play an important role in reducing the impact of heart disease through the spectrum of care from primary prevention, detection and treatment, ongoing management, rehabilitation and palliative care. Management of related factors such

as high blood pressure, cholesterol, and blood fats and sugars is also critical to the prevention of heart attacks, other cardiovascular events and other lifestyle related conditions such as stroke and diabetes. Surgery may assist patients with established disease and the potential to benefit. Rehabilitation following heart attack or surgery, both during the hospital episode and in the months after discharge, can vastly improve health outcomes.

Lowering heart disease will require:

- Lifelong management of diet, physical activity, weight management and other risk factors.
- Attention to economic, social, cultural and physical environments that support healthy choices.
- Access to quality primary health care.
- Timely and high quality responses to acute events and established disease
- Effective rehabilitation programs.

Stroke

Stroke, or cerebrovascular disease, occurs when the blood vessels supplying part of the brain become blocked or burst. As a result that part of the brain is damaged and unable to function normally. Stroke is one of the leading causes of premature death and disability in Queensland.

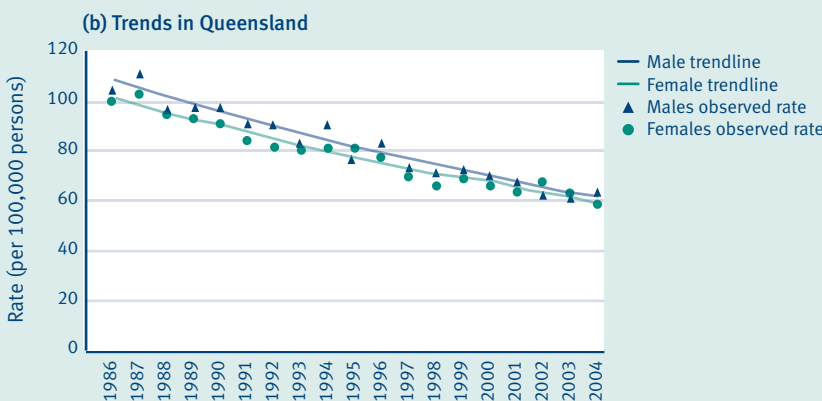
In 2003 in Queensland, stroke was the fourth largest specific cause of burden of disease accounting for 4.4 per cent of the total burden; 3.7 per cent for males and 5.1 per cent for females (Table 2). About 70 per cent of the total burden was due to premature mortality.

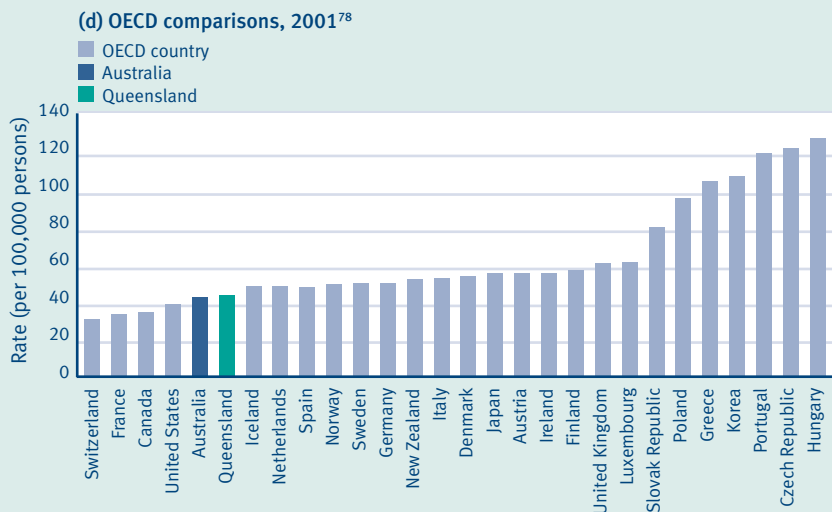
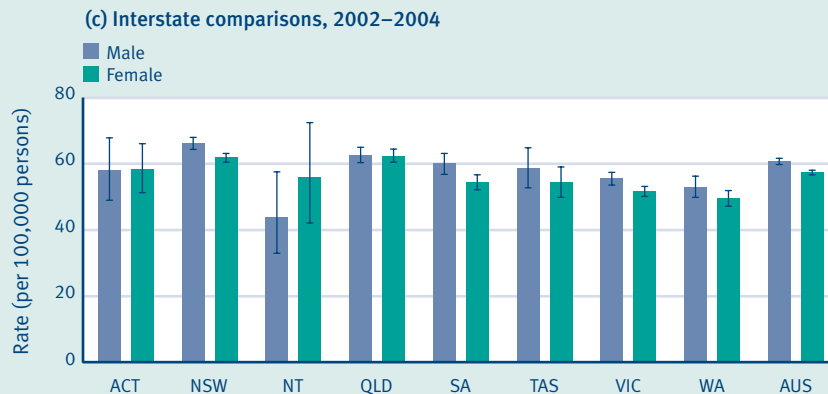
Stroke led to around 2291 deaths per year in Queensland in 2003-04, and 60 per cent of these were females. Rates did not vary significantly across sociodemographic or geographic areas (Figure 62a).

As with heart disease, Queensland and Australia have seen massive reductions in death rates from stroke in the past 20 years (Figure 62b). The Queensland death rate is similar to the Australian rate (Figure 62c), with Australia ranked fifth lowest among OECD countries and among the lowest in the world because of fewer occurrences and improved survival (Figure 62d).

Strokes can occur at any age, but they are far more frequent in older people, with around 80 per cent of strokes occurring in people 75 years and older. Our rapidly ageing population means that more people are entering the high risk age group. While death rates for stroke are falling, improved treatment is resulting in greater number of survivors and thus the health burden due to stroke remains.

Figure 62: Deaths from stroke⁹¹





While several biological factors can predispose people to stroke, the behavioural risk factors are generally similar to those for heart disease. The greatest potential for preventing stroke is through modifying and managing the lifestyle and primary health care of individuals.

Also essential to minimise the impact of stroke is a rapid response to acute events. Patient outcomes are also improved when managed in specialist stroke centres.¹⁶³ Therapy-based rehabilitation helps to regain function and independence, and maintain quality of life.¹⁶⁴

Providing effective and integrated services for a dispersed population such as Queensland's is especially challenging. As more people live to a greater age, more resources will be required to meet the needs of an increasing number of stroke survivors.

Reduction in coronary heart disease and stroke has the potential to reap great benefits for Queenslanders, through longer and better quality of life and lessening of the avoidable hospital burden. These conditions are largely preventable through changes in lifestyle and the impact reduced through provision of timely health care.

4.3 Diabetes Mellitus

Diabetes is one of the few conditions for which death rates and prevalence are increasing.

Type 1 diabetes typically begins in childhood and is managed through insulin injections. It is increasing at a small but significant rate. Type 2 diabetes usually begins in later life. It is associated with a range of lifestyle factors and is increasing rapidly. Also becoming more common is the incidence of Metabolic Syndrome, a predictor of both diabetes and cardiovascular disease. This syndrome is characterised by impaired glucose tolerance, high blood pressure, obesity, and other health risks.

In 2003 in Queensland, diabetes was the cause of 5.2 per cent of the total burden of disease; 5.8 per cent for males and 4.5 per cent for females (Figure 11). In 2003, about 156,000 Queenslanders (65 per cent were males) were estimated to have Type 2 diabetes with about 17,000 new cases diagnosed each year, or about 50 per day. Prevalence of diabetes increases markedly for both males and females over 30 years of age. However in 2003 a small number of children as young as 10–14 years of age had Type 2 diabetes.

Three quarters of the burden due to Type 2 diabetes is due to two risk factors. Overweight and obesity is by far the largest contributor, followed by physical inactivity.

Both types of diabetes can have serious complications for the circulatory system, eyes and nervous system, kidneys and limbs. The impact of these complications can be reduced by good clinical management.

There were on average 572 deaths per year due to diabetes in Queensland in 2003–04. Males accounted for 53 per cent of these deaths. Diabetes is more common in remote and very remote areas, in areas with a higher

proportion in Indigenous peoples and in people living in areas of disadvantage (Figure 63a). About 70 deaths per year or about 30 per cent of deaths from diabetes in the age group 0–74 years could be regarded as being due to socioeconomic disadvantage if everyone was assumed to have the same rates as those in most advantaged areas. Similarly if everyone aged less than 75 years in Queensland had the same death rates for diabetes as those in major cities, about 60 premature deaths could have been avoided, with a disproportionate number of these in remote and very remote areas. The excess premature burden in remote areas is likely to be associated with higher death rates for diabetes among Indigenous peoples.

Diabetes death rates are increasing for males, but not females (Figure 63b). While Queensland rates are generally similar to national rates (Figure 63c), compared to OECD countries, rates in Queensland and Australia are outside the lowest top ten (Figure 63d).

The true prevalence of diabetes can only be determined by taking blood samples of a representative sample of the population. Estimates of the prevalence of diabetes are often based on surveys using self reported information, but this is known to underestimate the true prevalence of diabetes as many people may not know they have the disease.¹⁵⁷

Based on self report, in 2004 about 8.4 per cent of adult Queenslanders had diabetes. Male prevalence and female prevalence were similar; 9.1 per cent for males and 7.8 per cent for females (Table 18). The prevalence of diabetes increased dramatically with age. The self reported prevalence of diabetes in Australia has more than doubled between 1989–90 and 2004–05.¹²²

Figure 63: Deaths from diabetes⁹¹



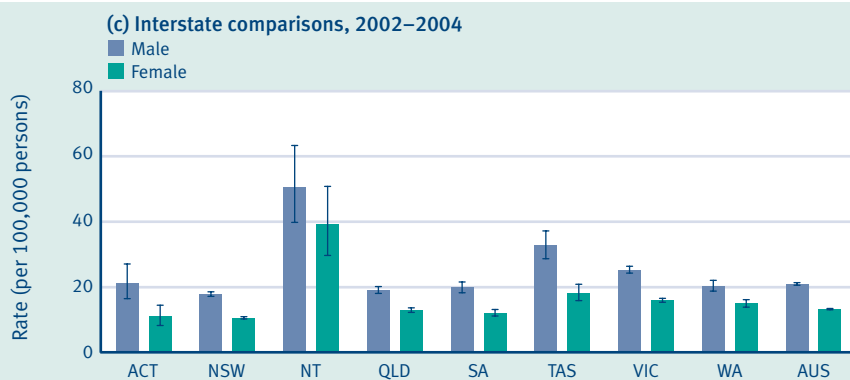
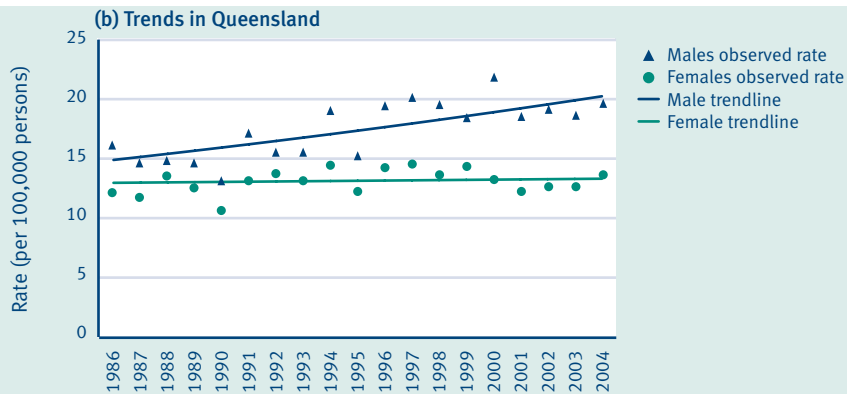


Table 18: Diabetes prevalence based on self-report, Queensland 2004¹⁶⁵

| | | |
|---------|-------------|------------------|
| Persons | 18+ years | 8.4 (7.3-9.7) |
| Male | 18+ years | 9.1 (7.6-10.9) |
| Female | 18+ years | 7.8 (6.3-9.6) |
| Persons | 18-29 years | 1.4 (0.4-4.2) |
| | 30-39 years | 3.6 (2.2-5.7) |
| | 40-49 years | 4.4 (2.9-6.6) |
| | 50-59 years | 11.4 (8.6-14.9) |
| | 60-69 years | 18.5 (14.3-23.5) |
| | 70+ years | 23.3 (18.2-29.2) |

After adjusting for age differences, Indigenous peoples were more than three times as likely as non-Indigenous people to report some form of diabetes. In addition, the condition is almost twice as prevalent among Indigenous Australians in remote areas compared with non-remote areas.¹⁶⁶

Children are now being diagnosed with Type 2 diabetes, a condition which was once called adult-onset diabetes. 90% of Type 2 diabetes is preventable if people maintain a healthy weight through healthy diet and adequate physical activity.⁸

4.4 Mental health

Mental health is the ability for people to interact with one another and the environment, in ways that promote subjective wellbeing, optimal development and the use of cognitive, affective and relational abilities. An individual's mental health is derived from their genetic makeup and general life circumstances including their social, economic and environmental situation. Mental health problems and mental disorders refer to the spectrum of cognitive, emotional and behavioural disorders that interfere with the lives and productivity of people.¹⁶⁷

A mental disorder is a diagnosable illness and differs from mental health problems in duration and severity. Some mental disorders of public health concern are depression, anxiety and substance use disorders. Mental disorders represent an immense psychological, social and economic burden to society, and also increase the risk of physical illness.¹⁶⁸

Mental disorders accounted for 14.0 per cent of the burden of disease and injury in Queensland in 2003; 12.3 per cent in males and 15.8 per cent in females (Figure 11). This was the third largest cause of disease burden. Unlike most other diseases, almost the entire burden of disease from mental disorders is due to disability (95 per cent), rather than mortality. Anxiety and depression was the leading specific cause of disability in Queensland (Table 2). It was the leading specific cause of total burden in many age groups including young people aged 15-24 years. It was the second leading cause in children aged 5-14 years. In 2003, about 349,000 Queenslanders were estimated to be suffering from anxiety or depression (63 per cent were female). About 22,300 of these experienced these disorders as a 'new' condition in 2003, with 43 per cent or about 9600 under the age of 25 years.

One quarter of the burden due to mental disorders is due to four risk factors. Alcohol and illicit drugs contribute in roughly equal proportions.

Overall, about three per cent of the population are estimated to have severe mental health disorders, where 0.6 per cent have high support needs.¹⁶⁹ Another 5 per cent of the adult population have moderate to severe mental health disorders, and another 10 per cent mild to moderate disorders. In addition, some mental health problems are prevalent in the broader population.

The prevalence of self reported long term mental and behavioural problems in Queensland in 2004/05 was 12.7 per cent ; about 18 per cent higher than the national average of 10.7 per cent.^{70,71} Affective or mood disorders and anxiety disorders are included in this measure. Compared with other states and territories, Queenslanders had the second highest prevalence of long term mental and behavioural problems.

Mental and behavioural problems were more commonly reported by younger people and among socioeconomically disadvantaged people (Table 19). Leading problems were mood and anxiety problems, although younger people also experienced a greater range of problems including alcohol and drug related, behavioural, emotional and psychological development.¹¹³

Mental disorders generally begin in adolescence. In New Zealand and USA anxiety disorders usually begin around 13 years, alcohol use disorders 18 years, schizophrenia 22 years, and mood disorders 32 years.¹⁶⁸ Most people wait quite some time between experiencing the first episode of a mental disorder and first seeking treatment.¹⁶⁸ It ranges from a median of one year in panic disorder, 10 years in mood disorders and 30 years in alcohol use and phobias.

Less than 40 per cent of Australians with mental disorders receive any mental health care in a 12 month period, compared with 80 per cent for common physical health problems.¹⁶⁸

Figure 64: Estimated prevalence of mental disorders and problems, Queensland, 2006¹⁷⁰

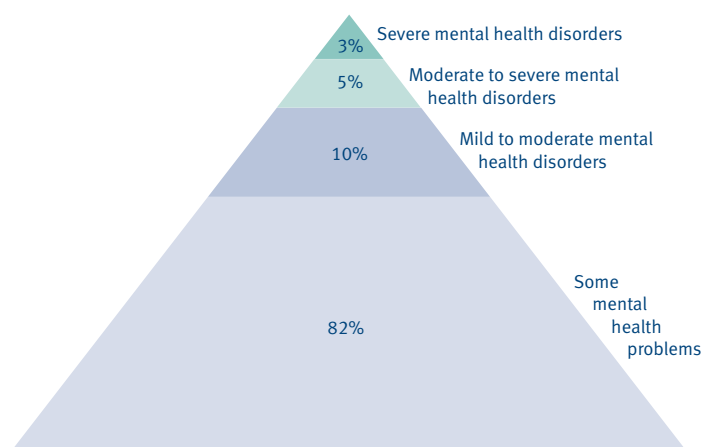


Table 19: Prevalence of self reported long term mental and behavioural problems, percentage of population, Queensland 2004-05⁷⁰

| | | Long term mental and behavioural | Mood (affective) | Anxiety related | Other mental and behavioural |
|---|----------------------------|----------------------------------|------------------|-----------------|------------------------------|
| Persons | 0-65+ years | 12.7 | 6.1 | 6.5 | 5.0 |
| Male | 0-65+ years | 12.3 | 4.7 | 5.3 | 6.7 |
| Female | 0-65+ years | 13.1 | 7.6 | 7.6 | 3.3 |
| Persons | 0-24 years | 10.6 | 2.3 | 5.3 | 6.2 |
| | 25-44 years | 14.2 | 8.8 | 6.8 | 4.9 |
| | 45-64 years | 14.2 | 8.5 | 7.5 | 4.7 |
| | 65+ years | 11.9 | 5.9 | 6.7 | 2.7 |
| Long term mental and behavioural problems | | | | | |
| Socioeconomic advantage/ disadvantage | Quintile 1 (disadvantage) | | | 15.8 | |
| | Quintile 5 (advantage) | | | 9.5 | |
| Accessibility | Major cities | | | 10.1 | |
| | Inner regional | | | 11.5 | |
| | Outer regional/other areas | | | 9.6 | |

One measure of mental health problems is prevalence of psychological distress. Psychological distress refers to a range of feelings such as anxiety, depression or worry (eg nervousness, hopelessness, restlessness, sadness and worthlessness).¹⁷¹

In 2005, 14.7 per cent of adult Queenslanders reported high or very high levels of psychological distress (Table 20), with younger people and females more likely to report experiencing such feeling. Psychological distress has increased since national surveys commenced measurement in 1997.^{113,171} In 2004-05, levels of psychological distress in Queensland were higher than national levels; 14.7 per cent in Queensland⁷⁰ compared with 13 per cent nationally.⁷¹

People who report high or very high levels of psychological distress are also more likely to report mental and behavioural problems including mental illness (Figure 65). Psychological distress is a symptom of mental health problems and if help is not obtained to address this situation, mental illness can develop.¹⁷²

Most mental disorders emerge in adolescence and early adulthood. Seeking and obtaining help for psychological distress and mental disorders is vital to better mental health for Queenslanders.

Figure 65: Levels of psychological distress and self reported mental and behavioural problems, Australia 2004-05¹¹³

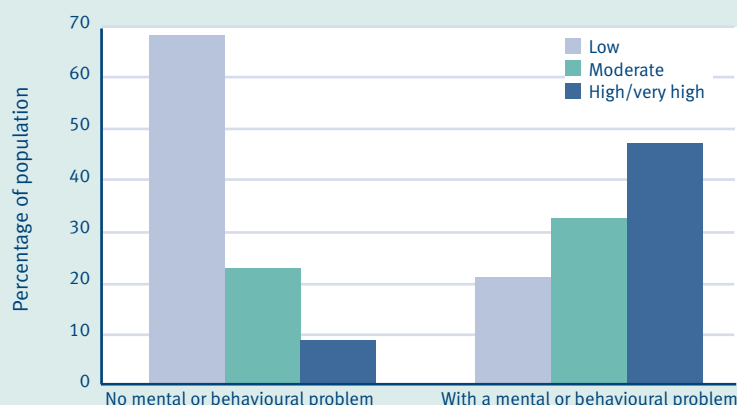


Table 20: Psychological distress, percentage (95%CI), Queensland 2004-05⁷⁰

| High/very high | | | High/very high | | |
|----------------|-------------|------------------|---|---------------------------|------------------|
| Persons | 18+ years | 14.7 (12.7-16.9) | Socioeconomic advantage/ disadvantage (persons 18+) | Quintile 1 (disadvantage) | 19.5 (14.0-26.4) |
| Male | 18+ years | 12.7 (9.9-16.2) | | Quintile 2 | 16.9 (12.6-22.2) |
| Female | 18+ years | 16.5 (13.9-19.6) | | Quintile 3 | 13.0 (9.4-17.6) |
| | | | | Quintile 4 | 11.8 (8.4-16.2) |
| | | | | Quintile 5 (advantage) | 12.0 (8.4-16.9) |
| Persons | 18-29 years | 20.1 (14.5-27.2) | | | |
| | 30-39 years | 15.3 (11.9-19.5) | | | |
| | 40-49 years | 13.7 (10.5-17.6) | Accessibility (persons 18+) | Major cities | 14.8 (12.0-18.0) |
| | 50-59 years | 12.9 (8.7-18.8) | | Inner regional | 14.5 (10.7-19.3) |
| | 60-69 years | 12.8 (7.4-21.1) | | Outer regional | 15.2 (11.3-20.2) |
| | 70+ years | 8.8 (5.6-13.5) | | Remote | 6.1 (1.5-21.7) |
| | | | | Very remote | 17.7 (4.5-49.7) |

Suicide

A person of any age is at more risk of suicide if they have a mental disorder.¹⁷³ Depression is the largest single risk factor for suicide and suicidal behaviour.¹⁷⁴ Both male and female suicide rates have been steadily, but slightly, declining over the past 20 years (Figure 66b).

In 2003 in Queensland, suicide and self inflicted injury was the cause of 2.2 per cent of the total burden of disease in the population; 3.2 per cent for males and 1.0 per cent for females (Figure 11). It was the fifth largest specific cause of burden of disease in young people aged 15-24 years, and caused 5.0 per cent of the total burden (7.9 per cent for young males and 1.7 per cent for young females).

Males are at greatest risk of suicide. In 2003-04 there were on average 485 suicides each year in Queensland, with 81 per cent males. In the age group 15-24 years, there were on average 67 suicides per year in this period, and 80 per cent of these were males.

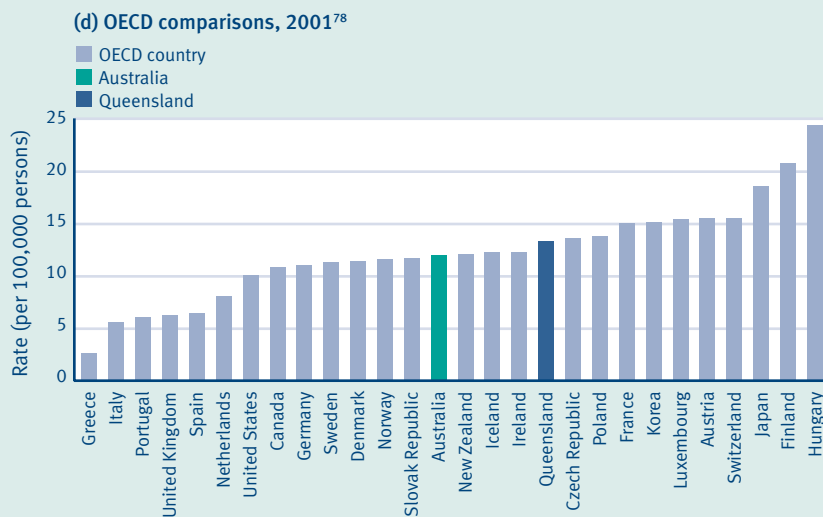
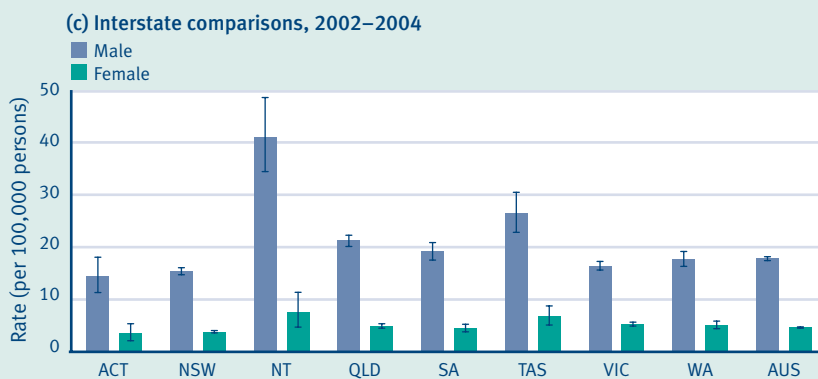
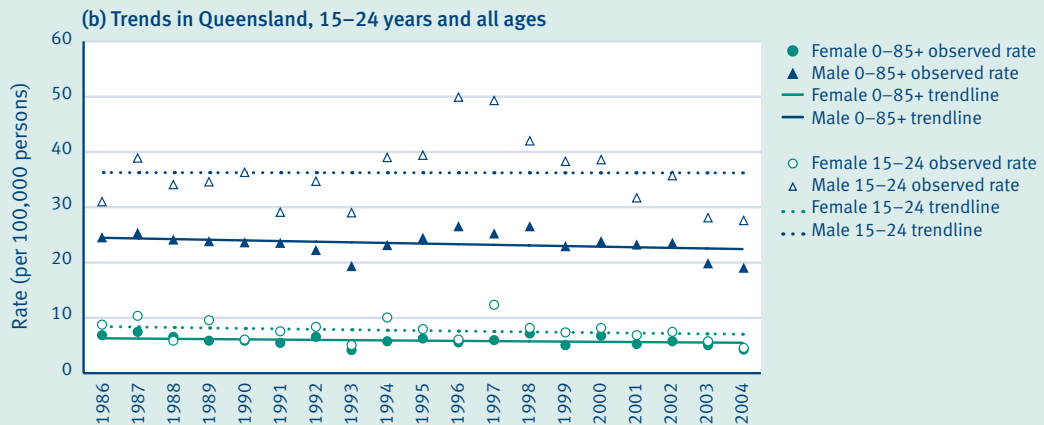
In 2000-2002, suicide rates were higher in males; in areas of highest socioeconomic disadvantage; remote areas; and areas with greater than 10 per cent Indigenous population (Figure 66a). If everyone had the same rates of suicide as those in major cities, about 30 suicides per year in people aged less than 75 years could have been avoided.

Male suicide rates in Queensland were third highest of the states and territories, and about 20 per cent higher than the national male rate (Figure 66c). Female suicide rates in Queensland were fifth highest of the states and territories, but not significantly higher than the national female rate (Figure 66c). Australia was ranked 14th highest for suicide rates out of 27 OECD countries in 2001 (Figure 66d).

There are indications that around the world, suicide tends to be under reported for social, religious and other reasons.

Figure 66: Suicide⁹¹





Rates of suicide in Queensland males are about 20 per cent higher than the national male rates. Rates of suicide in Australia are substantially higher than some other OECD countries.

4.5 Respiratory disease

In 2003 in Queensland, chronic respiratory disease (chronic obstructive pulmonary disease or COPD, asthma and other chronic respiratory diseases) was the cause of 7.0 per cent of the total burden of disease, with similar rates for males and female; 7.0 and 7.1 per cent respectively (Figure 11).

About one quarter (27 per cent) of burden of disease due to COPD in males in developed regions of the Western Pacific (including Australia) could be due to the environment.⁹ For females, nine per cent could be due to the environment. Specifically, environmental tobacco smoke, dust and chemicals in the workplace and air pollution contribute to the COPD burden.

Asthma was the largest cause of the burden of disease in Queensland children aged 5–14 years in 2003, accounting for 27.3 per cent of total burden. It was the third leading cause in children aged 0–4 years, accounting for 8.1 per cent of total burden. While few children die of asthma (around three per year in Queensland over the past decade), there were about 3000 hospital separations per year due to asthma in children 0–14 years. In 2003, about 260,000 Queenslanders had asthma with about 15,000 new cases diagnosed each year, of which 65 per cent were aged 0–14 years.

About one in seven children and young people aged 0–17 years in Australia in 2001 had asthma (14 per cent).¹⁷⁵ These rates are high by international standards.¹⁷⁶ While the cause of asthma is unknown, there are factors that may increase the risk of developing the condition, including environmental exposures such as tobacco smoke, specific allergens

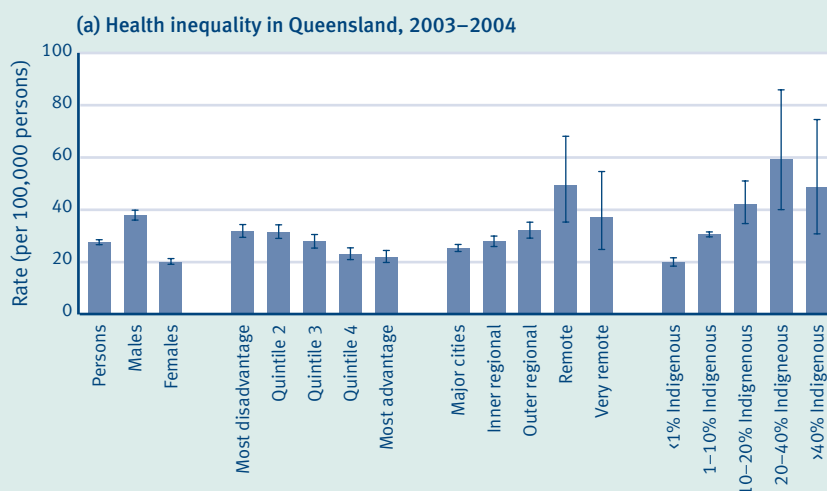
including dust mites and mould spores,¹⁷⁵ lack of physical activity¹⁷⁷ and stressful life events.¹⁷⁸ Improved asthma management is stabilising hospitalisations for asthma and improving outcomes in children and adults.

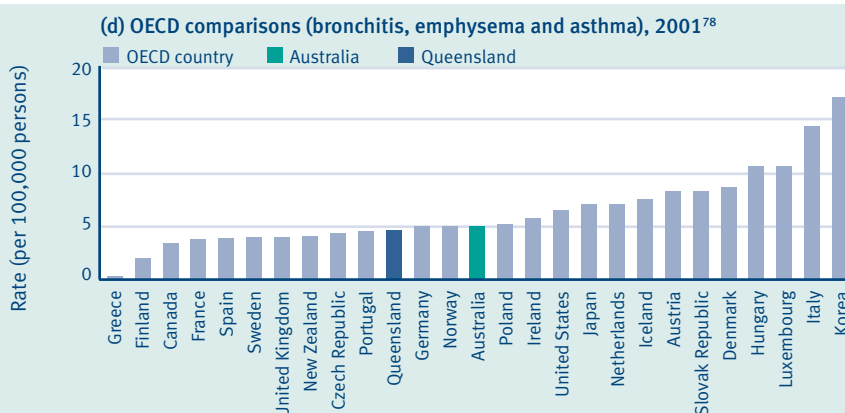
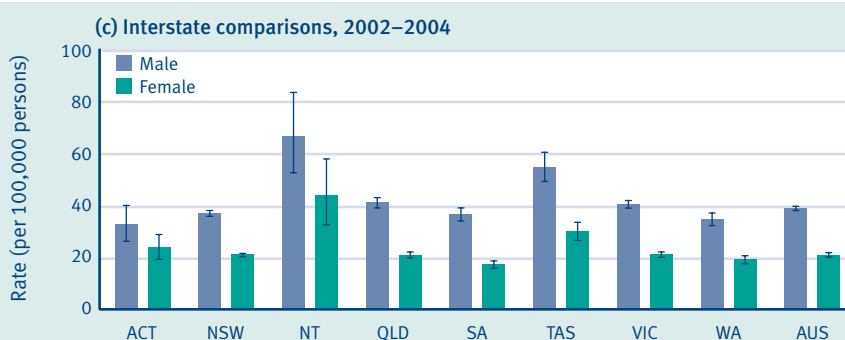
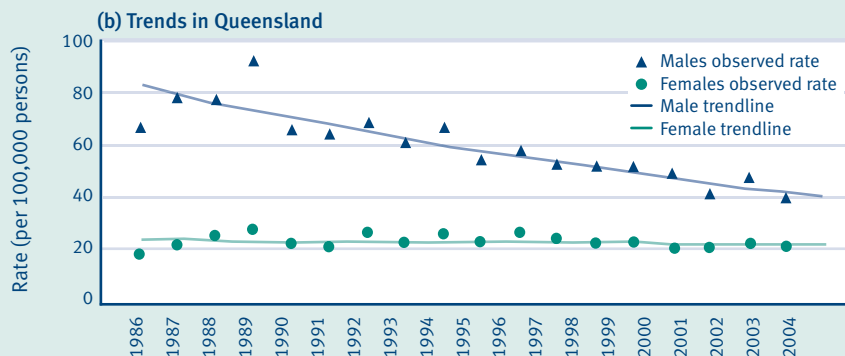
While asthma largely affects children, COPD largely affects older people (Figure 68). Smoking is the main risk factor for COPD and trends in COPD reflect smoking rates. In 2002–04, there were about 1000 deaths per year due to COPD in Queensland and about 9300 hospital separations.

In Queensland in 2003–04, there were on average 1057 deaths per year due to COPD and asthma. Men accounted for 60 per cent of these deaths. Death rates were higher in males than females, in areas of greater proportion Indigenous peoples and in areas of socioeconomic disadvantage (Figure 67a). If everyone had the same death rates as those in the most advantaged areas, about 22 per cent of deaths from COPD and asthma in people aged less than 75 years could have been avoided. This translates to about 80 premature deaths per year that could be regarded as being due to socioeconomic disadvantage. Male death rates have decreased over recent decades (Figure 67b).

The burden of asthma in Queensland could be reduced by increased use of asthma management plans. This applies to adults as well as children.

Figure 67: Deaths from COPD and asthma⁹¹

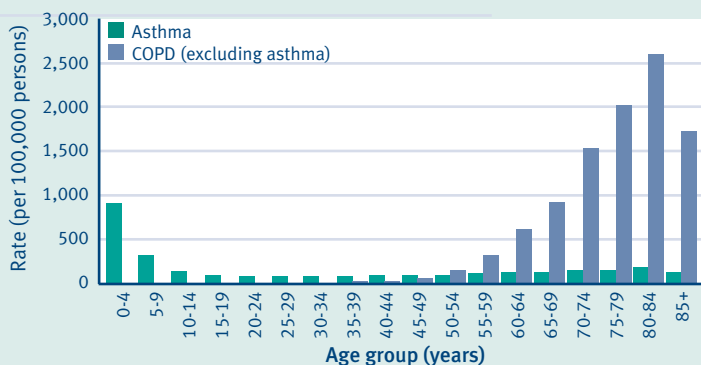




Compared to other states and territories, Queensland rates for COPD and asthma were similar to the national average. Male death rates in Queensland were third highest and

female death rates were the third lowest of the states and territories (Figure 67c). Australia was ranked 13th out of 26 OECD countries in 2001 (Figure 67d).

Figure 68: Hospital separations due to chronic obstructive pulmonary disease and asthma, Queensland, 2004/05²¹



4.6 Injury

In 2003 in Queensland, intentional and unintentional injury was the cause of 7.9 per cent of the total burden of disease; 10.6 per cent for males and 4.7 per cent for females (Figure 11). One third of the burden due to injury is due to seven risk factors. Alcohol is by far the biggest contributor.

Injury prevention was designated a national priority in 1986 in recognition of the national burden of injury, its high importance to the community, the potential for gain through preventing or lessening the impact and because the extent of injury can be measured through a number of relevant indicators.

In Queensland in the past ten years, there have been major reductions in the rate of death for a number of

injury types (Figure 69). These reductions occurred for important causes of death for young children (drowning, burns and scalds), young people (transport), working age adults (homicide) and older people (falls), as well as injuries affecting people of all ages (transport). All of these injuries are preventable, and the strategies to prevent them are as wide ranging and diverse as their causes.¹⁷⁹

While deaths from injury have declined (Figure 69), rates of hospitalisation for many injuries have increased over the past decade (Figure 70), in particular, fire, burns and scald injury in young children and fall related injuries in older people.

Figure 69: Trends in mortality for specific injury types, Queensland⁹¹

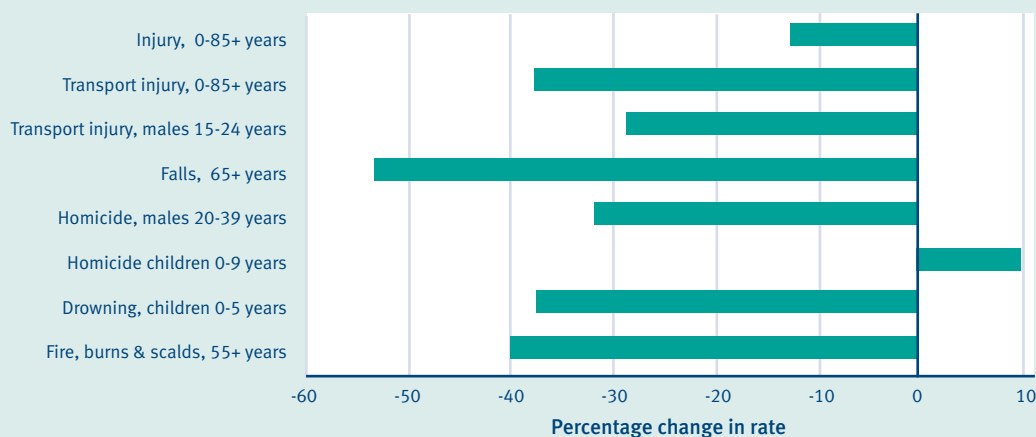
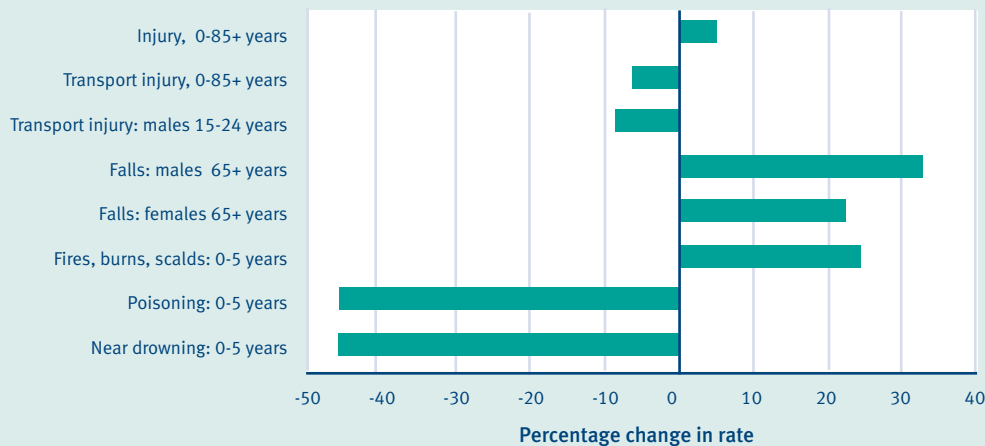


Figure 70: Percentage change in hospital separation rates for specific injury types, Queensland, between 1995/96 and 2004/05²¹



Drowning in children

Drowning is the most common cause of injury deaths in young children. In 2003 in Queensland, drowning was the cause of 2.8 per cent of premature death for children aged 0-4 years (2.3 per cent for males and 3.4 per cent for females).

Over the past 20 years, the number of Queensland children aged 0-4 years who have died from drowning has varied from between five and 30 deaths per year (Figure 71). There has been a general decrease in drowning over this period.

Although drowning can occur in domestic baths or natural water hazards such as farm dams, the greatest numbers of drowning incidents in very young children occur in domestic swimming pools; overall from 1983 to 2004, 50 per cent of drowning deaths in children aged 0-4 years occurred in domestic pools (Figure 71).

Uniform minimum domestic pool fencing legislation was introduced in Queensland in 1992. In the next five years, 38 drownings in children aged 0-4 years,

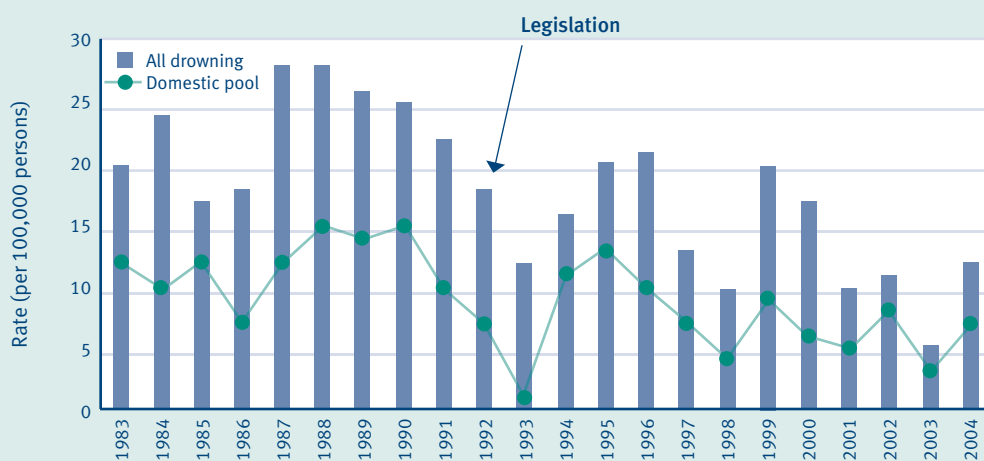
or an average of seven deaths per year occurred in domestic pools. Most of these deaths occurred in pools that did not fully comply with the fencing legislation (87 per cent). In contrast, in the nine years before the introduction of fencing requirements, on average, 12 children aged 0-4 years drowned in domestic pools in Queensland each year.

National injury prevention programs focus on risk factors for injury in young children, acknowledging risk factors for injury overlap with risk factors for other problems in childhood.¹⁷⁹ The goal of the national injury prevention plan is to achieve a positive safety culture and to create safe environments.

Children depend on adults and the community to provide a safe environment, so they are free of risk from avoidable injury.

Pool fencing has saved the lives of over 70 toddlers in Queensland in the past 10 years.¹⁸

Figure 71: Number of deaths from drowning of children aged 0-4 years, Queensland¹⁸



Transport related injury

In 2003, road transport injury accounted for 1.7 per cent of the total burden of disease and injury, where 14.7 per cent of this burden was due to years lived with disability. For males it accounted for 2.4 per cent of total burden and for females it accounted for 0.9 per cent of total. Road transport injury was the fourth largest cause of burden in young people aged 15-24 years, accounting for 7.4 per cent of total burden; 10.2 per cent for young males and 3.6 per cent for young females.

There were on average 315 deaths per year due to transport related injuries in Queensland in 2003-2004. Males accounted for 73 per cent of these deaths. Of these 315 deaths, 94 deaths (30 per cent) occurred in young people aged 15-24 years. Deaths of young men represented 75 per cent of the road transport related deaths in young people. Over recent decades the rate of death for transport injuries for males and females has declined. Such decline is seen in rates for the total population and for young people (Figure 72b).

Rates of transport death are not the same for all Queenslanders. Rates are higher for males, in areas

more remote from cities, in areas of greater proportion of Indigenous peoples and in areas of socioeconomic disadvantage (Figure 72a). If everyone had the same death rates as those in the most advantaged areas, about 150 road transport deaths per year of people in the age group 0-74 years could have been avoided; about 50 per cent of transport deaths in this age group. These premature deaths could be regarded as being due to socioeconomic disadvantage. Transport death rates are also higher in areas outside major cities (Figure 72a). If everyone had the same death rates for transport related injury as those in major cities, about 110 deaths of people aged less than 75 years could have been avoided. Nearly 85 per cent of these premature deaths outside major cities occurred in inner and outer regional areas.

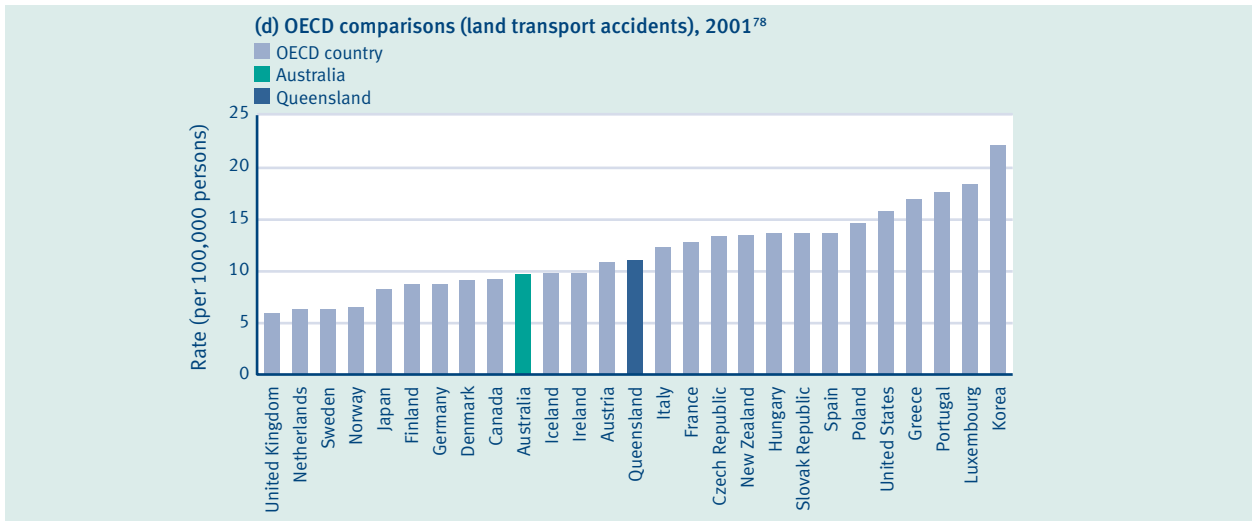
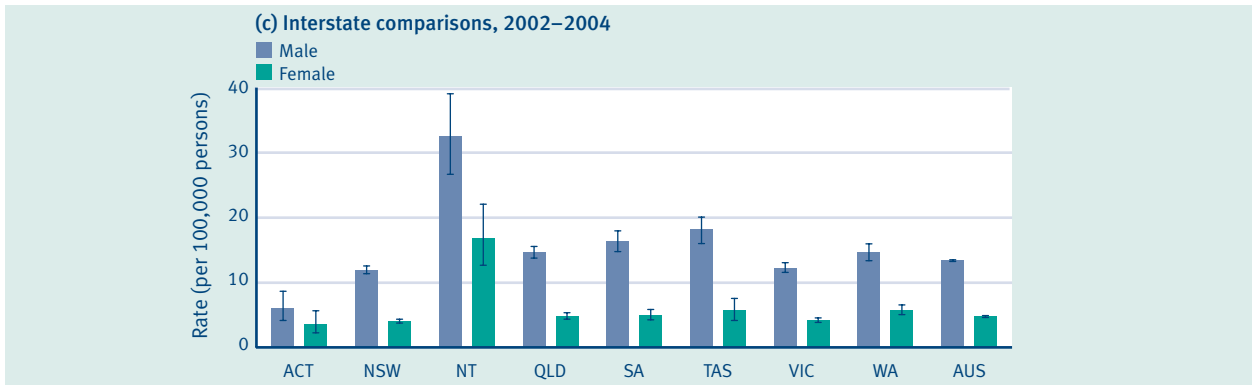
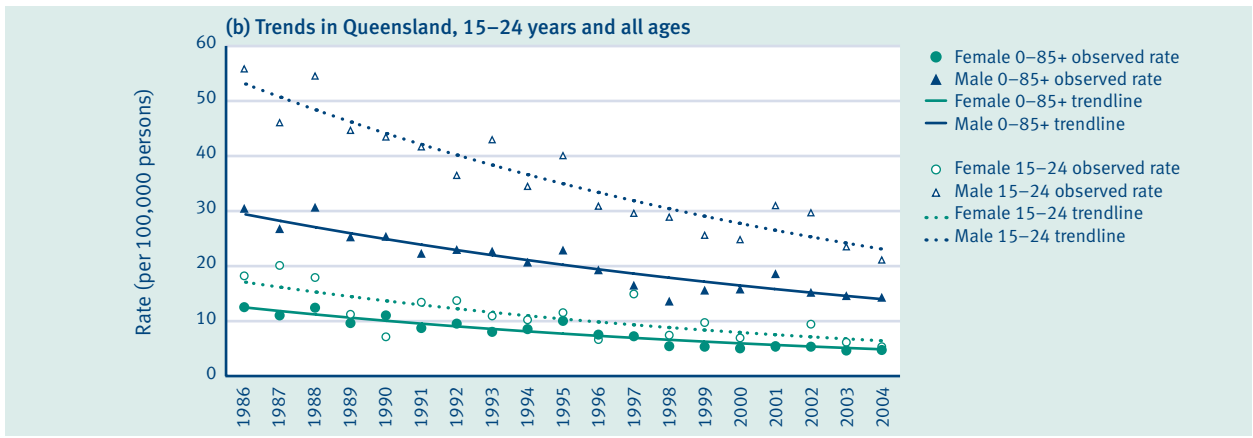
Road transport injury is avoidable. It is the major cause of premature death in young people and the largest cause of injury death for the total population. Reduction in road deaths in recent decades in Australia is due to drink driving restrictions, compulsory use of seat belts, lower speed limits, better roads, better car design and safety, better retrieval at the accident site and better health care.¹⁸⁰

Figure 72: Transport related deaths⁹¹



Rates of death for transport injury in Queensland were similar to the national average in 2002-2004, and higher than Australian Capital Territory, Victoria and New South Wales (Figure 72c). Among OECD countries, Australia was ranked 9th out of 27 countries for lowest death rates, with Queensland rates slightly higher in the ranking (Figure 72d). These rankings show that there are clear gains to be made in road transport injury in Queensland and in Australia, particularly in areas of socioeconomic disadvantage, remote areas and areas with high proportion of Indigenous peoples.

Despite the steady decline in deaths over recent decades, there is still potential to reduce the number of deaths from transport injury in Queensland. Addressing the higher rates of death in rural and remote areas is critical to achieving such reductions.



Falls in older people

Older people are at greatest risk of sustaining an injury from a fall. About one in three older people have a fall each year, with 10 per cent having multiple falls and over 30 per cent requiring medical attention after a fall. The rate of falls is even higher for older people in residential care.¹⁵

In 2003, fall related injury in people aged 65 years and older accounted for 1.5 per cent of the total burden of disease and injury, where 59 per cent of this burden was due to premature death and 41 per cent due to years lived with disability. The falls related burden for females aged 65 years and older was about double that of the male burden (1.0 per cent for males and 1.9 per cent for females)

Most falls are preventable and predictable.¹⁸¹ There are a number of interactive risk factors for falling, with the risk of falling increasing as the number of factors accumulates. Major risk factors include unsafe footwear, insufficient physical activity, poor home medication management,¹⁸² home hazards including mats, and unsafe public environment.¹⁵

Falls and fall related injury are a major health issue for health systems throughout the developed world because populations are ageing. This is particularly important for Queensland because in addition to ageing, the population is growing rapidly and is projected to continue to grow. The cost of care and services associated with fall related injury in older people will absorb a significant proportion of the increased spending on the health of older people

unless effective preventive strategies are put in place.¹⁵ Specifically, with the ageing of the population, the number of hip fractures in Australia is expected to double by 2026 and increase four fold by 2051, based on current incidence rates.¹⁸³

In Queensland in 2004/05, there were 17,966 hospital separations for falls in people aged 65 years and older, of which 67 per cent were for females. Rates of fall related hospitalisation were higher for females than males (Figure 73). Over recent decades the rate of hospitalisation for fall related injuries for males and females aged 65 years and older has increased (Figure 70).

About one quarter (26 per cent) of falls in people of all ages in developed countries of the world could be prevented by environmental interventions;⁹ specifically by improving the housing environment, limiting access to building sites and improving the safety of recreational environments.

Rates of hospitalisation for fall related injury in people aged 65 years and older in Queensland (3924 separations per 100,000 persons) in 2004/05 were lower than the national average (4198 separations per 100,000 persons).

Fall related injury has been described as a potential future 'epidemic'. Avoiding this potential epidemic in Queensland requires significant effort through increased prevention strategies.¹⁵

Figure 73: Fall related hospital separations in people aged 65 years and older²¹



■ 4.7 Musculoskeletal disease

Musculoskeletal conditions include arthritis and other joint problems and disorders of the bones, muscles and their attachments to each other. Musculoskeletal conditions caused 4.2 per cent of the disease burden in Queensland in 2003 (Figure 11), 3.4 per cent for males and 5.1 per cent for females, where 94 per cent of the burden was related to years lived with a disability. Musculoskeletal conditions were the cause of 7.5 per cent of the total disability burden in 2003 in Queensland. These conditions were estimated to result in direct costs of \$4.7 billion to the nation in 2000-01.¹⁸⁴

Considering burden of disease in Queensland in 2003 by specific cause, osteoarthritis was ranked 14th largest cause (1.4 per cent of total burden) and back pain was ranked 16th (1.3 per cent of total burden). Other musculoskeletal diseases together accounted for 1.6 per cent of total burden.

In 2004/05, 16 per cent of Queenslanders reported they currently had arthritis, 14 per cent of males and 18 per cent of females.⁷⁰ This represents about 614,000 people with this condition in Queensland. Prevalence of arthritis in Queensland was generally similar to Australia.⁷⁰ Of those with arthritis, about 60 per cent had either rheumatoid arthritis or osteoarthritis.

The proportion of people with arthritis increased with age. There was a socioeconomic differential in the prevalence of arthritis. In the lowest income group, the prevalence of arthritis was 34 per cent in Queensland, while in the highest income group it was

10 per cent. Age differences would partially account for this difference. Higher arthritis prevalence was also reported among people who were unemployed and those with no educational qualifications compared with those who were employed or had higher educational qualifications.⁷⁰

About 633,000 people, or about 17 per cent of Queenslanders reported back pain and associated conditions in 2004/05. The prevalence of back pain peaks in the middle years although it begins to increase after the age of 10-15 years. Back complaints were the seventh most frequent reason for encounter with general practitioners in 2004/05 in Australia.¹⁸⁵

Osteoporosis is the thinning and weakening of the bone structure, increasing the risk of fracture and deformity.¹²² Overall, three per cent of Queenslanders had osteoporosis in 2004/05, similar to Australia.⁷⁰ As with arthritis, the proportion of people with osteoporosis increased with age, from less than one per cent in people aged under 25 years to 14 per cent in people aged 65 years and older.⁷¹

In 2004/05, nationally, 59 per cent of people with arthritis and/or osteoporosis reported taking some action for the condition in the previous fortnight; 37 per cent used pharmaceutical medications, 40 per cent used vitamins, minerals or herbal treatments.⁷¹ Lifestyle changes were common, with 18 per cent exercising most days, six per cent doing weight/strength/resistance training and six per cent having massage treatment.

■ 4.8 Communicable disease

In 2003 infectious and parasitic diseases accounted for 1.6 per cent of the total burden of disease and injury for the total population. For males it accounted for 1.8 per cent of total burden and for females 1.5 per cent. This low level of burden is due to current levels of investment in communicable disease surveillance and control. Maintaining a low burden relies on continued investment.

Vaccine preventable diseases

There are a number of diseases that are almost completely preventable through vaccination. Australia, like most developed countries, has low rates of these diseases.

Vaccination rates were high for young children (infants to 2 years of age) for Queensland in 2005, with 91-92 per cent fully vaccinated for age.¹⁵² These rates are similar to those of Australia for these age groups. Free vaccines are provided to Queensland children under the National Immunisation Program (Table 16).

For children aged four years, however, Queensland's coverage rate for fully vaccinated children dropped from 83 per cent in 2004 to 81 per cent in 2005, whilst the average rate for Australia remained stable at 84 per cent. This difference cannot be readily explained and research is underway to explore possible causes as well as strategies to reverse the trend.

Some vaccine preventable diseases such as measles, rubella, hepatitis B and Haemophilus influenza type B (HiB) decreased significantly between 1998-2001 and 2002-2005 (Table 21). These successes are due to high vaccination rates which have helped break the cycle of transmission for these diseases.

However, notifications of some vaccine preventable diseases, such as invasive pneumococcal disease, mumps and pertussis have increased significantly in the same period. In 2001-2005, pertussis was the most commonly notified vaccine preventable disease in Queensland (5380 cases), followed by hepatitis B, influenza, invasive pneumococcal disease, and invasive meningococcal disease.

Table 21: Notification number and percent change in rate for vaccine preventable conditions, Queensland¹⁵⁵

| | Notifications 2002-2005 | % change in rate from 1998-2001 (95%CI) |
|------------------------------|-------------------------|---|
| Pertussis | 5380 | 9 (5,14) |
| Hepatitis B | 3337 | -14 (-18,-10) |
| Invasive pneumococcal | 1708 | 13 (5,21) |
| Invasive meningococcal | 375 | -13 (-24,0) |
| Rubella | 234 | -70 (-74,-65) |
| Mumps | 104 | 108 (47,194) |
| Measles | 20 | -83 (-89,-72) |
| Haemophilis influenza type B | 18 | -60 (-77,-30) |
| Tetanus | 8 | 84 (-44,511) |

Adults born between 1966 and 1980 are at higher risk of measles, mumps and rubella, due to relatively low levels of immunity. Adults born before 1966 have probably been exposed to wild virus, and those born since 1980 have probably received two doses of measles, mumps, rubella (MMR) vaccine. Those born between 1966 and 1980 may not have had two doses

because of changes in the immunisation schedule over time. In 2005, this group accounted for nearly half of the notified cases of mumps in Queensland. A national MMR vaccine campaign in 2001 failed to reach a substantial proportion of persons in this age group. Queensland continues to provide free vaccination for this age group although uptake is generally slow.

Our most vulnerable populations and vaccine preventable diseases.

Infants:

For infants aged less than one year, pertussis and influenza were the most commonly notified vaccine preventable diseases in 2005 (Figure 74). They were also the most common cause of infant hospitalisation due to vaccine preventable illness in Queensland (Figure 75).²¹

Pertussis was a leading cause of infant deaths for vaccine preventable illness and was associated with four deaths in-hospital in 2001-2005. For pertussis,

optimal protection occurs only after the third dose of vaccine which is administered at six months of age. Australian infants are not routinely vaccinated against influenza.

There were also four deaths related to invasive meningococcal disease in infants during this time period. Not all invasive meningococcal disease is considered vaccine-preventable: meningococcal C vaccine is not given until 12 months of age. Also, many cases of meningococcal disease are caused by other types of meningococcus (commonly group B) for which there is no vaccine.

Figure 74: Notification rate of most common vaccine preventable conditions, Queensland, 2005¹⁵⁵

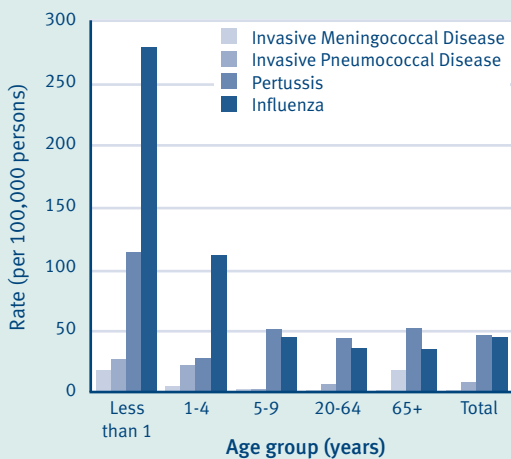
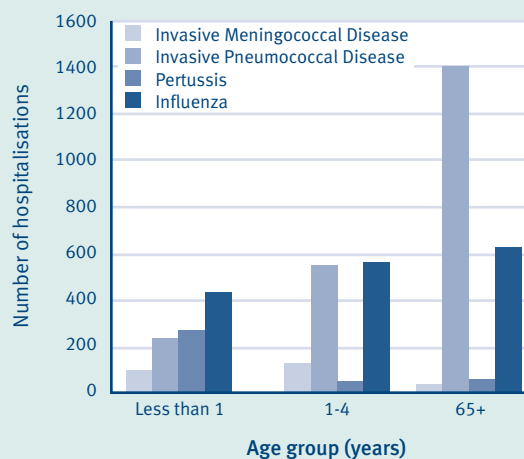


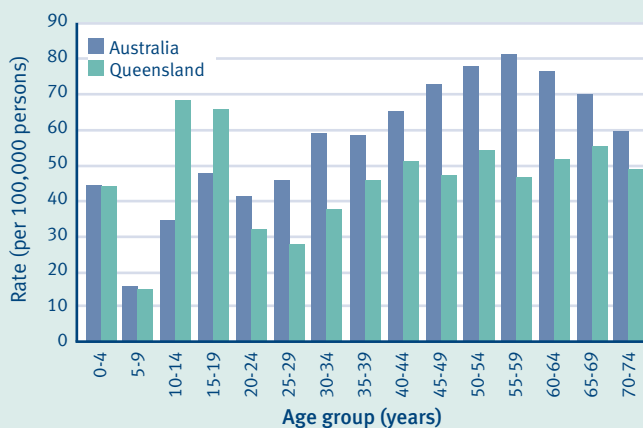
Figure 75: Hospitalisation due to vaccine-preventable conditions in selected age groups, 2001-2005²¹



Infants can be further protected against pertussis if older siblings and adult carers are fully vaccinated against pertussis. The protection given by vaccines decreases over time and so the 15 year old booster dose is critical to provide protection for teenagers into their young adult years. In 2005, teenagers

had the highest rate of notifications for pertussis in Queensland, highlighting the need for good uptake of vaccination in this group (Figure 76). Introduction of a 2006 funded school-based vaccination program is expected to improve vaccination rates in 15 year olds and reduce notification rates.

Figure 76: Pertussis rates per 100,000 by age group, Queensland and Australia, 2005¹⁵⁵



Young children and the elderly:

For young children (1-5 years) and the elderly (65 years and older) invasive pneumococcal disease and influenza were the most common causes of hospitalisation for vaccine preventable disease in Queensland (Figure 75).

Although young children represent only three per cent of the population, they represent a disproportionately high number of influenza notifications. In 2005 Queensland children aged 0-4 years were responsible for 21 per cent of influenza notifications and nine per cent of visits to general practitioners for Influenza-like-illness.¹⁸⁶ Furthermore, young children can spread influenza effectively because they shed virus longer than adults, and may be less conscious of hygiene.¹⁸⁷

Influenza is widely recognised as a threat to the elderly. However, invasive pneumococcal disease also causes many hospitalisations and many in-hospital deaths. In 2005 there were 112 in-hospital deaths due to invasive pneumococcal disease among people aged 65 years and older. A longstanding influenza vaccination program has been very effective at reducing influenza cases among the elderly. A pneumococcal vaccination program commenced in 2005, and uptake of this new program may lead to reductions in invasive pneumococcal disease notifications in the future.

Indigenous peoples:

Indigenous peoples had disproportionately high rates of some vaccine preventable diseases in the period 2001-2005. In particular, Indigenous peoples were up to three times more likely to be notified with invasive pneumococcal disease and invasive meningococcal disease.¹⁵⁵

Vaccination rates for some Indigenous populations are low. Less than 10 per cent of Indigenous peoples aged 15-49, and only 15 per cent of those aged 50 years and older had a recorded vaccination against invasive pneumococcal disease in 2004-2005.¹⁵⁴ Not all Indigenous peoples aged less than 50 years are eligible for free vaccines. For influenza in 2005, only 11 per cent of Indigenous peoples aged 15-49 years and 33 per cent aged 50 years and older received a funded vaccination, although there may be significant underreporting and not all Indigenous peoples aged less than 50 years are eligible.

Indigenous status is poorly identified for many notifiable conditions. For example, for the period 2001-2005, most notifications of influenza and pertussis (around 70 per cent) did not specify Indigenous status. This lack of information hinders the ability to identify differing burden of disease for these diseases in Indigenous populations.

Sexually transmissible diseases

In the period 2001 to 2005, there have been increased notification rates for several sexually transmissible infections, including chlamydia, gonorrhoea and HIV (Table 22).

For infectious syphilis, there are two different patterns from 2002 to 2005. For Indigenous peoples, infectious syphilis decreased by half. For non-Indigenous people, the syphilis notification rate increased four fold with males making up 97 per cent of these cases. This increase, representing 71 men in 2005, has been largely due to increased transmission of syphilis amongst men who have sex with men.

Notifications of chlamydia have continued to increase each year especially in young people. This is of concern as infection can have no obvious symptoms and can cause pelvic inflammatory disease and/or infertility. Nearly 80 per cent of new notifications in 2005 were among young people aged 15-29 years, with one-third among those aged 15-19 years. The notification rate in the 15-19 and 20-24 year age groups suggests that more than one per cent of these populations is infected annually, which is likely to be an underestimate.

In 2001-2005, Queensland had about a 30 per cent higher rate of notifications for chlamydia than Australia; and about a 13 per cent lower rate for gonorrhoea.¹⁵⁵ Rates of notifications for infectious syphilis were similar to Australia.

Table 22: STI notification rates per 100,000 persons, Queensland¹⁵⁵

| | Chlamydia | Gonorrhoea | HIV | Infectious Syphilis | |
|------|-----------|------------|-----|---------------------|------------|
| | | | | non-Indigenous | Indigenous |
| 2001 | 155.1 | 30.3 | 2.7 | - | - |
| 2002 | 174.7 | 25.1 | 3.2 | 0.5 | 82.2 |
| 2003 | 202.5 | 27.5 | 3.0 | 1.6 | 67.6 |
| 2004 | 228.9 | 30.8 | 3.5 | 1.6 | 33.9 |
| 2005 | 248.0 | 37.1 | 3.9 | 2.0 | 36.9 |

In 2005, there were 150 new cases of HIV infection in Queensland. As for Australia, most Queensland cases were male (93 per cent), and most were men who have sex with men (78 per cent). The 2005 rate of HIV infection was 3.8 per 100,000, which is a small but significant increase over the last four year period. In 2005, the increasing trend in HIV occurred among men only. Queensland rates for HIV infection are similar to Australia's.¹⁵⁵

Thirty-four Queenslanders were diagnosed with AIDS in 2005. Sixty per cent of these people did not know they were HIV positive until three months or less prior to their AIDS diagnosis. Most (78 per cent) of these newly diagnosed cases will survive at least five years – a prediction based on the experience of people living with AIDS who were diagnosed between 1996 and 2001 in Queensland.

Viral hepatitis

Viral hepatitis can cause liver disease. In 2004, liver disease as a result of viral hepatitis infection was the cause of 36 per cent of liver transplants in Australia. The usual causes of viral hepatitis induced liver disease are hepatitis B or C.

Hepatitis A and hepatitis C notification rates have generally declined in recent years while hepatitis B rates have remained steady (Table 23). There were 2800 hepatitis C notifications in 2005, about 1200 hepatitis B notifications and about 50 hepatitis A notifications.

Hepatitis C is transmitted by blood to blood contact. More than 70 per cent of new hepatitis C infections in Australia occur through sharing of contaminated equipment during injecting drug use.¹⁸⁸ Injecting drug users have a high prevalence of hepatitis C: in 2004, 25 per cent of self-reported injecting drug users seen at needle and syringe programs were hepatitis C positive.¹⁸⁸

However, unsafe practices while performing body piercing and tattooing can also transmit hepatitis C.

In Australia in 2002, 60 per cent of Year 10 and 12 students surveyed had piercings, and 4.5 per cent had a tattoo. Five per cent of these body piercings and 33 per cent of tattoos were not performed by a professional.²³ Furthermore, only 52 per cent of students were aware that tattooing and body piercing could transmit hepatitis C.

Hepatitis B is a blood-borne virus which is also most commonly attributed to injecting drug use. However, 26% of newly acquired hepatitis B cases in 2004 in Australia were attributed to sexual contact.¹⁸⁸ A vaccine is available which protects against hepatitis B. It is currently available free at birth to all Australians under the National Immunisation Program Schedule.

Hepatitis A is usually food-borne, and rarely causes liver failure. A vaccination program for hepatitis A began in North Queensland in the late 1990s, producing an eight-fold decline in hepatitis A rates between 1998 and 2001,¹⁸⁹ and a further decline from 120 notifications in 2001 to 50 cases or less each year from 2003 to 2005.

Table 23: Hepatitis notification rates, Queensland¹⁵⁵

| | Rate (per 100,000 persons) | | | | |
|---------------------------------|----------------------------|------|------|------|------|
| | 2001 | 2002 | 2003 | 2004 | 2005 |
| Hepatitis A | 3.3 | 1.8 | 1.3 | 0.7 | 1.3 |
| Hepatitis B (acute and chronic) | 21.8 | 20.2 | 19.8 | 21.5 | 25.4 |
| Hepatitis C (acute and chronic) | 83.6 | 74.5 | 68.0 | 72.0 | 71.0 |
| Hepatitis D | 0.1 | 0.1 | 0.0 | 0.3 | 0.3 |
| Hepatitis E | 0.0 | 0.0 | - | 0.1 | 0.2 |

Injecting drug use is the most common way hepatitis C is transmitted.

- 194% of students disagreed with the statement: 'I would like to try injecting drugs'
- 1% students reported ever injecting drugs²³
- 6.2% of Qld men and 1.5% Qld women report ever injecting drugs. Of these, 22% of men and 36% of women report sharing needles³²

Vector-borne diseases

Several mosquito-borne diseases are prevalent in Queensland. The more common diseases of Ross River Fever and Barmah Forest cause fever and joint pain and may be a substantial cause of workplace absences. The most effective form of prevention is to take precautions against getting bitten by mosquitoes.

More serious is the exotic disease dengue which occurs in the north of the state. Dengue is not just imported from other countries; the presence of its mosquito vector allows local transmission (Table 24). Vigilant and targeted mosquito control programs involve coordination between local government and Queensland Health. Two large outbreaks of dengue in 2003 resulted in 158 cases in the Torres Strait region,

and 457 cases in the Cairns region. Other than in the Northern Territory, dengue has not been locally acquired in any other state or territory.

Japanese encephalitis is a serious mosquito-borne disease which is fatal in up to 60 per cent of those infected.¹⁹⁰ While this disease is rarely seen in Queensland, the Torres Strait Islands are particularly vulnerable because mosquitoes that can carry this disease have been found there. In nearby Papua New Guinea, Japanese encephalitis is much more common.

In 1996, Queensland Health began a vaccination program to protect residents of the outer islands of the Torres Strait Islands from Japanese encephalitis. Since then, there have been only two cases of locally acquired Japanese encephalitis in Queensland.

Table 24: Mosquito-borne disease notification rates, Queensland¹⁵⁵

| | Rate (per 100,000 persons) | | | | |
|----------------------------------|----------------------------|------|------|------|------|
| | 2001 | 2002 | 2003 | 2004 | 2005 |
| Barmah Forest Virus | 16.6 | 10.4 | 22.9 | 15.0 | 17.5 |
| Ross River Virus | 43.2 | 23.9 | 66.3 | 51.7 | 30.4 |
| Dengue Fever - overseas acquired | 0.9 | 1.5 | 1.4 | 1.2 | 1.0 |
| Dengue Fever - locally acquired | 0.2 | 0.7 | 17.7 | 5.9 | 2.0 |

Food borne illness and gastrointestinal illness

During 2005, there were 7250 cases of the nine gastrointestinal pathogens or conditions under surveillance.¹⁵³ *Campylobacter* was the most frequently notified gastrointestinal pathogen during 2005, followed by *Salmonella*. Together, these two pathogens were responsible for about 97 per cent of all notifications of gastrointestinal pathogen for the year.

Children aged 0-4 years accounted for almost 40 per cent of the total number of *Salmonella* notifications in 2005, and 11 per cent of the total number of *Campylobacter* notifications.

During 2005, a total of 63 outbreaks of gastrointestinal illness, affecting at least 909 people were investigated by Queensland Health (Table 25). Of the 909 cases, nine per cent were hospitalised. Of the 63 outbreaks, 13 outbreaks of gastroenteritis occurred in aged care facilities (affecting at least 281 people) and nine outbreaks of gastroenteritis occurred in childcare facilities (affecting 178 people). Around half the gastrointestinal illness outbreaks were confirmed or suspected to be foodborne in origin, affecting at least 292 people, and 69 of these cases required hospitalisation. Non-foodborne related outbreaks accounted for 617 cases and 14 hospitalisations in 2005.

Table 25: Gastrointestinal illness outbreaks in Queensland, 2005

| Aetiology | Agent | No. of outbreaks | Cases | Hospitalised |
|-----------------|--------------------------------|------------------|------------|--------------|
| Bacterial | <i>Salmonella</i> | 11 | 136 | 68 |
| | <i>Clostridium perfringens</i> | 3 | 53 | 0 |
| | <i>Campylobacter</i> | 4 | 14 | 0 |
| | <i>Staphylococcus aureus</i> | 2 | 4 | Unknown |
| Parasitic | <i>Cryptosporidium</i> | 1 | 5 | Unknown |
| Viral | Norovirus | 15 | 397 | 10 |
| | Suspected Viral | 7 | 65 | 2 |
| Chemical | Ciguatoxin | 9 | 52 | 2 |
| | Scombroid | 1 | 2 | 0 |
| Unknown / Other | Unknown – Foodborne | 3 | 34 | 0 |
| | Unknown – Non-foodborne | 7 | 147 | 1 |
| TOTAL | | 63 | 909 | 83 |

Of the 32 reported foodborne outbreaks, six (19 per cent) were associated with meals served at restaurants, four (13 per cent) with aged care facilities and six outbreaks (19 per cent) were associated with businesses providing ready to eat foods (bakeries, caterers, grocery and take away stores).

There were 11 outbreaks (34 per cent) associated with meals served within private residences, where eight of these were caused by ciguatera poisoning due to consumption of purchased fish that was cooked in the home. Ciguatera poisoning is caused by reef fish and is a severe illness, occasionally with a fatal outcome. In total, there were nine recorded outbreaks of ciguatera fish poisoning in Queensland during 2005. Increasing awareness of ciguatera poisoning in the community and better education of restaurateurs, fish wholesalers, and recreational fisherman is required to prevent the consumption of high-risk fish.

In addition, and of special concern, there was one outbreak of water-borne Salmonella in 2005 which was associated with a reticulated rural water supply.

Tuberculosis

Tuberculosis (TB) is one of the most infectious communicable diseases, and its treatment is relatively complex compared to other bacterial diseases.

Queensland Health supports a network of specialists that receive most referrals of new cases of TB. This system allows for rigorous and consistent follow-up and treatment of all new cases identified. In 2005, there were 99 new notifications of TB, which was consistent with the number of annual notifications received each year since 1984 (range 93 to 130). In 2005 the Queensland rate was lower than the overall rate for Australia; 2.9 per 100,000 in Queensland compared with 4.4 per 100,000 nationally.¹⁵⁵

In 2001–2005, Indigenous peoples were more than twice as likely to suffer from TB compared to non-Indigenous people. In fact, since 1985, Indigenous persons have experienced a TB rate five to ten times higher than non-Indigenous Australian born people. This higher rate of Indigenous TB has been decreasing over time.

TB in Queensland is largely a disease of immigrants. Management and control of TB in these migrant

populations is challenging and essential. In the period 2001–2005, 26 per cent of cases were born in Southeast Asia, 14 per cent born in Papua New Guinea, 11 per cent born in countries in the Indo-Pacific regions and 28 per cent born in Australia. In 2005, the proportion of Australian-born TB cases was even less: only 18 per cent of the 85 persons with known country of birth were from Australia; 62 per cent were from Southeast Asia, Papua New Guinea or Indo-Pacific countries.

The highest rates of TB occur among adults aged 20–60 and over 80 years. Nonetheless, 9.4 per cent of cases in 2001–2005 were children and young people under 20 years. Australian born persons with TB are more likely to be in the oldest age groups, while overseas born people are more likely to be children or aged 20–45 (the age of immigration). Forty-two deaths were due to TB in 2001–2004 – a case fatality rate of about eight per cent. In the past five years there were 628 hospitalisations for TB.

Zoonotic diseases

Queensland differs from the rest of Australia in its high prevalence of certain diseases transmitted by animals (zoonotic diseases). In particular, leptospirosis, brucellosis and Q fever are much more common to Queensland than any other state.¹⁵⁵

In Queensland, people living in rural environments and abattoir workers are most commonly notified with Q fever. This disease is usually transmitted during the processing of infected livestock at abattoirs, or while participating in livestock births. Over the last five years, the rate of Q fever has decreased about three fold. It is likely that the Queensland Health vaccine program against Q fever, which began in late 2001, is responsible for some of the decline in disease. While vaccination rates are high in meatworks, the program has been more difficult to implement in rural and remote areas.

Appendix

Methodology

All data sources are cited. For further information, contact the project manager.

Unless otherwise indicated all data refer to the total population (0-85+ years).

Australian Bureau of Statistics (ABS) data is used with permission from the ABS. Copyright in ABS data vests with the Commonwealth of Australia. www.abs.gov.au

Death data were derived from the Queensland Registrar of Births, Deaths and Marriages, where cause of death and usual residential address were recorded on death certificates. All disease specific death data in this report were derived using the principal cause of death and refer to deaths registered in Queensland to Queensland residents. Data were coded by the ABS using the International Classification of Diseases, version 10 (ICD-10), with code sets for specific conditions consistent with Queensland Health guidelines and aligned with national reporting.¹⁹¹ International comparisons may be limited by inconsistencies in coding in different countries.

Hospital separation data were derived from the Queensland Hospital Admitted Patient Data Collection, including private and public hospitals. All disease-specific hospital separations were derived using the principal diagnosis of inpatient episodes of care. The external cause(s) of injury and poisoning are reported. All separations were coded using the International Classification of Diseases version 10 Clinical Modification (ICD-10-CM) using standard code sets.¹⁹¹

Rates for all diseases and conditions are reported as age standardised rates. Adjustment of rates for age allows comparisons between populations that have different age structures, for example between youthful and older communities. The direct standardization method was used in this report, where age specific rates are multiplied against a standard reference population. The 2001 Australian population (persons) was used as the standard population. For all OECD comparisons however, the OECD population of 1980 was used as the reference population. The 95 per cent confidence intervals for rates were estimated by assuming Normal approximations to the Poisson distribution.

The projected admission rates are based on linear regression of the most recent seven years of state-wide admission.²¹ For each Enhanced Service Related Groups (ESRG)/Age Group/Stay Type combination, the

projected population of a residence is multiplied by the projected state admission rate to yield an expected number of admissions.⁹⁴ The projected overnight Average Length of Stay (ALOS) was based on the same data with linear regression being used if the trend was upwards, and exponential decline (with a lower limit of 1 day) if the trend was downwards.

Survey data are reported as percentage and 95 percent confidence intervals. Unless otherwise noted, all survey data refer to self report. All sources are cited and information about specific surveys including sample size can be obtained from the custodian.

Socioeconomic disadvantage/advantage was determined using the ABS Index of Relative Socioeconomic Advantage/Disadvantage⁶¹ This Index is one of a suite described as Socio-Economic Indexes for Areas (SEIFA). The Index of Relative Advantage/Disadvantage has been designed to rank areas based on their relative social and economic well-being, using census measures including proportion low income/high income, educational attainment, employment status and occupation.⁶⁰ Most commonly, SEIFA indices are used to group areas into quintiles or deciles based on index scores. Comparisons can then be made between respondents living in areas based on SEIFA quintiles (or deciles) across a range of health-related characteristics. Excess deaths due to socioeconomic disadvantage or remoteness were calculated using the methodology fully described by Australian Institute of Health and Welfare.¹⁹²

Accessibility/remoteness was determined using the Accessibility/Remoteness Index of Australia (ARIA). ARIA is a geographic variable which measures the remoteness of a point based on the physical road distance to the nearest urban centre. The six category Remoteness Areas (RA) index was used; Major cities, Inner regional, Outer regional, Remote, Very remote and Migratory.⁵⁷

Abbreviations

| | |
|------|---|
| BMI | Body mass index |
| CI | Confidence interval |
| COPD | Chronic obstructive pulmonary disease |
| DALY | Disability adjusted life year |
| YLL | Years of life lost (due to mortality) |
| YLD | Years lost due to disability |
| OECD | Organisation for Economic Cooperation and Development |

References

1. Department of Health and Ageing. *Australia's physical activity recommendations for 5-12 year olds*. Canberra: Department of Health and Ageing; 2004.
2. National Health and Medical Research Council. *Australian alcohol guidelines: health risks and benefits*. Canberra: National Health and Medical Research Council; 2001.
3. Queensland Health. *Water fluoridation-questions and answers*. Brisbane: Queensland Health; 2005.
4. World Health Organisation. Cancer prevention. <http://www.who.int/cancer/prevention/en/>. Accessed 29/06/2006.
5. Queensland Health. *A strategic policy framework for children's and young people's health 2002-2007*. Brisbane: Queensland Health; 2002.
6. World Health Organization, Wilkinson R, Marmot M. *Social determinants of health: the solid facts*. 2003.
7. Diabetes Australia - Queensland. Diabetes- the facts and figures. <http://www.daq.org.au>. Accessed 20/06/2006.
8. Leeder S, Raymond S, Greenberg H, Liu H, Esson K. *A race against time*: Columbia University; 2004.
9. Pruss-Ustun A, Corvalan C. *Preventing disease through healthy environments. Towards an estimate of the environmental burden of disease*: World Health Organisation; 2006.
10. National Public Health Partnership. *Be Active Australia: a framework for health sector action for physical activity*. Melbourne: National Public Health Partnership; 2005.
11. Booth M, Okely AD, Denney-Wilson E, Hardy L, Yang B, Dobbins T. *NSW schools physical activity and nutrition survey (SPANS) 2004: summary report*. Sydney: NSW Department of Health; 2006.
12. Australian Bureau of Statistics. *Deaths, Australia 2004*. Canberra: Australian Bureau of Statistics; 2004. Cat. no. 3202.0.
13. Marks G, Coyne T, Pang G. *Type 2 diabetes costs in Australia-the potential impact of changes in diet, physical activity and levels of obesity*. Canberra: Commonwealth Department of Health and Ageing; 2002.
14. Australian Institute of Health and Welfare. *2004 National Drug Strategy Household Survey: State and territory supplement*. Canberra: Australian Institute of Health and Welfare; 2005. AIHW Cat. no. PHE 61.
15. National Public Health Partnership (NPHP). *The national falls prevention for older people plan: 2004 onwards*. Canberra: National Public Health Partnership; 2004.
16. Rayner M, Scarborough P. The burden of food related ill health in the UK. *Journal of Epidemiology and Community Health*. 2005;59:1054-1057.
17. Johnston T, Muller S, Harper C, Bright M, McClintock C. *Socioeconomic-based mortality differentials in Queensland, 1991-1993 and 2001-2003*. Brisbane: Health Information Branch, Queensland Health; 2006. Information Circular 73.
18. Queensland Injury Surveillance Unit. Injuries in the home-children. *Injury Bulletin*. 2001;No 66(June).
19. Catford JC, Caterson I D. Snowballing obesity: Australians will get run over if they sit there. *Medical Journal of Australia*. 1/15 December 2003;179:577-579.
20. Kawachi I, Colditz GA, Stampfer MJ. Smoking cessation and decreased risk of stroke in women. *Journal of American Medical Association*. 1993;269(2):232.
21. Queensland Health. Queensland hospital admitted patient data collection.
22. Queensland Health. Youth site. Queensland Health website for young people. Available at: <http://www.istaysafe.com/istaysafe/default.asp>.
23. Smith A, Agius P, Dyson S, Mitchell A, Pitts M. *Secondary students and sexual health 2002*. Melbourne: Australian Research Centre in Sex Health and Society, La Trobe University; 2003.
24. National Health and Medical Research Council. *Dietary guidelines for children and adolescents in Australia incorporating the infant feeding guidelines for health workers*. Canberra: AGPS; 2003.
25. National Health and Medical Research Centre. *Dietary guidelines for Australians*. Canberra 2002.
26. Department of Health and Ageing. *Australia's physical activity recommendations for 12-18 year olds*. Canberra: Department of Health and Ageing; 2004.
27. National Heart Foundation. Australia's major health problem. <http://www.heartfoundation.com.au>. Accessed 20/06/2006.
28. Negri E, La Vecchia C, D'Avanzo B. Acute myocardial infarctions: association with time since stopping smoking in Italy. *Journal of Epidemiology and Community Health*. 1994;48:129-133.
29. Ministerial Council on Drug Strategy. *The national drug strategy-Australia's integrated framework 2004-2009*. Canberra: Australian Government; 2004.
30. Department of Health and Ageing. *National physical activity guidelines for adults*. Canberra: Department of Health and Ageing; 1999 (reprinted 2005).
31. The Cancer Council of Australia. Cancer prevention and early detection. <http://www.cancer.org.au/content.cfm?randid=983108>.
32. Australian Research Centre in Sex Health and Society, La Trobe University, Melbourne. Sex in Queensland 2003. A companion report. *The Australian and New Zealand Journal of Public Health*. 2003;27(2):3-37.
33. Queensland Health; Harper C, Cardona M, Bright M, Neill A, McClintock C, McCulloch I, Hunter I, Bell M. *Health Determinants Queensland 2004*. Brisbane: Public Health Services, Queensland Health; 2004.
34. Queensland Health. *The state of health of the Queensland population 2004*. Brisbane: Queensland Health; 2004.
35. Queensland Health. *Health indicators for Queensland: Southern Zone 2001*. Brisbane: Public Health Services, Queensland Health; 2001.

36. Queensland Health. *Health indicators for Queensland: Central Zone 2001*. Brisbane: Public Health Services, Queensland Health; 2001.
37. Queensland Health. *Health indicators for Queensland: Northern Zone 2001*. Brisbane: Public Health Services, Queensland Health; 2001.
38. Rose G. *The strategy of preventive medicine*. Oxford: Oxford University Press; 1992.
39. World Health Organisation. *The Ottawa Charter for Health Promotion. First International Conference on Health Promotion, Ottawa, 21 November 1986*: World Health Organisation; 1986.
40. World Health Organization. *Constitution of the WHO*. Basic Documents, 37th ed. Geneva; 1946.
41. Australian Institute of Health and Welfare. *Australia's Health 2000: The seventh biennial health report of the Australian Institute of Health and Welfare*. Canberra: Australian Institute of Health and Welfare; 2000.
42. Wilkinson R, Marmot M, eds. *Social determinants of health: the solid facts*. Second ed. Copenhagen: World Health Organisation; 1998.
43. Turrell G, Oldenburg B, McGuffog I, Dent R. *Socioeconomic determinants of health: towards a national research program and a policy and intervention agenda*. Canberra: Queensland University of Technology; April 1999.
44. University of Adelaide, Public Health Information Development Unit. *A social health atlas of Australia*. Second ed: Openbook Publishers; 1999.
45. World Health Organization. *The World Health Report 2002: Reducing risks, promoting healthy life*. France 2002.
46. Osmond C, Barker D J. Fetal, infant and childhood growth are predictors of coronary heart disease, diabetes, and hypertension in adult men and women. *Environmental Health Perspectives*. June 2000;108(Supplement 3):545-553.
47. World health Organisation. *Investing in health research and development. Report of the ad hoc committee on health research relating to future intervention options*. Geneva: World health Organisation; 1996.
48. Australian Bureau of Statistics. *Australian demographic statistics*: Australian Bureau of Statistics; 2005. Cat. no. 3101.0.
49. Australian Bureau of Statistics. *Experimental estimates and projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2009*. Canberra: Australian Bureau of Statistics; 2004. Cat. no. 3238.0.
50. Australian Bureau of Statistics. *Census of population and housing; Usual residents profile*. Canberra: Australian Bureau of Statistics; 2001.
51. Australian Bureau of Statistics. *Population by age and sex, Australian states and territories*: Australian Bureau of Statistics; June 2005. Cat. no. 3201.0.
52. Australian Bureau of Statistics. *Census of population and housing*. Canberra: Australian Bureau of Statistics; 2001. Cat. no. 2015.0.
53. Office of Economic and Statistical Research. *Population projections to 2051: Queensland and statistical divisions*. Brisbane: Queensland Government; 2006.
54. Australian Bureau of Statistics. *Queensland key statistics*: Australian Bureau of Statistics; March 2006. Cat. no. 1388.3.
55. Australian Bureau of Statistics. *Australian historical population statistics*: Australian Bureau of Statistics; October 2004. Cat. no. 3105.0.65.001
56. Australian Bureau of Statistics. *Australian Demographic Statistics*: Australian Bureau of Statistics; 1986, 1991-2001. Cat. no. 3101.0.
57. Australian Bureau of Statistics. *Australian Standard Geographical Classification (ASGC)*. Canberra: Australian Bureau of Statistics; 2002. Cat. no. 1216.0.
58. Australian Bureau of Statistics. *Regional population growth, Australia*: Australian Bureau of Statistics; 2004-05. Cat. no. 3218.0.
59. Mackenbach J, Bos V, Andersen O, Cardano M, Costa G, Harding S, Reid A, Hemström Ö, Valkonen T, Kunst AE Widening socioeconomic inequalities in mortality in six Western European countries. *International Journal in Epidemiology*. 2003;32:830-837.
60. Australian Bureau of Statistics. *Information Paper. Socioeconomic Indexes for Areas*. Canberra: Australian Bureau of Statistics; 2001. Cat. no. 2039.0.
61. Australian Bureau of Statistics. *Socioeconomic Indexes for Areas*. Canberra: Australian Bureau of Statistics; 2001. Cat. no. 2039.0.
62. Kennedy B, Firman D. Indigenous SEIFA-revealing the ecological fallacy. Paper presented at: Australian Population Association conference, 2004; Canberra.
63. Kennedy B, Department of Aboriginal and Torres Strait Islander Policy. Personal communication: Overarching indicators of Indigenous disadvantage; 2006.
64. Australian Bureau of Statistics. *Population characteristics, Aboriginal and Torres Strait Islander Australians* Canberra: Australian Bureau of Statistics; 2003. Cat. no. 4713.0
65. Steering Committee for the Review of Government Service Provision (SCRGSP). *Overcoming Indigenous disadvantage: Key indicators 2005*. Canberra: Productivity Commission; 2005.
66. World Health Organization. *Constitution of the WHO*. 1946. Basic Documents, 37th ed. Geneva.
67. Dahlgren G, Whitehead M. *Policies and strategies to promote social equity in health*. Stockholm: Institute for the Futures Studies; 1991.
68. Idler E, Benyamini Y. Self rated health and mortality: a review of twenty-seven community studies. *Journal of Health and Social Behaviour*. 1997;38:21-37.

69. McCallum J, Shadbolt B, Wang D. Self-rated health and survival: a 7-year follow-up study of Australian elderly. *American Journal of Public Health*. 1994;84:1100-1105.
70. Australian Bureau of Statistics. *National Health Survey: Summary of results*, Queensland. Canberra: Australian Bureau of Statistics; 2004/05. Cat. no 4362.0.
71. Australian Bureau of Statistics. *National Health Survey: Summary tables, Australia*. Canberra: Australian Bureau of Statistics; 2004/05. Cat. no. 4362.0.
72. Queensland Health. *Omnibus survey*. Brisbane: Epidemiology Services Unit, Health Information Centre, Queensland Health; 2006.
73. Mathers C, Murray C J L, Salomon JL, Sadana R, Tandon A, Lopez AL, Ustun B, Chatterji S. Healthy life expectancy; comparison of OECD countries in 2001. *Australian and New Zealand J. Public Health*. 2003;27(1):5-11.
74. Begg S, Vos T, Goss J, Barker B, Stevenson C, Stanley L, Lopez A. *The burden of disease and injury in Australia, 2003*. Brisbane: The School of Population Health, University of Queensland and the Australian Institute of Health and Welfare; 2006.
75. Pike A, Baade P, Harper C, Muller S, Kennedy B. *Quantifying the burden of disease and injury in Queensland 1996-1998*: Health Information Branch, Queensland Health; 2002.
76. Department of Human Services-Victoria. *Victorian burden of disease study: mortality and morbidity in 2001*. Melbourne: Health Surveillance and Evaluation Section, Public Health, Department of Human Services-Victoria; 2005.
77. Australian Bureau of Statistics. *Australian social trends* Canberra: Australian Bureau of Statistics; 2006. Cat. no. 4102.0.
78. OECD (Organisation for Economic Cooperation and Development). *OECD Health data 2005: Statistics and indicators for 30 countries*.: OECD; 2005.
79. Australian Bureau of Statistics. *Deaths, Australia 2002*. Canberra: Australian Bureau of Statistics, Commonwealth of Australia; 2002. Cat no 3302.0.
80. Australian Bureau of Statistics. *Australian Social Trends. Companion data*. Canberra: Australian Bureau of Statistics; 2002. Cat. no. 4102.0.
81. Queensland Health. *Status report on the health of Queensland's Aboriginal and Torres Strait Islanders*. Brisbane: Health Information Centre, Queensland Health; 1996.
82. Cooke M, Beavon D, Guimond E. Measuring aboriginal well-being in four countries: an application of the United Nation's Development Programme's human development index to aboriginal people in Canada, the United States, New Zealand, and Australia. Paper presented at: World Conference of Health Promotion and Health Education, 2004; Melbourne.
83. Queensland Health. *Perinatal statistics*. Brisbane: Health Information Centre, Reform and Development Division, Queensland Health; 2004.
84. Australian Institute of Health and Welfare. *Australia's Health 1998: The sixth biennial health report from the Australian Institute of Health and Welfare*. Canberra: Australian Institute of Health and Welfare; 1998.
85. State Government of Victoria, Department of Human Services, Office for Children. Low birth weight babies. <http://www.office-for-children.vic.gov.au>. Accessed 29/06/2006.
86. Australian Bureau of Statistics. *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples 2003*. Canberra: Australian Bureau of Statistics; 2003. Cat no. 4704.0.
87. Australian Bureau of Statistics. *Australian Social Trends*. Canberra: Australian Bureau of Statistics; 2005. Cat. no. 4102.0.
88. Slaytor E, Sullivan EA, King JF. *Maternal deaths in Australia 1997-1999*. Canberra: Australian Institute of Health and Welfare; 2004. AIHW Cat. no. PER 24.
89. Australian Bureau of Statistics. *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples, 2005*. Canberra: Australian Bureau of Statistics; 2005. Cat. no. 4704.0.
90. Draper G, Turrell G, Oldenburg B. *Health inequalities in Australia: Mortality*. Canberra: Queensland Institute of Technology and Australian Institute of Health and Welfare; 2004. AIHW Cat no. PHE 55.
91. Australian Bureau of Statistics. *Causes of death, Australia*. Canberra: Australian Bureau of Statistics. Cat. no. 3303.0.
92. Public Health Information Development Unit (PHIDU). *Atlas of avoidable mortality in Australia and New Zealand*. Adelaide: The University of Adelaide; 2006.
93. Nolte E, McKee M. Measuring the health of nations: analysis of mortality amenable to health care. *British Medical Journal*. 2003;327:1129-1136.
94. Harges and Associates. *Acute inpatient model*.
95. Australian Institute of Health and Welfare. *Australian hospital statistics 2004-05*. Canberra: Australian Institute of Health and Welfare; 2004-05. AIHW Cat. no. HSE 41.
96. University of California at San Francisco (UCSF) and Stanford University, Evidence-based Practice Centre. *Refinement of the HCUP quality indicators (technical review 4)*. Rockville, MD: Agency for Healthcare Research and Quality, US Department of Health and Human Services; 2001. AHRQ Publication no. 01-0035.
97. Davilia DG, Williams D E. The etiology of lung cancer. *Mayo Clinic Proceedings*. 1993;68:170-182.
98. US Department of Health and Human Services. *The health benefits of smoking cessation: A report of the Surgeon General*. Rockville Maryland CDC Centres for Disease Control; 1990.
99. Australian Institute of Health and Welfare. *Statistics on drug use in Australia 2004*. Canberra: Australian Institute of Health and Welfare; 2005. AIHW Cat. No. PHE 62.
100. Hill J, Peters J. Environmental contributions to the obesity epidemic. *Science*. 1998;280(5368):1371-1374.

101. National Health and Medical Research Council. *Clinical practice guidelines for weight control and obesity management in adults*. Canberra: National Health and Medical Research Council; 2003.
102. The Center for Weight and Health. *Prevention of childhood overweight - what should be done?: University of California*; 2001.
103. Reilly J, Methven E, McDowell Z, Hacking D, Alexander D, Stewart L, Kelnar C J H. Health consequences of obesity. *Archives of disease in childhood*. 2003;88:748-752.
104. Booth M, Okely AD, Denney-Wilson E, Hardy L, Yang B, Dobbins T. *NSW Schools physical activity and nutrition survey (SPANS) 2004: Full report*. Sydney: NSW Department of Health; 2006.
105. Hands B, Parker H, Glasson C, Brinkman S, Read H. *Physical activity and nutrition levels in Western Australian children and adolescents*. Perth: Western Australian Government; 2004.
106. Lobstein T, Baur L, Uauy R, (IASO International obesity taskforce). Obesity in children and young people: a crisis in public health. *Obesity Reviews*. 2004;5(Supplement 1):4-104.
107. World Health Organization. *Obesity: Preventing and managing the global epidemic*. Report of a WHO Consultation on Obesity. Geneva 1997.
108. Law MR, Wald N J. Risk factor thresholds: their existence under scrutiny. *British Medical Journal*. 2002;324:1570-1576.
109. Goodman E, Whitaker R. A prospective study of the role of depression in the development and persistence of adolescent obesity. *Pediatrics*. 2002;110(September):497-504.
110. Dunstan D, Cameron, A, deCourten M, Coyne T. *The Australian Diabetes Obesity and Lifestyle study (AusDiab) data report: Queensland*. Brisbane: Queensland Health; 2004.
111. Dixon T, Waters AM. *A growing problem: trends and patterns in overweight and obesity among adults in Australia, 1980 to 2001*. Canberra: Australian Institute of Health and Welfare; 2003. AIHW Cat. no. AUS 36 Bulletin No. 8.
112. Taylor A, Dal Grande E, Gill TK, Chittleborough CR, Wilson DH, Adams RJ, Grant JF, Phillips P, Appleton S, Ruffin RE. How valid are self-reported health and weight? A comparison between CATI self report and clinic measurements using a large cohort study. *Australian and New Zealand Journal of Public Health*. 2006;30(3):238-246.
113. Australian Bureau of Statistics. *National Health Survey: summary of results*. Canberra: Australian Bureau of Statistics; 2004/05. Cat. no. 4364.0.
114. Baghurst P, Beaumont-Smith N, Baghurst K, Cox D. *The relationship between the consumption of fruits and vegetables and health status*. Report to Department of Health and Aged Care and the Strategic Intergovernmental Nutrition Alliance 1999.
115. Joshipura KJ, Hu F B, Manson J E, Stamfer M J, Rimm E B, Speizer F E, Colditz G A, Ascherio A, Rosner B, Spiegelman D, Willett W C. The effect of fruit and vegetable intake on risk for coronary heart disease. *Annals of Internal Medicine*. 2001;134(12):1106-1114.
116. Mathers C, Vos T, Stevenson C. *The burden of disease and injury in Australia*. Canberra: Australian Institute of Health and Welfare; 1999. Cat. no. PHE17.
117. Ibiebele T, Coyne T, McClintock C. *Trends in fruit and vegetable consumption among Queensland adults: 1995-2004*. Brisbane: Epidemiology Services Unit, Health Information Branch, Queensland Health; 2006. Information Circular 74.
118. United States Department of Health and Human Services. *The Surgeon general's report on physical activity and health*. Washington, DC: US Government Printing Office; 1996.
119. Armstrong T, Dixon T. *The global burden of physical inactivity (In prep)*. Brisbane 2002.
120. Brown D, Blanton C. Physical activity, sport participation, and suicidal behaviour among college students. *Medicine and Science in Sports and Exercise*. 2001:1087-1096.
121. Stephenson J, Bauman A, Armstrong T, Smith B, Bellew B. *The costs of illness attributable to physical inactivity in Australia: A preliminary study*. Canberra: Commonwealth of Australia; 2000.
122. Australian Institute of Health and Welfare. *Australia's health 2006. The tenth biennial health report of the Australian Institute of Health and Welfare*. Canberra: Australian Institute of Health and Welfare. AIHW Cat. no. AUS 73.
123. Rutledge T, Hogan E. A quantitative review of prospective evidence linking psychosocial factors with hypertension development. *Psychosomatic Medicine*. 2002;64:758-766.
124. Elmer P, Obarzanek E, Vollmer WM, Simons-Morton D, Stevens VJ, Young DR, Lin PH, Champagne C, Svetkey LP, Ard J, Brantley PJ, Proschan MA, Erlinger TP, Appel LJ. Effects of comprehensive lifestyle modification on diet, weight, physical fitness, and blood pressure control: 18-month results of a randomised trial. *Annals Internal Medicine*. 2006;144(7):485-495.
125. Heart Foundation. *Hypertension management guide for doctors 2004*: Heart Foundation; 2004.
126. Heart Foundation. *Information. Blood pressure facts*: Heart Foundation; 2003.
127. Queensland Health. *1998 Statewide Health Survey*. Brisbane: Health Information Centre, Queensland Health; 1998.
128. Queensland Health. *Optimal infant nutrition: evidence-based guidelines 2003-2008*. Brisbane: Queensland Health; 2003.
129. National Health and Medical Research Centre. *Infant feeding guidelines*. Canberra 2002.
130. Ros Gabriel, Gayle Pollard, Ghazala Suleman, Terry Coyne, Helen Vidgen. *Infant and child nutrition in Queensland 2003: summary report*. Brisbane: Queensland Health; 2005.

131. Queensland Health. *Infant and child nutrition survey*. Brisbane: Health Information Centre, Queensland Health; 2003.
132. Australian Institute of Health and Welfare. *Australia's welfare 2003*. Canberra: Australian Institute of Health and Welfare; 2003. AIHW Cat. no. AUS 41.
133. Spencer AJ, Lewis J M. The delivery of dental services information, issues and directions. *Community Health Studies*. 1988;XII:16-30.
134. Queensland Health. *Water fluoridation helps protect teeth throughout life*. Brisbane: Queensland Health; 2005.
135. Burt B, Eklund S. Community-based strategies for preventing dental caries. In: Pine C, ed. *Community Oral Health*. Oxford: Wright; 1997.
136. US Department of Health and Human Services. *Oral health in America: A report of the Surgeon General*. Rockville: National Institute of Dental and Craniofacial Research, National Institute of Health; 2000.
137. Armfield JM, Roberts-Thomson KF, Spencer AJ. *The child dental health survey, Australia 1997*. Adelaide: University of Adelaide; 2000.
138. AIHW DSRU:, Armfield JM, Slade GD, Spencer AJ. 2006. Canberra: Australian Institute of Health and Welfare; Socioeconomic differences in children's dental health: The Child Dental Health Survey, Australia 2001. AIHW cat. no. DEN 152.
139. AIHW DSRU: AJ, Roberts-Thomson K, Slade GD, Spencer AJ. *The child dental health survey, Queensland 2001*. Adelaide: Australian Research Centre for Population Oral Health (ARCPHO); 2001. AIHW Cat. no. DEN 137.
140. Australian Institute of Health and Welfare. *Cancer in Australia 2001*. Canberra: Australian Institute of Health and Welfare and Australasian Association of Cancer Registries; 2004. AIHW Cat. no. CAN 23.
141. Queensland Health. *2005 Sun safe survey report*. Brisbane: Health Promotion Unit, Population Health Branch, Division of Chief Health Officer, Queensland Health; 2005.
142. World Health Organisation. World Health Organisation global solar UV index. <http://www.who.int/mediacentre/factsheets/fs271/en/>. Accessed 13/06/2006.
143. Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). UV-Index <http://www.arpansa.gov.au/uvindex/daily/ausuvindex.htm>. Accessed 13/06/2006.
144. Australian Government Department of Health and Ageing. *BreastScreen Australia*. Canberra: Department of Health and Ageing, Population Health Division. <http://www.breastscreen.info.au/>.
145. Australian Government Department of Health and Ageing. *National Cervical Screening Program*. Canberra: Department of Health and Ageing, Population Health Division <http://www.cervicalscreen.health.gov.au/ncsp/index.html>.
146. International Agency for Research on Cancer. Mammography screening can reduce deaths from breast cancer. www.iarc.fr. 2002.
147. Queensland Health. BreastScreen Queensland. Brisbane: Cancer Screening Services Unit, Population Health Branch, Queensland Health. <http://qheps.health.qld.gov.au/phs/wcss/home.htm>.
148. Hakama M, Miller AB, Day NE. *Screening for cancer of the uterine cervix*. Lyon, France: International Agency for Research on Cancer; 1986.
149. Queensland Health. Pap Smear Register.
150. Queensland Health. *Cervical screening participation project: Prompting action. Key findings and technical report. Baseline survey 2005*. Brisbane: Cancer Screening Services Unit and Planning and Development Unit, Population Health Branch, Queensland Health; 2006.
151. Maciosek M, Coffield AB, Edwards NM, Flottemesch TJ, Goodman MJ, Solberg LI. Priorities among effective clinical preventive services. Results of a systematic review and analysis. *American Journal of Preventive Medicine*. 2006;pre-publication.
152. Health Insurance Commission (HIC). The Australian Childhood Immunisation Register (ACIR). www.hic.gov.au.
153. Queensland Health. Communicable Diseases Unit.
154. Queensland Health, Communicable Diseases Unit. Vaccination Information Vaccine Administration System (VIVAS).
155. Australian Government Department of Health and Ageing. National Notifiable Diseases Surveillance System: Communicable diseases Australia.
156. Australian Institute of Health and Welfare. *Health system expenditure of diseases and injuries in Australia 2000-01 (2nd Ed)*. Canberra: Australian Institute of Health and Welfare; 2005. AIHW Cat. no. HWE-28.
157. Australian Institute of Health and Welfare. *Chronic diseases and associated risk factors in Australia, 2001*. Canberra: Australian Institute of Health and Welfare; 2002. AIHW cat. no. PHE 33.
158. Australian Institute of Health and Welfare. *Australia's Health 2004*. Canberra: Australian Institute of Health and Welfare; 2004. AIHW Cat. No. AUS 44.
159. Dinh M, Khor S, Coory M. *Mortality and incidence trends for leading cancers in Queensland, 1982 – 2003*: Health Information Branch, Queensland Health; 2005. Information Circular No 71.
160. Queensland Cancer Registry. *Cancer in Queensland: Incidence and mortality, 1981-2001*. Brisbane October 2003.
161. Muller S, Johnston T, McClintock C, Ring I. *Benchmarking Queensland mortality rates against Australia and Organisation for Economic Cooperation and Development (OECD) countries*. Brisbane: Health Information Centre, Queensland Health; 2005. Information Centre 69.
162. Youlden D, Baade P, Coory M. *Cancer survival in Queensland, 2002*. Brisbane: Queensland Health and Queensland Cancer Fund; 2005.

163. Stroke Unit Trialists' Collaboration. Organised in patient (stroke unit) care for stroke. *The Cochrane database of systematic reviews*. 2001(3).
164. Outpatient Service Trialists. Therapy-based rehabilitation services for stroke patients at home. *The Cochrane database of systematic reviews*. 2003(1).
165. Queensland Health. *Omnibus Survey*. Brisbane: Epidemiology Services Unit, Health Information Centre, Queensland Health; 2004.
166. Australian Bureau of Statistics. *National Aboriginal and Torres Strait Islander health survey. 2004-05*. Canberra: Australian Bureau of Statistics; 2006. Cat. no. 4715.0.
167. Commonwealth Department of Health and Aged Care. *Promotion, prevention and early intervention for mental health-a monograph*. Canberra: Mental Health Special Programs Branch, Commonwealth Department of Health and aged Care; 2000.
168. Tolkien 11 Team, World Health Organisation Collaborating Centre for Classification in Health *Tolkien 11: A needs-based, costed stepped-care model for Mental Health Services*. Sydney: Comparative Edge Graphics Pty. Ltd.; 2006.
169. Andrews G. *The Tolkien report*. Sydney: World Health Organisation Collaborating Center; 1991.
170. Queensland Health. *State mental health plan 2006-2011*. Brisbane: Mental Health Branch, Division of Chief Health Officer, Queensland Health; 2006.
171. Australian Bureau of Statistics. *Information Paper - Use of the Kessler Psychological Distress Scale in Australian Bureau of Statistics health surveys*. Canberra: Australian Bureau of Statistics; 2003. Cat. no. 4817.0.55.001.
172. Kessler R, Koretz D, Merikangas KR, Wang PS. The epidemiology of adult mental disorders. In: Levin B, Petrila J, Hennessy KD, ed. *Mental health services. A public health perspective*. 2nd ed. New York Oxford University Press; 2004 reprint.
173. Commonwealth Department of Health and Aged Care. *A framework for prevention of suicide and self-harm in Australia 2000*.
174. Beautrais A. Risk factors for suicide and attempted suicide amongst young people. *Australia and New Zealand Journal of Psychiatry*. 2000;34(3):420-436.
175. Australian Centre for Asthma Monitoring, Woolcock Institute of Medical Research. *Asthma in Australia 2005*: Australian Institute of Health and Welfare; 2005. AIHW Cat. no. ACM6.
176. Masoli M, Fabian D, Holt S, Beasley R, Developed for Global Initiative for Asthma (GINA). Global burden of asthma; 2004.
177. Al-Yaman F, Bryant M, Sargeant H. *Australia's children: their health and well-being 2002*. Canberra: Australian Institute of Health and Welfare; 2002.
178. Sandberg S, Paton J, Ahola S, McCann DC, McGuinness D, Hilary CR, Oja H. The role of acute and chronic stress in asthma attacks in children. *The Lancet*. 2000;356(9234):982-987.
179. National Public Health Partnership (NPHP). *The national injury prevention and safety promotion plan: 2004-2014*. Canberra: National Public Health Partnership; 2004.
180. Australian Institute of Health and Welfare. *Mortality over the twentieth century in Australia. Trends and patterns in major causes of death*. Canberra: Australian Institute of Health and Welfare; 2006. AIHW Cat. no. PHE 73.
181. Queensland Health. *Falls prevention in older people 2002 - 2006*. Brisbane 2002.
182. Queensland Health. *Injury prevention and control. Background Paper. Health Outcomes Plan June 2000*.
183. Sanders K, Nicholson GC, Ugoni AM, Pasco JA, Seeman E, Kotowicz MA. Health burden of hip and other fractures in Australia beyond 2000; Projections based on the Geelong Osteoporosis Study. *Medical Journal of Australia*. 1999;177:467-470.
184. Australian Institute of Health and Welfare. *National Health Priority Area. Arthritis and musculoskeletal conditions*. Canberra: Australian Institute of Health and Welfare; 2002. <http://www.aihw.gov.au/nhpa/arthritis/index.cfm>.
185. University of Sydney and Australian Institute of Health and Welfare. *General practice activity in Australia 2004-05 2005*. AIHW Cat. no. GEP 18.
186. Davis C. *Influenza sentinel surveillance in Queensland General Practice, 2005*: Communicable Diseases Unit, Queensland Health; 2006.
187. Neuzil K, Zhu Y, Griffin MR, Edwards KM, Thompson JM, Tollefson SJ, Wright PF. Burden of interpandemic influenza in children younger than 5 years; A 25-year prospective study. *The Journal of Infectious Diseases*. 2002;185:147-152.
188. National Centre in HIV Epidemiology and Clinical Research. *Annual surveillance report. HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia 2005*.
189. Queensland Health, Communicable Diseases Unit. *Notifiable Diseases Report 1997-2001*. Brisbane: Queensland Health.
190. American Public Health Association, David L Heymann. *Control of communicable diseases manual. 18th Edition*. Washington DC: American Public Health Association; 2004.
191. Queensland Health. *ICD coding standards: reference codesets for major health indicators*. 2005. Brisbane: Health Information Branch and Public Health Services Branch, Queensland Health; 2005.
192. Australian Institute of Health and Welfare: Moon I, Waters A-M. *Socioeconomic inequalities in cardiovascular disease in Australia: current picture and trends since the 1990s. Bulletin no. 37*. Canberra: Australian Institute of Health and Welfare; 2006. AIHW cat. no. AUS 74.
193. Begg S, Vos T, Goss J, Barker B, Stevenson C, Stanley L, Lopez A. The burden of disease and injury in Australia 2003. Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland, 2006.
194. Australian Bureau of Statistics. *National Aboriginal and Torres Strait Islander Health Survey 2004-05*. Canberra: Australian Bureau of Statistics; 2006. Cat. no. 4715.0.

